

Sibley Volcanic Regional Preserve

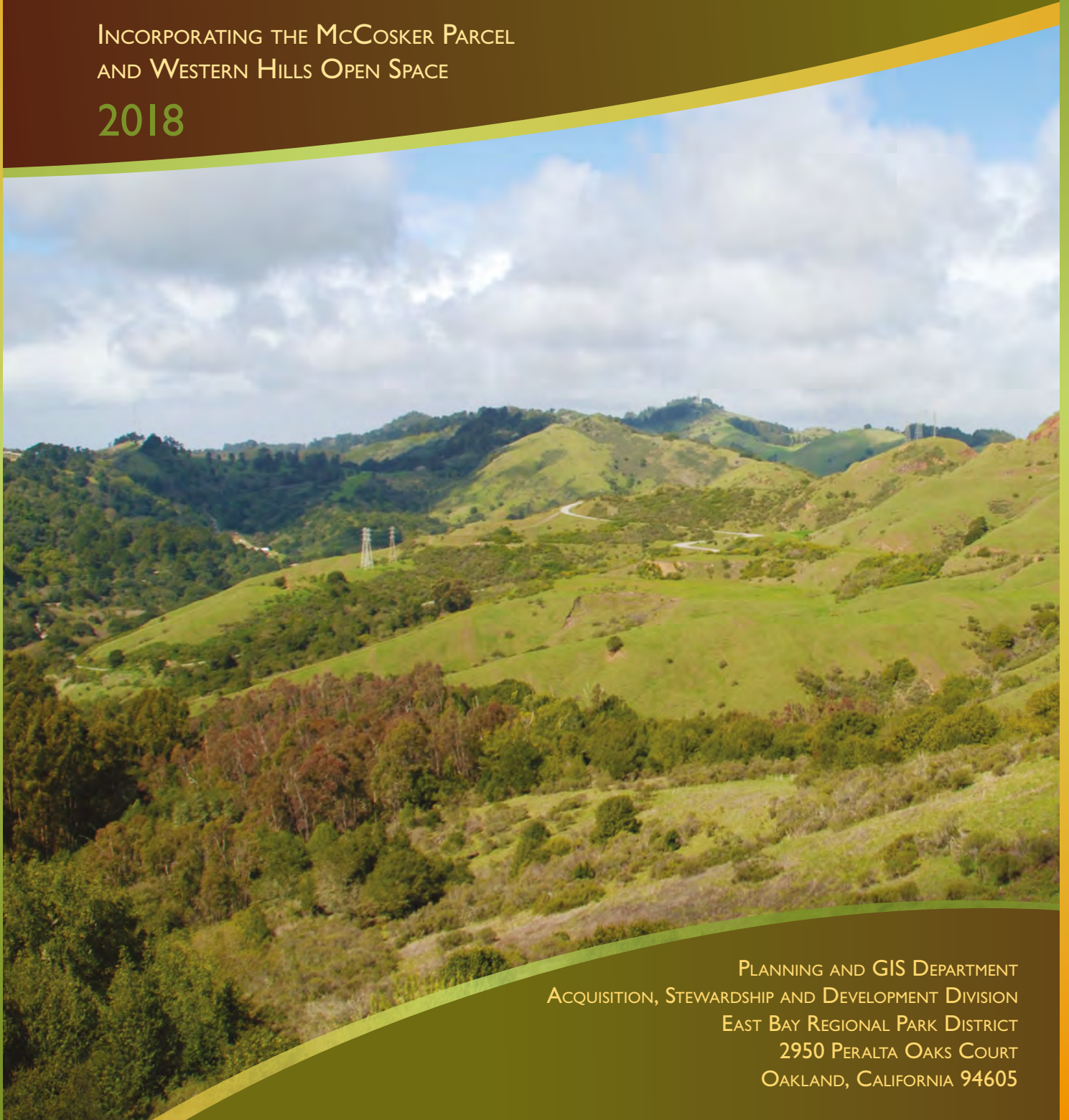


Healthy Parks Healthy People

LAND USE PLAN AMENDMENT
ENVIRONMENTAL IMPACT REPORT SCH# 2017062055
TECHNICAL APPENDICES

INCORPORATING THE McCOSKER PARCEL
AND WESTERN HILLS OPEN SPACE

2018



PLANNING AND GIS DEPARTMENT
ACQUISITION, STEWARDSHIP AND DEVELOPMENT DIVISION
EAST BAY REGIONAL PARK DISTRICT
2950 PERALTA OAKS COURT
OAKLAND, CALIFORNIA 94605

**ROBERT SIBLEY VOLCANIC REGIONAL PRESERVE
LAND USE PLAN AMENDMENT
Incorporating the McCosker Parcel and Western Hills Open Space
Environmental Impact Report
SCH# 2017062055
Technical Appendices**



November 2018

**ROBERT SIBLEY VOLCANIC REGIONAL PRESERVE
LAND USE PLAN AMENDMENT
Incorporating the McCosker Parcel and Western Hills Open Space**

EIR Volume II Technical Appendices

Appendices

Appendix A - Notice of Preparation

Appendix B - Trail Construction and Trail Modification Best Management Practices

Appendix C - Plant and Wildlife Species List for the Project Area

Appendix D - Project Correspondence with Native American Representatives

Appendix E - Geotechnical Investigation Report

Appendix F - Air Quality Construction Analysis

Appendix G - Noise Assessment Supporting Data

Appendix H - Transportation and Traffic Data

APPENDIX A

Notice of Preparation

Summary of Comments Received on the June 2017 Notice of Preparation (NOP) SCH#22017062055

On January 18, 2017, the CEQA public scoping meeting for the Project was held at the Richard C. Trudeau Conference Center, 11500 Skyline Blvd, Oakland. On June 19, 2017, a NOP of a draft EIR for the Project was submitted to the State Clearinghouse. The State Clearinghouse distributed the NOP to Responsible Agencies, agencies involved in funding or approving the project and Trustee Agencies responsible for natural resources affected by the Project, including: California Department of Forestry and Fire Protection (CAL FIRE); California Department of Parks and Recreation; California Department of Water Resources; California Department of Fish and Wildlife; Native American Heritage Commission; State Lands Commission; California Highway Patrol; Caltrans District 4; CalEPA - Air Resources Board, State Water Resources Control Board; and Regional Water Quality Control Board. The NOP was filed with the County Clerk of the Board. One hundred seventy-nine notices were sent via email. The District Board of Directors and Parks Advisory Committee received copies of the NOP. In addition, 575 community members and local government entities, including libraries, received copies of the NOP in the mail. The NOP was also posted on the District web site. The comment period closed on July 19, 2017.

The District received 13 letters of comment in response to the NOP (~~Appendix X~~). Comments were provided by: Regional Parks Association; Native American Heritage Commission; STEP/Sierra Club S.F. Bay Chapter/Sustainability, Parks, Recycling, and Wildlife Legal Defense Fund (SPRAWLDEF); East Bay Municipal Utility District; Caltrans District 4; Bicycle Trails Council of the East Bay; California Native Plant Society; Golden Gate Audubon Society, and five community members. Although some letters of comment were received after the official close of the comment period, all letters of comment to the NOP were considered by the District in preparing the draft EIR. *Table Appendix A, Summary of Comments Received on NOP* provides a summary of the topics covered in the comments and references to where the topics are discussed in the EIR.

**TABLE APPENDIX A
SUMMARY OF COMMENTS RECEIVED ON THE NOP**

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Agency Comments		
Caltrans	VMT Analysis	3.14 Transportation and Traffic describes why this type of analysis is not included
Caltrans	Provide location map, vicinity map, site plans	Figure ES-1, Project Location Map, Figure 2-1, Land Use Plan Amendment Project Area, Figure 2-2, USGS. Oakland East Quad, Figures 2-5, 2-6, 2-7, 2-8 and 2-9 for site plans and parking area schematics for each of the sub-areas and Huckleberry Preserve
Caltrans	Show vehicle access points relative to State Transportation Network (SNT)	There are no Project area roadways that fall under Caltrans jurisdiction
Caltrans	Identify State Right-of-Way	There are no Project area roadways that fall under Caltrans jurisdiction
Caltrans	Bike/car parking, local roads & transit locations & Project effects	2.0 Project Description <i>Figure 2-3, Existing and Proposed Regional Trails and Local Campsites</i> , 2.5.3.3-Improvements to Existing Staging Areas, 2.3.3.3 Transit 3.14 Transportation and Traffic, Project effects

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Caltrans	Show walking, biking, & auto condition schematics	Figure 2-3, Existing and Proposed Regional Trails and Local Campsites Appendix H-Transportation and Traffic Data
Caltrans	Identify potential road issues	3.14 Transportation and Traffic
Caltrans	Cultural Assessment including - State Scenic Highway & Sibley Special District, & AB52 compliance	State Scenic Hwy – 3.1.1, 3.1.2 3.5 Cultural and Tribal Cultural Resources Assessment
Caltrans	Include vehicle charging stations, bike repair stations	2.0 Project Description –2.3.3 Existing Access, 2.5.3.3-Improvements to Existing Staging Areas
EBMUD	McCosker Springs – Source for EBMUD	3.17 Utilities 3.17.5 Impact UTI-4
EBMUD	Sibley Main Staging Area Water Rights	3.17 Utilities 3.17.5 Impact UTI-4
Native American Heritage Commission	Compliance with AB52	3.5 Cultural Resources 3.54 Research Methods Native American Outreach
Organizations and Individual Comments by Topic Area		
Project Elements	Project Purpose & Need	2.0 Project Description – 2.4 Project Purpose and Statement of Objectives
Project Elements	Provide Project Description	2.0 Project Description
Project Elements	Definition of Preserve	2.0 Project Description, 2.3.1 Existing Parkland Designations
Project Elements	List Planning Documents in proximity to Project Area including Caldecott 4 th Bore	LUPA 2.3.2 Prior Planning Studies identifies prior planning studies considered in the development of the Project
Project Elements	Summary of Community Comments	EIR - Introduction, 1.2 Planning Process, 1.3.2 Public Review and Participation Process, Appendix A NOP LUPA 2.6.3 Community Engagement, Appendix C LUPA Options Considered, Appendix F Community Meeting Summaries
Project Elements	Bridges & Impacts	2.0 Project Description –2.5.3.5 Bridge Installation
Project Elements	Parking Options in Preserve Sub-area	2.0 Project Description –2.5.3.3-Improvements to Existing Staging Areas
Project Elements	Wilcox Staging Area Name	2.0 Project Description –2.5.3.3-Improvements to Existing Staging Areas
Project Elements	Ordinance 38	Relevant Ordinance 38 sections listed in Sections 3.1, 3.5, 3.6, 3.8, 3.12, 3.14, 3.15, 3.17
Project Elements	Parking & Site Constraints	2.0 Project Description –2.5.3.3-Improvements to Existing Staging Areas 3.16 Transportation and Traffic 4.0 Alternative, 4.4 Alternatives Considered, but Rejected from Further Analysis
Project Elements	Campsite Design	2.0 Project Description –2.5.3.9 Recreation Facility Development, Figures 2-8, 2-16, 2-17a provide illustrative concepts of the McCosker sub-area Creek Restoration and Recreation Development Area
Project Elements	ADA Compliance	2.0 Project Description – Section 2.5.3.6 Project Area Trail System Expansion, New, Narrow, Natural Surface Recreation Trails throughout the Project Area, Section 2.5.3.7, Proposed Trail Development Actions, 2.5.3.9, recreation Facility Development, 3.14 Public Services – Section 3.24-1 Regulatory Framework, section 3.14-5, Impact PUB-1
Aesthetics	Visual Assessment – Change in Scenic Quality	3.1.5 Aesthetics, Impact AES-3

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Aesthetics	Visual Map	3.1 Aesthetics, Figure 3.1-1, Visual Setting – Key and accompanying photos
Aesthetics	Night Lighting	3.1.5 Aesthetics, Impact AES-4
Agriculture and Forestry Resources	Grazing & Tree Removal	2.0-Project Description,2.3.6, Ongoing/Land/Habitat Management Programs, 2.6.3, Tree and Vegetation Removal 3.2.2 Agriculture and Forestry Resources
Air Quality	Air Quality Analysis	3.3 Air Quality Analysis
Biological Resources	Biological Assessment	3.4 Biological Resources
Biological Resources	Plant and Wildlife Surveys	3.4 Biological Resources, 3.4.3 Research Methodologies
Biological Resources	Special Status Species Wildlife Lists, Impacts, including birds & CRLF and Mitigations, including construction timing	3.4.2 Existing Conditions, 3.4.6 Impact Analysis and Appendix C Plants and Wildlife Species List for the Project Area
Biological Resources	Special Status Species Plant Lists, Impacts and Mitigations	3.4.2 Existing Conditions, 3.4.6 Impact Analysis and Appendix C Plants and Wildlife Species List for the Project Area
Biological Resources	Wetlands Analysis	3.4.6 Impact Analysis, Impact BIO-3
Biological Resources	Alameda Whipsnake Critical Habitat	3.4.2 Existing Conditions, Impact BIO-1
Biological Resources	Caldecott Wildlife Corridor	3.4.2 Existing Conditions, Wildlife Study Area
Biological Resources	Grazing Programs	2.0-Project Description,2.3.6, Ongoing/Land/Habitat Management Programs,
Biological Resources	IPM Programs	2.0-Project Description,2.3.6, Ongoing/Land/Habitat Management Programs,
Biological Resources	Native Rainbow Trout Habitat	3.4.2 Existing Conditions, Impact BIO-1
Biological Resources	Tree Removal & Impacts on Birds	3.4.6 Impact Analysis, Impact BIO-1
Cultural Resources	Pre-contact and Historical Analysis	3.5 Cultural Resources 3.5.3 Existing Conditions, 3.5.4 Research Methods, 3.5.5 Significance Thresholds – Approach for Cultural Resources Analysis, Approach for Paleontological Resources and Unique Geological Resources
Cultural Resources	Native American Notification (AB52)	3.5 Cultural Resources 3.5.4 Research Methods Native American Outreach
Geology and Soils	Geology, Soils & Seismicity Study	3.6 Geology and Soils – 3.6.2 Existing Conditions, 3.6.5 Impact GEO-1, GEO-2, GEO-3
Geology and Soils	Erosion Control Measures	3.6 Geology and Soils – 3.6.2 Existing Conditions, 3.6.5 Impact GEO-4
Geology and Soils	Soil Stability	3.6 Geology and Soils – 3.6.2 Existing Conditions
Greenhouses Gases	Climate Change Effects on Current & Future Operations	3.7 Greenhouse Gases
Hazards	Fire Safety, Fire Suppression, Fuel Reduction	3.8 Hazards and Hazardous Materials, 3.8.1 Regulatory Framework – Wildfire Hazard Reduction and Resource Management Plan, District Hazard Reduction Plan, Fire Weather Operating Plan, Emergency Operating and Preparedness Plans, Impact Haz-3
Hazards	Fuel Treatment & Maintenance Policies, including fuels treatment map, wildfire assessment, computer wildfire monitoring, prioritized treatment areas & fuel reduction goals, treatment around power lines, trails, parking & campgrounds	See Above, plus 3.8 Hazards and Hazardous Materials, 3.8.1 Regulatory Framework – Fire Operating Plan LUPA, Section 3.4.2.4, Easements, Agreements and Licenses for treatment around power lines is covered by maintenance easement agreements with utility companies Fuel Treatment & Maintenance data incorporated into GIS data base as part of implementation of Wildfire Hazard Reduction and Resource Management Plan, District Hazard Reduction Plan

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Hazards	Fuel Storage Tanks in McCosker Sub-area	2.0 Project Description, 2.3.6.2 Integrated Pest Management Program 3.8 Hazards, 3.8.5 Impact HAZ-1 3.17 Utilities, 3.17.5 Impact UTI-7
Hazards	Pesticide type & use	3.8 Hazards and Hazardous Materials, 3.8.1 Regulatory Framework –Pesticide Use and Storage
Hazards	Equipment Requirements	2.0 Project Description, 2.3.6.2 Integrated Pest Management Program, 2.6.1 Construction Schedule, Workforce, Equipment 3.8 Hazards and Hazardous Materials, 3.8.1 Regulatory Framework –Pesticide Use and Storage 3.8 Hazards, 3.8.5 Impact HAZ-1
Hazards	Disposal of Fill & Other Debris from Project Construction	3.17 Utilities, 3.17.5 Impact UTI-7
Hydrology	Hydrology & Water Quality Analysis – including a report of findings	3.9, Hydrology and Water Quality, 3.9-1 Regulatory Framework, 3.9-2 Existing Conditions, Impact HYD -1 3.17 Utilities, 3.17-1 Regulatory Framework, Impact UTI-3, UTI-5
Hydrology	McCosker Sub-area Water Sources	3.17 Utilities, 3.17.2 Existing Conditions, McCosker On-site Infrastructure
Hydrology	Water Quality Testing – baseline & during construction & post results on Website	3.17 Utilities, 3.17.2 Existing Conditions, McCosker On-site Infrastructure
Hydrology	NPDES Compliance	3.9 Hydrology and Water Quality, 3.9.1 Regulatory Framework, 3.9.5 Impact HYD-1, Impact HYD-2 3.17 Utilities, Impact UTI-5
Hydrology	Contingency Plans should SWPPP measures Fail	3.9 Hydrology and Water Quality, 3.9.5 Impact HYD-1
Hydrology	Creek Restoration Benefits	2.0 Project Description, 2.5.2.5 Habitat Restoration Benefits
Hydrology	Impacts to & Protection of San Leandro Creek during Construction	3.9 Hydrology and Water Quality, 3.9.5 Impact HYD-1 3.4 Biological Resources, 3.4.5 Impact BIO-1, Impact BIO-2a and 2b and Bio-3a
Land Use	Incorporate Sibley, Western Hills, McCosker & Huckleberry into Project Area	2.0 Project Description - 2.2.2 Project Area
Land Use	Population & Residences in Project Vicinity	3.10 Land Use - 3.10.2 Existing Conditions, Figure 3.10-1 Public Facilities in the Project Vicinity 3.13-Population and Housing- 3.13.2 Existing Conditions
Land Use	Planning for Future Acquisitions	2.0 Project Description, 2.5.3.11 Western Hills Sub-area Property Conveyance 3.10 Land Use - Table 3.10-3 Pending Projects in Project Vicinity,
Land Use	Effects of Future Acquisition on Recreation & Wildlife	2.0 Project Description – 2.3.6.3 Wildlife Corridors, 2.5.2.5 Habitat Restoration Benefits
Mineral Resources	Mineral Rights	3.11 Mineral Resources
Noise	Noise Analysis	3.12 Noise
Population and Housing	Recent & Planned Projects, including EBMUD projects & Indian Valley Housing & Relationship to Caldecott Corridor	2.0 Project Description – 2.3.6.3 Wildlife Corridors 3.10 Land Use - Table 3.10-3 Pending Projects in Project Vicinity 3.14 Public Services - 3.14.2 - Existing Conditions
Public Services	Ordinance 38 Enforcement	3.14 Public Services - 3.14.2 - Existing Conditions Police Services
Public Services	Fire Safety Units	3.14 Public Services - 3.14.2 - Existing Conditions Police Services Figure 3.10-1 Public Facilities in the Project Vicinity
Public Services	Emergency Evacuation	3.14 Public Services, - 3.14.2 - Existing Conditions District Emergency Response and Evacuation Procedures

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Public Services	Evacuation Plan, including signs, restrictions, response times & protocols, & coordination with local residents	3.8 Hazards and Hazardous Materials, 3.8.1 Regulatory Framework 3.14 Public Services, - 3.14.2 - Existing Conditions District Emergency Response and Evacuation Procedures
Public Services	Helicopter Landing Areas	3.8 Hazards and Hazardous Materials, 3.8.5 Impact Analysis HAZ-3 3.14, Public Services, 3.14.2 Existing Conditions District Protection Services
Public Services	Hours of Operation	3.14 Public Services – Ordinance 38 Table
Public Services	Designation of Red Flag Days	3.8. Hazards and Hazardous Materials – 3.8.1 Regulatory Framework - Fire Weather Operating Plan - Controlling Use in High Fire Hazard Areas 3.14 Public Services, 3.14.2 Existing Conditions, Fire Protection Services
Public Services	EVMA Access between McCosker & Western Hills	2.0 Project Description 2.5.3.7 Proposed Development Actions, Opening Existing Narrow and Ranch Road Trails – All sub-areas
Recreation	Recreation Use Data	3.15 Recreation 3.15.2 Existing Conditions District Visitation and Recreation Preferences
Recreation	Demand for Recreation Facility Development and Camping Capacity	3.15 Recreation 3.15.2 Existing Conditions – National Outdoor recreation trends, District visitation and Recreation Preferences
Recreation	Camping Demand & Impacts, including Fire Pit safety	2.0 Project Description – 2.5.3.9 Recreation Facility Development 3.15 Recreation 3.15.2 Existing Conditions District Visitation and Recreation Preferences
Recreation	Trail Types – Include Map	2.0 Project Description – 2.5.3.6 Project Area Trail Expansion Figure 2-12 – Existing and Proposed Trail Types Figure 2-14 – Proposed Trail Uses
Recreation	Trail Uses & Impacts, including Increased Volume & Uses – Include Map	2.0 Project Description – 2.5.3.6 Project Area Trail Expansion Figure 2-14 – Proposed Trail Uses 3.15 Recreation – 3.15.5 Impact REC1
Recreation	Mitigating for Increased Use	Project Description 2.5.3.9 Recreation Facility Development 3.15 Recreation – 3.15.5 Impact REC1 – system improvements considered to accommodate future increased use and types of use
Recreation	Bike Policies	3.15 Recreation – 3.15.1-Regulatory Framework – District Bike Policies and Ordinances
Recreation	Dog Policies	3.15 Recreation – 3.15.1-Regulatory Framework – District Dog Policies and Ordinances
Recreation	Camping Policies including Resolution 1996-4-80	3.15 Recreation – 3.15.1-Regulatory Framework – District Resolution 1996-4-80
Recreation	Regional Trails including biological & sociological effects of communities involved	2.0 Project Description, Section 2.5.3.6 Project Area Trail System Expansion, Recreation, Environmental and Operational Values 3.15 Recreation – 3.15.5 Impact REC1 – system improvements considered to accommodate future increased use and types of use
Recreation	Trail connections between Tilden & Redwood	2.0 Project Description – 2.3.4.1 Regional Trails that Traverse the Project Area, 2.3.4.2 Other Regional Trails and Bike Routes, 2.3.4.4 District Trail Campsites in the East Bay Hills, Figure 2-3 - Existing and Proposed Regional Trails and Local Campsites
Recreation	Trail effects on Wildlife Movement	3.15 Recreation – 3.15.1-Regulatory Framework – District Dog Policies and Ordinances

Comments Received on the NOP		References to Where Topics are Discussed in the EIR
Traffic	Traffic Study, including climate change impacts from increased vehicle traffic	3.3 Air Quality, 3.16 Traffic and Transportation
Traffic	Emergency Ingress/Egress	3.16 Traffic and Transportation, 3.16.4 Significance Thresholds, criterion e
Traffic	Vehicle Parking & Traffic Impacts, including impacts on Canyon community	3.7 Greenhouse Gases, 3.16 Traffic and Transportation
Traffic	Pinehurst Road – Conditions & Potential Closures due to Natural Phenomenon, e.g., landslides, flooding	3.16.4 Transportation and Traffic, Section 3.16.4, Significance Thresholds, e)
Traffic	Transit Options	2.0 Project Description, 2.3.3.3 Transit Figure 2-3 - Existing and Proposed Regional Trails and Local Campsites 3.14 Transportation and Traffic, Transit
Utilities	Describe Utilities	3.17 Utilities and Service Systems
Utilities	Water Supply System, including McCosker spring sources and pumphouse	3.17 Utilities and Service Systems
Alternatives	Include a “Close McCosker sub-area & Reinstate Landbank Status Alt.”	Inconsistent with Board and City of Orinda actions for opening this parkland area for public use – (District Resolutions 2006-12-280 and 2016_04_100 and City Resolution 13-05)
Alternatives	Include a “No Camping/No Picnic Alt.”	Alternative 2
Alternatives	Include a “Restore McCosker site to original landforms alt.”	4.0 Alternatives, 4.4.3 Alternatives Considered and Rejected
Alternatives	Include a “Trails-only Alt.”	A “Trails-only Alt.” would not meet the Project Purpose and Objectives
Other CEQA Considerations	Cumulative impacts, including impacts on Special Status Species	Chapter 3.0 Section 3.6 for each section and Chapter 5 - Other CEQA Considerations, 5-4 Cumulative Impacts
Other Considerations	Costs & Funding	LUPA 5.5 Costs of Proposed Actions, 5.6 Construction Financing Strategy
Other Considerations	Easements	LUPA Section 3.4.2.4, Figure 12-Easements, Agreements and Licenses
Other Considerations	Before and After Photos of Creek Restoration Work	Existing Conditions - Figure 3.1-1, Visual Setting – Key and accompanying photos Future Conditions -Objective 2 Creek Restoration addresses monitoring post construction
Other Considerations	Land Acquisition History	LUPA 2.2.2, LUPA Area and Acquisition History and 2.3.2, Prior Planning Studies 3.5.3 Existing Conditions, Cultural Setting Land history discussion



**NOTICE OF PREPARATION
OF AN
ENVIRONMENTAL IMPACT REPORT**

2950 PERALTA OAKS COURT, PO BOX 5381, OAKLAND, CA 95605-0381

Notice is hereby given that the East Bay Regional Park District (District) is the Lead Agency and is preparing an Environmental Impact Report (EIR) for:

**2017 ROBERT SIBLEY VOLCANIC REGIONAL PRESERVE
LAND USE PLAN AMENDMENT (LUPA)
Incorporating the McCosker Parcel and Western Hills Open Space**

The District is requesting comments on the scope and content of this EIR. **Due to the 30-day time limit mandated by State law, comments must be received no later than 5:30 p.m. on Wednesday, July 19, 2017.**

Please send written comments to Julie Bondurant, Acting Chief of Planning/GIS, in care of the East Bay Regional Park District at the address listed above, or via e-mail to: jbondurant@ebparks.org.

THE PURPOSE OF THIS NOTICE IS: (1) to serve as the Notice of Preparation to provide potential Responsible Agencies, agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project with sufficient information to provide meaningful responses as to the scope and content of the EIR, pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions regarding the preparation of the EIR, environmental issues to be addressed in the EIR, and any related issues from interested parties, including interested or affected members of the public.

PROJECT LOCATION: The *2017 Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment* (Project) includes three sub-areas totaling 1,318 acres located within Alameda and Contra Costa Counties: 1) Robert Sibley Volcanic Regional Preserve (Preserve); 2) Western Hills Open Space (Western Hills); and 3) the McCosker Parcel (McCosker). The project area appears on the Oakland East, California U.S. Geological Survey 7.5-minute quadrangle map. The Preserve sub-area encompasses a 678.71-acre area along the ridgelines of the East Bay Hills bordering the City of Oakland. The Western Hills sub-area comprises a 389.1-acre area, extending eastward from the ridgelines of the East Bay Hills to the western boundary of the Wilder residential development in the City of Orinda. The McCosker Sub-area comprises a 250-acre area approximately one mile northwest of the unincorporated township of Canyon in Contra Costa County. This sub-area extends from the canyon floor of the eastern face of the East Bay Hills to the east-west trending ridgelines of Gudde Ridge. Huckleberry Regional Preserve borders portions of each of the three sub-areas and trails connecting the three sub-areas are proposed to cross through Huckleberry Regional Preserve, which is owned and managed by the District.

PROJECT DESCRIPTION: The proposed project includes: 1) improvements to existing staging areas and development of new parking areas; 2) improvements to existing roadways and infrastructure; 3) recreation facility development; 4) expansion of the existing trail system; and 5) restoration and enhancement of a creek, its tributaries, and adjacent uplands in the McCosker sub-area.

Improvements to Existing Staging Areas and Development of New Parking Areas. A total of six staging areas will help to distribute use throughout the project area. Improvements will include: 1) expansion of the existing parking capacity from 34 spaces to approximately 60 spaces and adding additional family picnic sites near the Sibley Staging Area parking lot per the 1985 Sibley Land Use Development Plan; and 2) a new visitor parking lot that will accommodate approximately 20 to 25 spaces to serve reservable recreation areas within the McCosker sub-area.

Improvements to Existing Roadways and Infrastructure. The project roadway improvements will include: 1) repairing and repaving the existing service road access off Old Tunnel Road within the Preserve sub-area; 2) improvements to an existing ranch road within the McCosker sub-area to provide access to the reservation-only recreation area; and 3) a new, bridge, which will provide access to the Upper Terrace of the McCosker sub-area.

Utility infrastructure in the Preserve sub-area will include extension of an existing potable water line to the existing backpack camp. Utility infrastructure improvements in the McCosker sub-area will include: 1) installation of prefabricated toilets; 2) development of a potable water supply to service the Middle Terrace; 3) connections to existing electrical and communications services to meet recreation and maintenance needs at the Middle Terrace; and 4) installation of fencing and gates to control site access.

Recreation Facility Development. Recreation facility development will occur on the Lower, Middle and Upper Terraces of the McCosker sub-area. The Lower and Middle Terraces will be designed to accommodate interpretive programs and camping activities for 30 to 50 people. Use will be by reservation only. Reservations will be administered by District park staff. The proposed staging area and activity areas will provide Americans with Disabilities Act (ADA) compliant facilities, including parking, toilet, picnic, and campsite amenities. ADA compliant

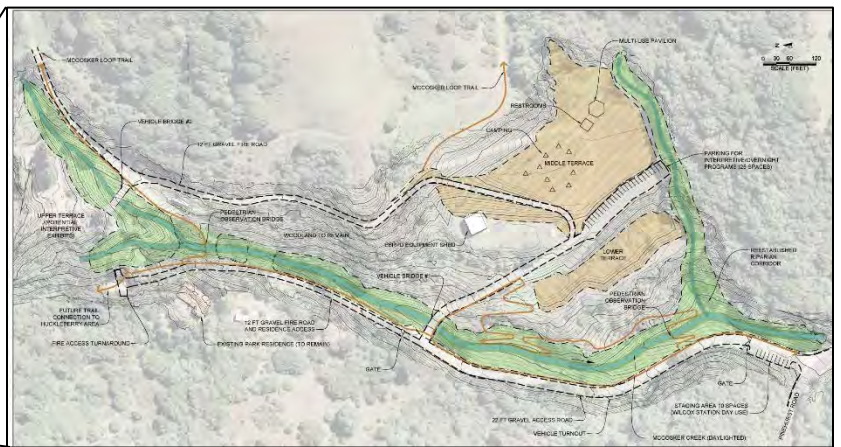
trails will provide connections between developed areas on the Lower and Middle Terraces, and a lower reach of the Nature Trail. The Upper Terrace will be designed as an informal site for passive day use activities only and will incorporate existing concrete walls remaining from the former construction and quarrying business. The development of these terrace sites for recreational uses will add riparian and oak woodlands. These plantings will emphasize the use of trees that will augment existing habitat located at the perimeter of these sites, as well as providing screening, shade, and aesthetic value for park visitors. Soil excavated to “daylight” or create an open, natural creek channel, will be placed as engineered fill on the Lower and Middle Terraces. The thickness and location of the fill will be governed to a degree by slope stability considerations; completed fill areas will be graded to accommodate future recreational improvements.

Trail System. The trail system will incorporate: existing trails, approximately three and one-half miles of new narrow, natural surface trails, and changes in trail uses for approximately two miles of existing trails to improve circulation and provide greater connectivity with other District lands and neighboring residential communities. Trail signage will include directional, regulatory and wayfinding signs. Trail information will also incorporate interpretive features, such as maps and exhibits. Park usage accommodations will conform to the District policy on use of Other Power-Driven Mobility Devices (OPDMD) - 2011. Trails will be rated according to the Universal Trail Assessment Process (UTAP) and the State Park Accessibility Standards when evaluating trail difficulty and obstacles.

Restoration and Enhancement of a Creek, Its Tributaries, and Adjacent Uplands in the McCosker Sub-area. Approximately 2,100 linear feet of the deteriorating, culverted McCosker Creek, and 600 linear feet of a side tributary will be daylighted and restored. The restored creek channel will connect to three existing tributaries. The reconstructed creek will incorporate a mix of cascades, step pools, resting pools, including pocket pools in steeper areas, and potential spawning sites for rainbow trout. A new riparian habitat environment will be established throughout the length of the restored channel and tributaries. Construction of the restored creek channels are anticipated to require removal of fill, most of which will be transferred to the Lower and Middle Terraces.



Project Location & Trail System



Preliminary Creek Restoration & Recreation Improvement Areas

POTENTIAL ENVIRONMENTAL EFFECTS: Because the Lead Agency has determined that an EIR will be required, no Initial Study has been prepared for the proposed project. The EIR will address the potential physical environmental effects for each of the environmental topics outlined in the CEQA:

Aesthetic & Visual Impacts	Agricultural & Forestry Resources	Air Quality	Biological Resources
Cultural Resources	Geology, Soils & Seismicity	Greenhouse Gas Emissions	Hazards & Hazardous Materials
Hydrology & Water Quality	Land Use & Planning	Mineral Resources	Noise
Population & Housing	Public Services	Recreation	Transportation/Traffic
Tribal Cultural Resources	Utilities & Service Systems		

The EIR will include a discussion of the existing conditions for each environmental issue and identify short-term and long-term environmental impacts associated with the project, and their levels of significance. Mitigation measures will be identified to reduce any potentially significant or significant impacts. The EIR will also examine a reasonable range of alternatives to the Project, including the CEQA-mandated No Project Alternative, and other potential alternatives. The level of analysis for these subject areas may be refined or additional subject areas may be analyzed based on responses to this NOP and/or any refinements to the proposed project that may occur after the publication of this NOP.

PUBLIC MEETINGS. To date, there have been three community meetings, including a CEQA scoping meeting, two site tours, and two youth engagement workshops. A summary of these meetings can be found on the District website at: http://www.ebparks.org/about/planning#robert_sibley_lupa. The District anticipates a fourth community meeting will be held in late summer 2017.



**Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment
Community Meeting #3**

**Richard C. Trudeau Conference Center, 11500 Skyline Blvd, Oakland, CA 94619
Redwood Regional Park**

6:30pm – Wednesday, January 18, 2017

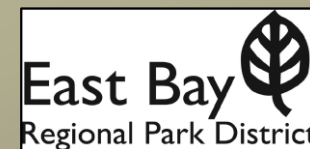
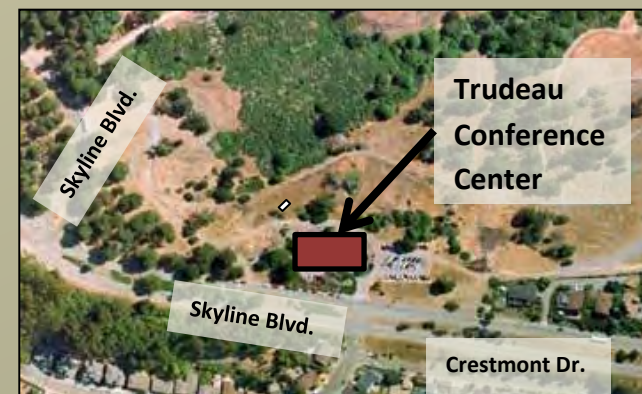
Please join the East Bay Regional Park District, for a presentation of, and input on, the *Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment*. The meeting focus will be on reviewing the project goals, finalizing the design concepts for the McCosker site, evaluating the trails plan for the Preserve and looking ahead to the preparation of the LUPA and the CEQA analysis. After a brief presentation, the meeting will be opened to the audience to participate in the process.

This meeting will also serve as the Public Scoping Meeting regarding the proposed project and CEQA analysis. In addition to discussing the proposed Sibley Land Use Plan Amendment Project, the District will also discuss the associated planning and environmental processes.

Audience participation will include a hands-on workshop activity that will give the community an opportunity to comment on: 1) design concepts for the development areas at the 250-acre site McCosker site located off Pinehurst Rd. near the community of Canyon; and 2) the Preserve trails plan. The District is also interested in comments regarding what should be included in the CEQA analysis.

For a summary of the first two community meetings or more information about the planning process, please refer to:

www.ebparcs.org or contact Julie Bondurant at 510-544-2323 or jbondurant@ebparcs.org



Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment Public Meeting

The East Bay Regional Park District (Park District) Acquisition, Stewardship and Development Division is currently preparing a Land Use Plan Amendment for [Robert Sibley Volcanic Regional Preserve](#). The focus of this Land Use Plan Amendment will be on the addition of two new properties that will extend the Preserve eastward to more directly serve the City of Orinda, the unincorporated community of Canyon, and the Town of Moraga.

Public meetings and workshops are an important part of the Land Use planning process. To date, there have been three community meetings, two site tours, and two youth engagement workshops. The third community meeting for this planning process focused on reviewing the project goals, finalizing the design concepts for the McCosker site, evaluating the trails plan for the Preserve and looking ahead to the preparation of the LUPA and the CEQA analysis. This meeting also served as the Public Scoping Meeting regarding the proposed project and CEQA analysis. In addition to discussing the proposed Sibley Land Use Plan Amendment Project, the District also discussed the associated planning and environmental processes.

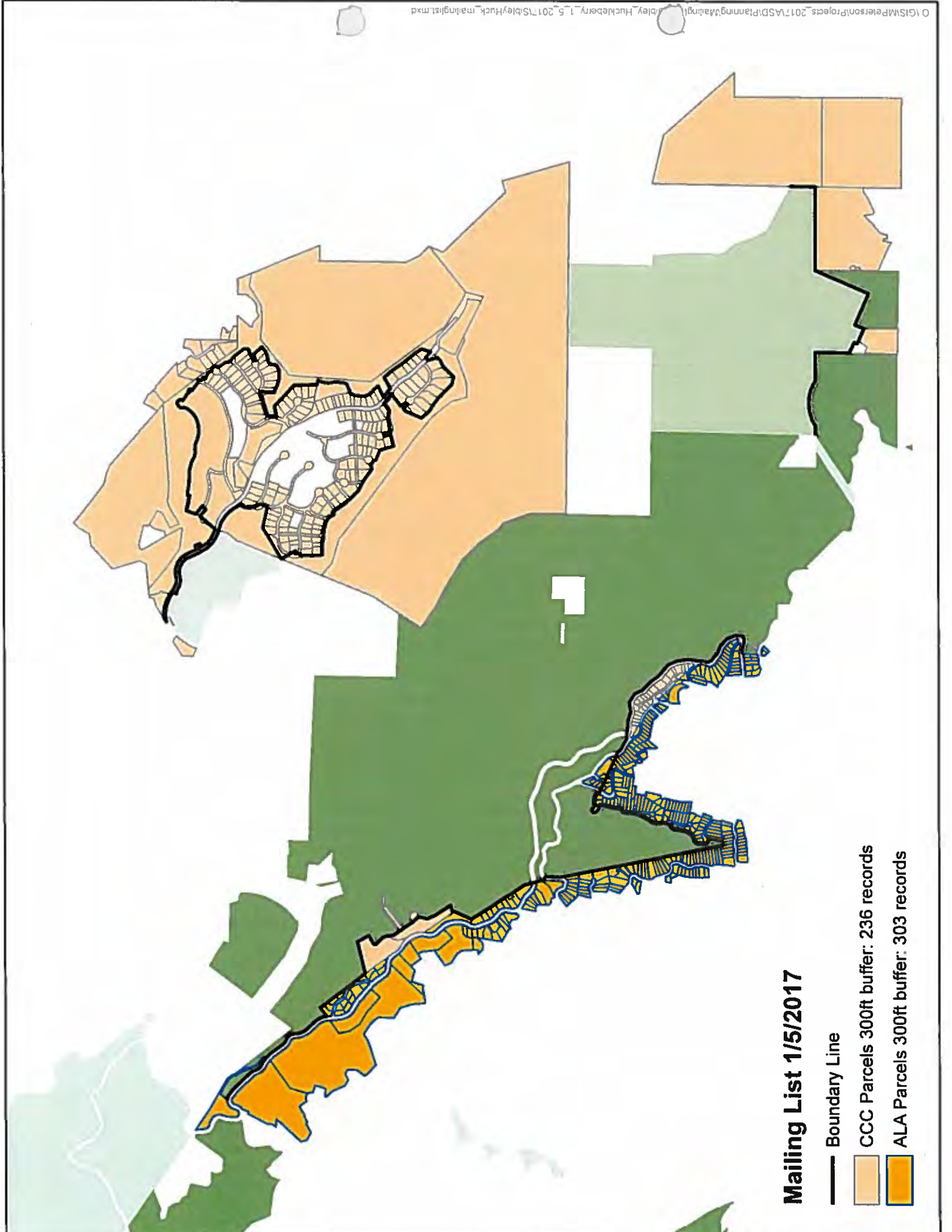
On June 19, 2017 The District issued a Notice of Preparation of an Environmental Impact Report (EIR) in accordance with State California Environmental Quality Act (CEQA) Guidelines Section 15082(a) informing the Office of Planning and Research State Clearinghouse, Affected Agencies, Property Owners within 300 feet of the Project Site and Interested Organizations that the East Bay Regional Park District (District) is the Lead Agency and is preparing an Environmental Impact Report (EIR) for the 2017 Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment (LUPA) incorporating the McCosker Parcel and Western Hills Open Space.

The EIR will address the potential physical, environmental effects for each of the environmental topics outlined in the California Environmental Quality Act (CEQA). The District is requesting comments on the scope and content of this EIR. **Due to the time limits mandated by State law, comments must be received no later than 5:30 p.m. Wednesday, July 19, 2017.** Please send written comments to Julie Bondurant, Acting Chief Planning/GIS, in care of the East Bay Regional Park District at the address listed above or via e-mail to: jbondurant@ebparks.org.

We anticipate a fourth community meeting will be held in late summer 2017. At this meeting the preferred alternative will be presented for public consideration. Later in the year, the District will give a public presentation on the LUPA and draft EIR prior to consideration by the East Bay Regional Park District Board of Directors to certify the EIR and to approve or deny the project at a public hearing.

To view the NOP and summaries of the first three community meetings, please refer to the downloads below.

To receive information on the progress of this planning process and to receive information on future meetings please contact Julie Bondurant, jbondurant@ebparks.org to sign up on the e-mail mailing list and/or continue to check this website.



Mailing List 1/5/2017

- Boundary Line
- CCC Parcels 300ft buffer: 236 records
- ALA Parcels 300ft buffer: 303 records

ROBERT SIBLEY VOLCANIC REGIONAL PRESERVE LAND USE PLAN AMENDMENT

COMMUNITY MEETING #3 JANUARY 18, 2017





Meeting Overview

LUPA – Project Status

District Master Plan & LUPA

LUPA – Recreation & Interpretive Design Features

- Community Preferences
- Preliminary Trails Plan
- Design Concepts for Development Areas at McCosker Site

Community Engagement

- Review Site Design & Trail Concepts
- CEQA Scoping Session - Provide Input on Environmental Considerations

Planning Processes Next Steps

- LUPA
- CEQA

MEETING PURPOSE

For the community to:

1) Review and provide input on:

- The Preliminary Trails Plan and
- Recreation design concepts for the McCosker parcel

2) Provide input on CEQA environmental considerations

3) Gain an understanding of the LUPA & CEQA processes



SIBLEY LUPA STATUS

Winter 2017

- Jan 18 -Community Meeting # 3 –
 - Community review & input on Trail & Recreation Design Concepts
- 3rd Newsletter
- LUPA & CEQA Studies Initiated Incorporating Community Recommendations
- CEQA Notice of Preparation Issued

Summer 2017

- Community Review of LUPA Concept Plans
- 4th Newsletter

Fall 2017 – Spring 2018

- LUPA Completed
- CEQA Analysis Completed
- Community Review of LUPA & CEQA
- 5th Newsletter
- Board - CEQA Certification
- Board - LUPA Approvals

Fall 2017 – Spring 2018

- Regulatory Permitting
- Ongoing - Pursue Grant Funding

Summer 2018 – Summer 2019

- Permits Obtained
- Funding Secured
- WHOS land transfer completed
- Stream Restoration Construction
- 2-Parcel Preserve opening

LUPA PROJECT STATUS - COMMUNITY ENGAGEMENT



April 2016 Community Mtg. #1
Project Introduction



November 16, 2016
Community Mtg. #2
Identify Preferences



July 2016
Landbank Tour



December 4, 2016
Community Tour
Wilcox Station Staging Area
Sibley Regional Preserve



Youth Involvement
August 2016
Eco-teen Camp
Identify Preferences



January 18, 2017
Community Mtg. #3
Review & input on Trail
& Recreation Design
Concepts



Youth Involvement
November 2016
Canyon School
Identify Preferences



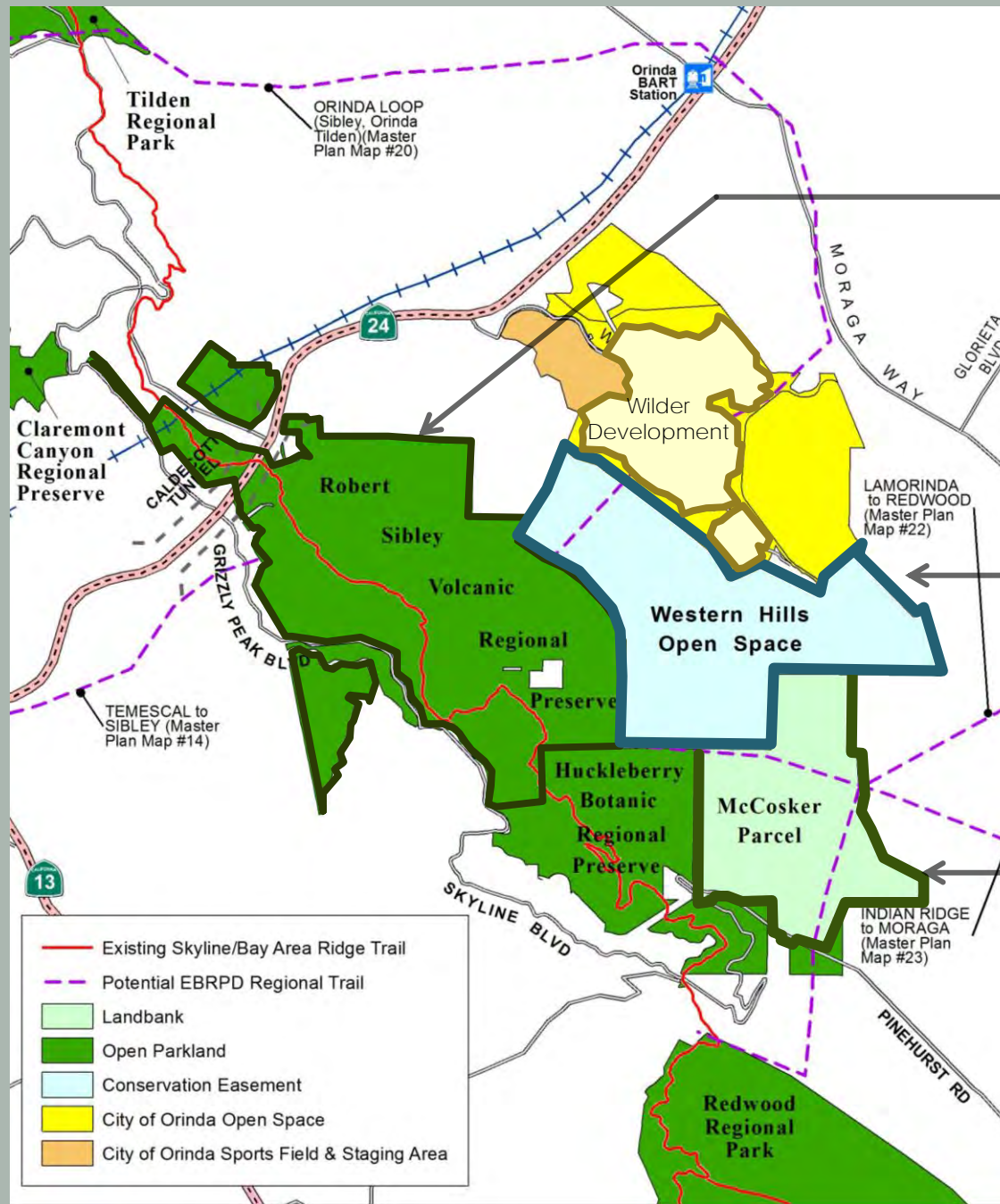
Summer 2017
Community Review of
LUPA Concept Plans



LUPA STUDY AREA

LUPA Study Area

Sibley Regional
Preserve
incorporating
LUPA Study Area
1,299 Acres



660-acre - Robert Sibley Volcanic Regional Preserve

389-Acre Future Conservation Easement Acquisition

250-Acre Donation - EBRPD Owns in Fee



SIBLEY PRESERVE LAND USE PLAN AMENDMENT PROJECT PURPOSE

- Incorporate subject open space & developed local trails into Robert Sibley Volcanic Regional Preserve [EBRPD Resolution No. 2006-12-280]

AND

- Preserve the rich heritage of natural & cultural resources & provide open space, trails, & safe & healthful recreation & environmental education [District 2013 Master Plan]



LUPA
CONSISTENCY
WITH
DISTRICT MASTER PLAN

REGIONAL PRESERVE



A Regional Preserve is an area with outstanding natural or cultural features protected for their intrinsic value as well as for public enjoyment & education.

The size of a natural or cultural Preserve must be sufficient to ensure that its significant resource(s) can be managed so as to be protected & enjoyed. Significant resources consist of botanical, wildlife, geologic, topographic, archaeological, historic, or other features. The Recreation/Staging Unit(s) providing for public access & services will comprise no more than 5% of the area.

Proposed development areas for the McCosker site equal about 2% of the McCosker parcel & about ½% of the Study Area.



TRAIL POLICIES

The District will continue to add narrow trails designated as both single- & multi-use for hikers, equestrians, people with dogs, and bike riders.

The District will expand its unpaved multi-use trail system as additional acreage & new parks are added.



PICNIC POLICIES

The District will continue to develop group and family picnic facilities throughout the parks system.



PLAY POLICIES

The District will continue to develop **children's** play areas in suitable park settings designated for recreation incorporating environmental and cultural themes into these facilities.



CAMPING POLICIES

The District will continue to develop a balanced system of regional camping facilities, including day camps, group camps, backpack camps, family camps and residential camps.



LAND USE PLAN AMENDMENT PROJECT GOALS

- 1) To augment existing public recreation and interpretive opportunities at Robert Sibley Volcanic Regional Preserve, including but not limited to, providing camping, trail use, staging areas, and/or outdoor education focused on natural ecology and cultural pre-history and history; and
- 2) To enhance the natural ecology of the Preserve through conservation easements, and the restoration of a tributary of Upper San Leandro Creek including, potentially providing upstream migration access for native rainbow trout (*Oncorhynchus mykiss*).

LUPA ELEMENTS

INTRODUCTION

- Purpose, Goals & Objectives
- Planning Process & Community Engagement

PARK ENVIRONMENT

- Existing Conditions - Description of natural, cultural, & physical features of the 1,299-acre Study Area

LAND USE PLAN RECOMMENDATIONS

- Append 389 – acre Western Hills Open Space dedication to Sibley per prior obligations & agreements
- Identify proposed restoration & interpretive & recreation features at the McCosker site resulting from community input
- Identify McCosker site trails & trail connections resulting from community input

OPERATIONS AND MAINTENANCE

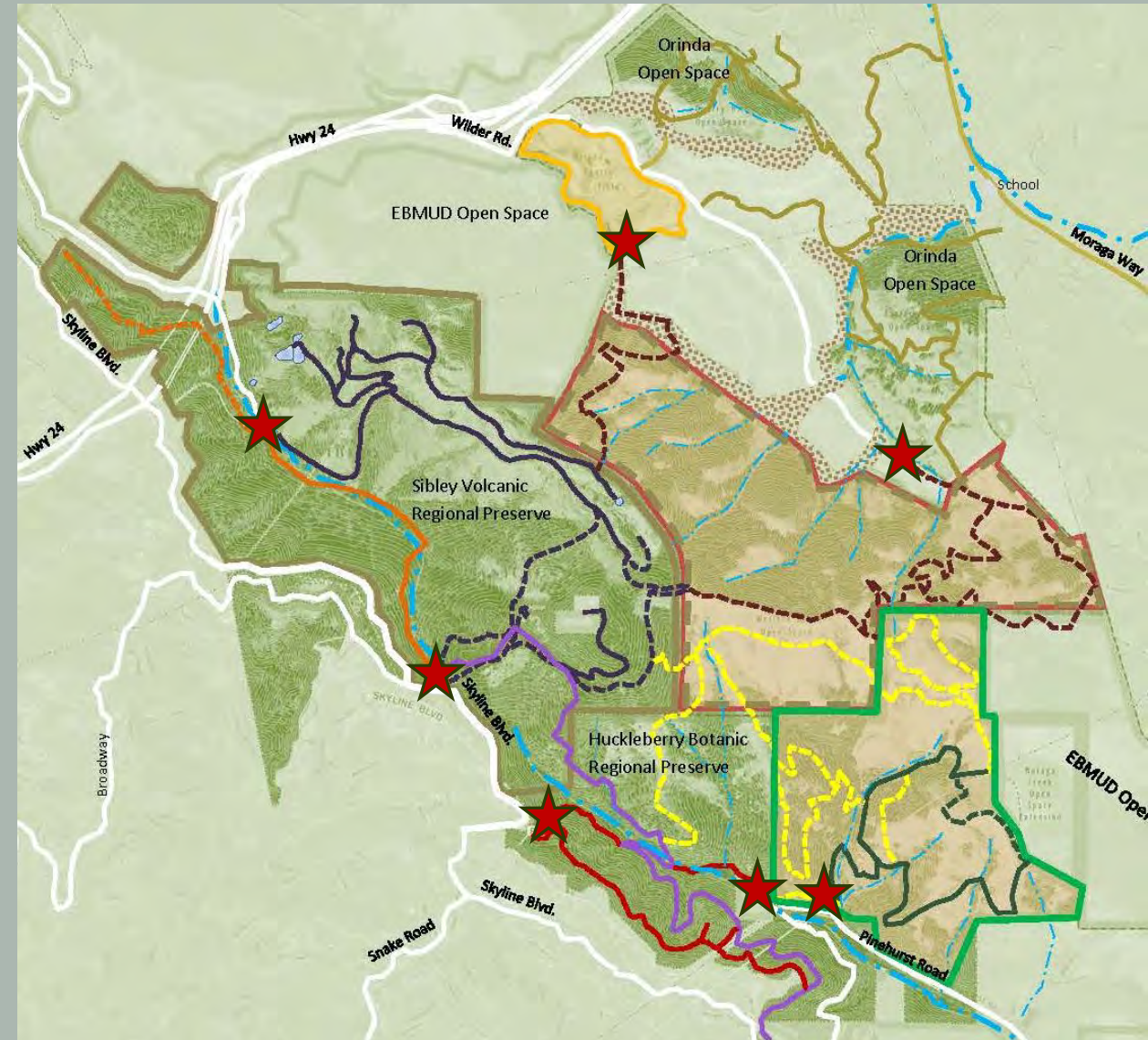
IMPLEMENTATION & PRIORITIZATION PLAN

LUPA STUDY AREA SITE FEATURES & PROGRAMS

- LUPA Study Area - 1,299 Acres
 - EXISTING USES & FACILITIES - 660-acre - Robert Sibley Volcanic Regional Preserve
 - Interpretive Kiosk & Self-guided Walk
 - Staging Areas & Trails
 - Backpack Campsite
 - 2 On-site Security Residences
 - FUTURE PER PRIOR OBLIGATIONS & AGREEMENTS - 389-Acre Western Hills Open Space
 - Conservation Easement - Primary Purpose - Habitat Conservation
 - 2 New Staging Areas & Trails
 - PROPOSED USES & FACILITIES - 250-Acre McCosker Parcel Donation
 - On-site Security Residence (Existing)
 - Staging Area & McCosker Loop Trail (Existing)
 - PROPOSED - On-site Trails & Trail Connections
 - PROPOSED - Stream Restoration
 - PROPOSED - Recreation & Interpretive Facilities & Programs
- Plus,
- On-site Patrol & Emergency Response
 - Fuels Management & Fire Response
 - Land Management through, Grazing, IPM Weed Abatement, Habitat Monitoring

EXISTING & PLANNED ACCESS TO SIBLEY REGIONAL PRESERVE

- Sibley - Main Staging Area - Skyline Blvd.
Parking for 34 cars
- Sibley - Old Tunnel Rd.
Parking for 10 cars
- Huckleberry Preserve Skyline Blvd.
Parking for 12 cars
- Huckleberry Preserve Pinehurst Rd.
Trailhead - no parking
- Sibley - Wilcox Station Staging Area -
Pinehurst Rd.
Parking for 10 cars
- City of Orinda Wilder Park
Parking for 273 spaces - 10 spaces
dedicated to Sibley Preserve access
- Wilder Rd. S. Terminus EBRPD Staging
19 cars - 2 horse trailers



POTENTIAL DEVELOPMENT AREAS



Potential Development Areas

- Lower Terrace - 0.9 acres
- Middle Terrace - 3.9 Acres

Lower & Middle Terrace Site Features

- Two large, level areas
- Equipment storage – “Metal Shed”
- Public vehicle access & parking opportunities
- Trail access opportunities
- Potable water & septic or vault toilet options
- Maintenance & emergency vehicle access



POTENTIAL DEVELOPMENT AREA



Potential Development Area

- Upper Terrace Area – 1.1 Acres



Upper Terrace Site Features

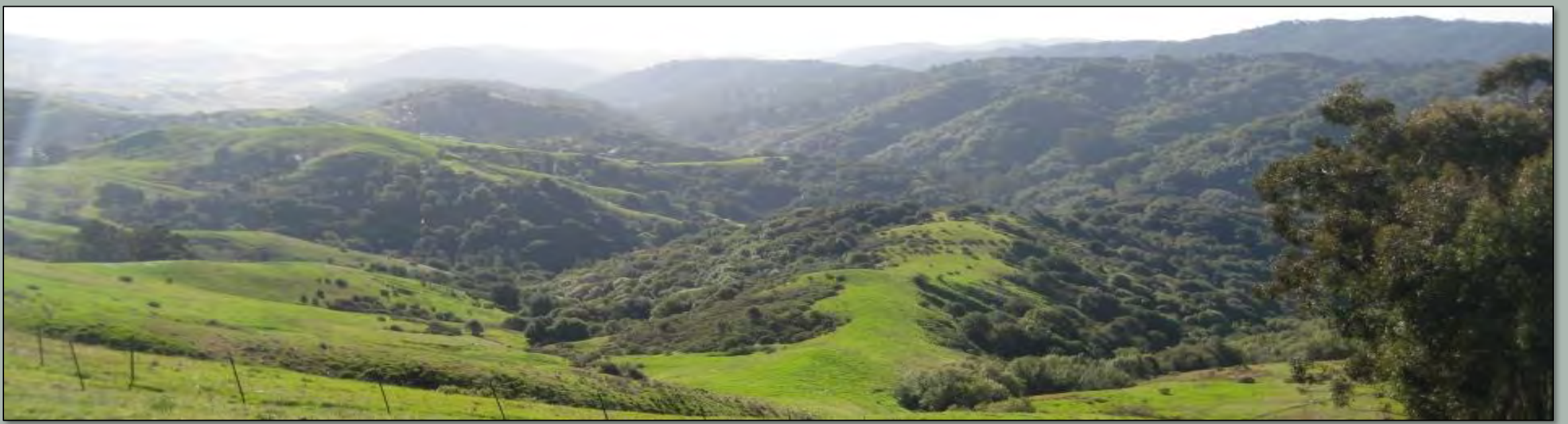
- Several smaller, level disturbed terraces
- Remnants of McCosker quarrying business
- No public vehicle access or parking opportunities
- Trail access opportunities
- Potable water & vault toilet option
- Maintenance & emergency vehicle access





RECREATION & INTERPRETIVE DESIGN FEATURES

- Community Preferences
- Project Alternatives
- Preliminary Trails Plan
- Design Concepts for Development Areas



SUMMARY OF COMMUNITY INPUT

- All groups, adults and youth, strongly support stream restoration
- All groups generally prefer programs over development and minimal development (e.g., backpack or rustic group camp and open education/interpretive structures) over a highly developed site
- Student groups favor more active programs and expressed a greater interest in safety and infrastructure improvements (e.g., water supply, restrooms, wi-fi)

OVERVIEW



COMMUNITY GROUP PREFERENCES

Top community rankings:

- Stream Ecology
- Parking & Access
- Trails

Community participants preferred:

- Trail connection to Huckleberry (88%)
- Trail connection to Sibley Ridgeline (81%)
- Quiet, peaceful spaces (77%)

CANYON STUDENTS PREFERENCES

Top student rankings

- Safety
- Trails
- Stream Ecology
- Parking & Access

95% of Canyon students preferred:

- Creekside nature trails (Stream Ecology)
- Multi-use trail & bicycle safety signs (Safety)
- Water storage tanks on site (Safety)
- Fire hazard information (Safety)

FACILITY DEVELOPMENT & INFRASTRUCTURE PREFERENCES



Youth and adult community members strongly supported:

- Stream habitat enhancement
- Day-use on-site parking
- Trail connections to Sibley Ridgeline, Huckleberry Preserve & the City of Orinda
- Picnic sites
- Interpretive exhibits
- Creekside nature trails



Youth only strongly supported:

- Connections to Canyon
- Bike skills camp
- Open play areas
- Adventure - low rope courses, zip line, etc.
- Art works from recycled on-site materials
- Botanic garden
- Helicopter dip out of reservoir
- Water storage tanks on site
- Park security residence



FACILITY DEVELOPMENT & INFRASTRUCTURE PREFERENCES



Youth and adult community members moderately supported:

- Overnight group camp - rustic - tents on the ground
- Backpack camps



Youth only moderately supported:

- Mountain bike skills development area
- Group picnic
- Playground/fitness area



RECREATION, INTERPRETIVE & EDUCATION PREFERENCES



Youth and adult community members strongly supported:

- Stream-oriented nature programs
- Restoration work opportunities
- Gentle 1 & 3-mile hikes
- Long-distance & cross-country running
- Trail building/ maintenance
- School programs
- Geology programs
- Nature programs
- Multi-use trail & bicycle safety signs
- Wayfinding signs

Youth only strongly supported:

- Hiker-only, nature trails
- Dog walking
- Fire hazard information

RECREATION, INTERPRETIVE & EDUCATION PREFERENCES



Youth and adult community members moderately supported:

- Cultural programs

Adults only moderately supported:

- Hiker-only, nature trails



Youth only moderately supported:

- Equestrian trails
- Mountain bike trails



RECOMMENDATIONS

RECREATION CONCEPT PLANS KEY FEATURES:



- No Project – Existing/Permitted Access & Trails
- Alternative 1 - Existing/Permitted Access & Trails, New Trails, Stream Restoration & Day Use Recreation & Interpretive Focus at McCosker Site
- Alternative 2 - Existing/Permitted Access & Trails, New Trails, Stream Restoration & Overnight Recreation Use Focus at McCosker Site

The Preferred Community Alternative may be: No Project, Alternative 1, Alternative 2, or some combination of the alternatives

The Environmentally Superior Alternative will be determined through the CEQA environmental analysis

The NO PROJECT ALTERNATIVE would maintain the existing and previously adopted recreation amenities & land use designations.

The NO PROJECT ALTERNATIVE would RETAIN:

- Sibley - Staging Areas - Skyline Blvd. - 34 cars & Old Tunnel Rd. - 10 cars
- Sibley –Sibley – Wilcox Station Staging Area - Pinehurst Rd. - 10 cars
- Existing trails - Current use & design configuration, including no dogs on McCosker Loop Trail
- The existing backpack camp near the Main Staging Area
- 3 park security residences
- The visitor pavilion at the Main Staging Area

The NO PROJECT ALTERNATIVE would INCORPORATE previously permitted features including:

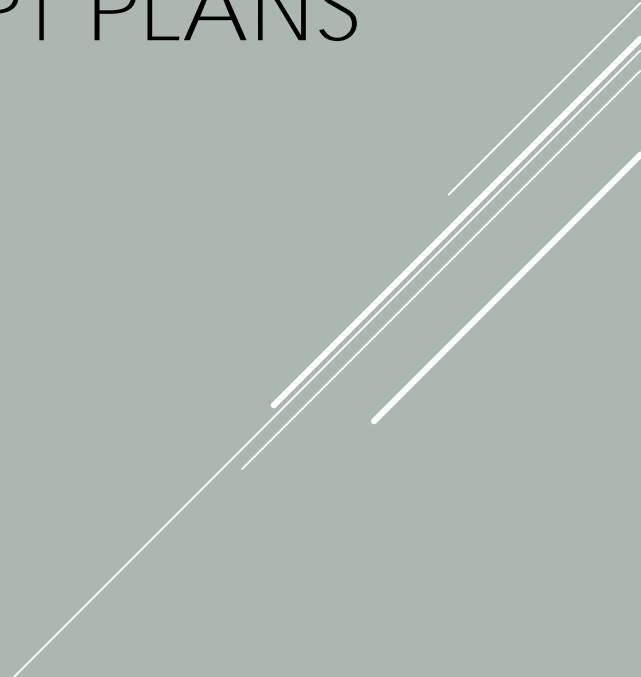
- The Conservation Easement for the 389-acre Western Hills Open Space
- Wilder Park - 10 spaces for Sibley access & Wilder Rd. S. Terminus -19 cars – 2 horse trailers
- Existing, permitted ranch roads in the Western Hills Open Space as multi-use trails
- New, permitted narrow multi-use trails in the Western Hills Open Space

The NO PROJECT ALTERNATIVE would NOT INCLUDE:

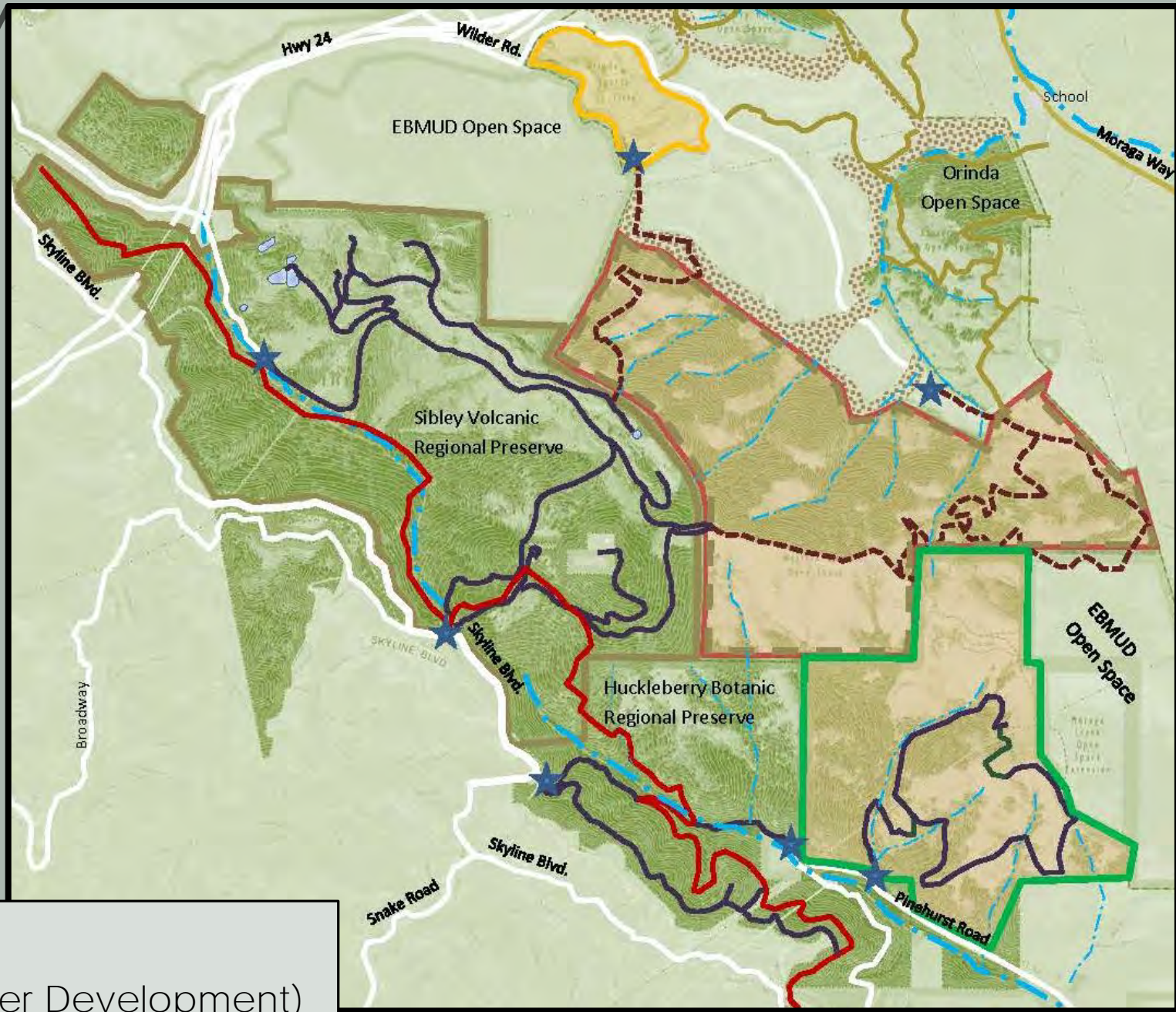
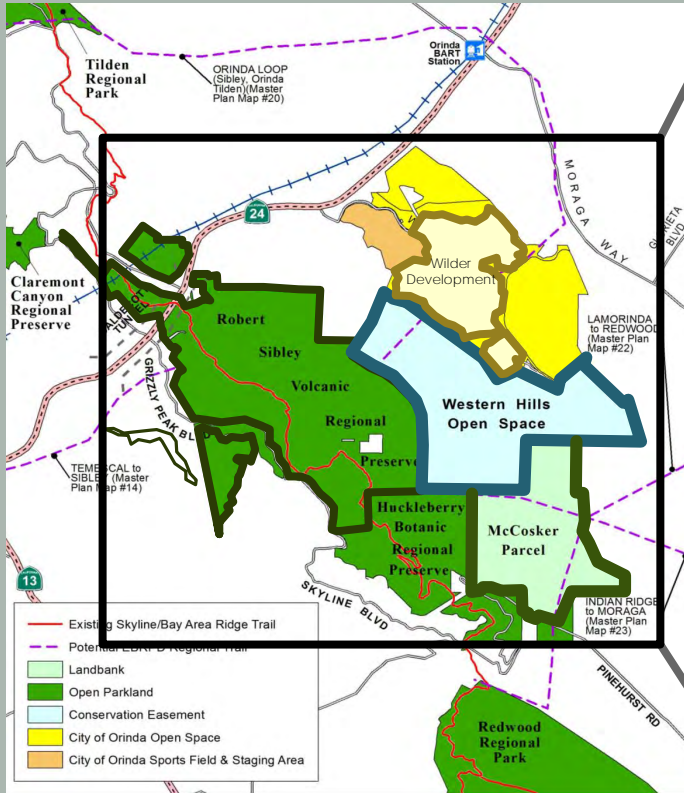
- Restoration of the stream on the McCosker site
- Any new recreation or interpretive facilities
- Any additional parking beyond what is described above
- Any additional trails beyond what is described above



TRAILS CONCEPT PLANS

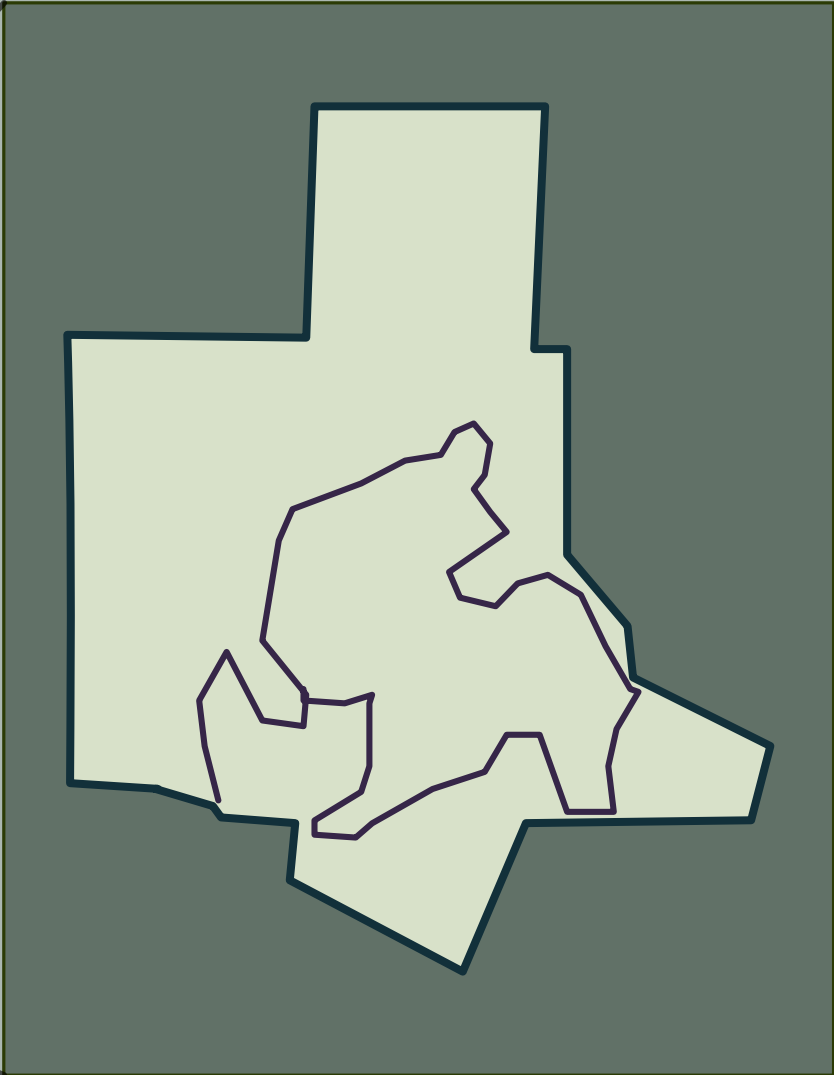
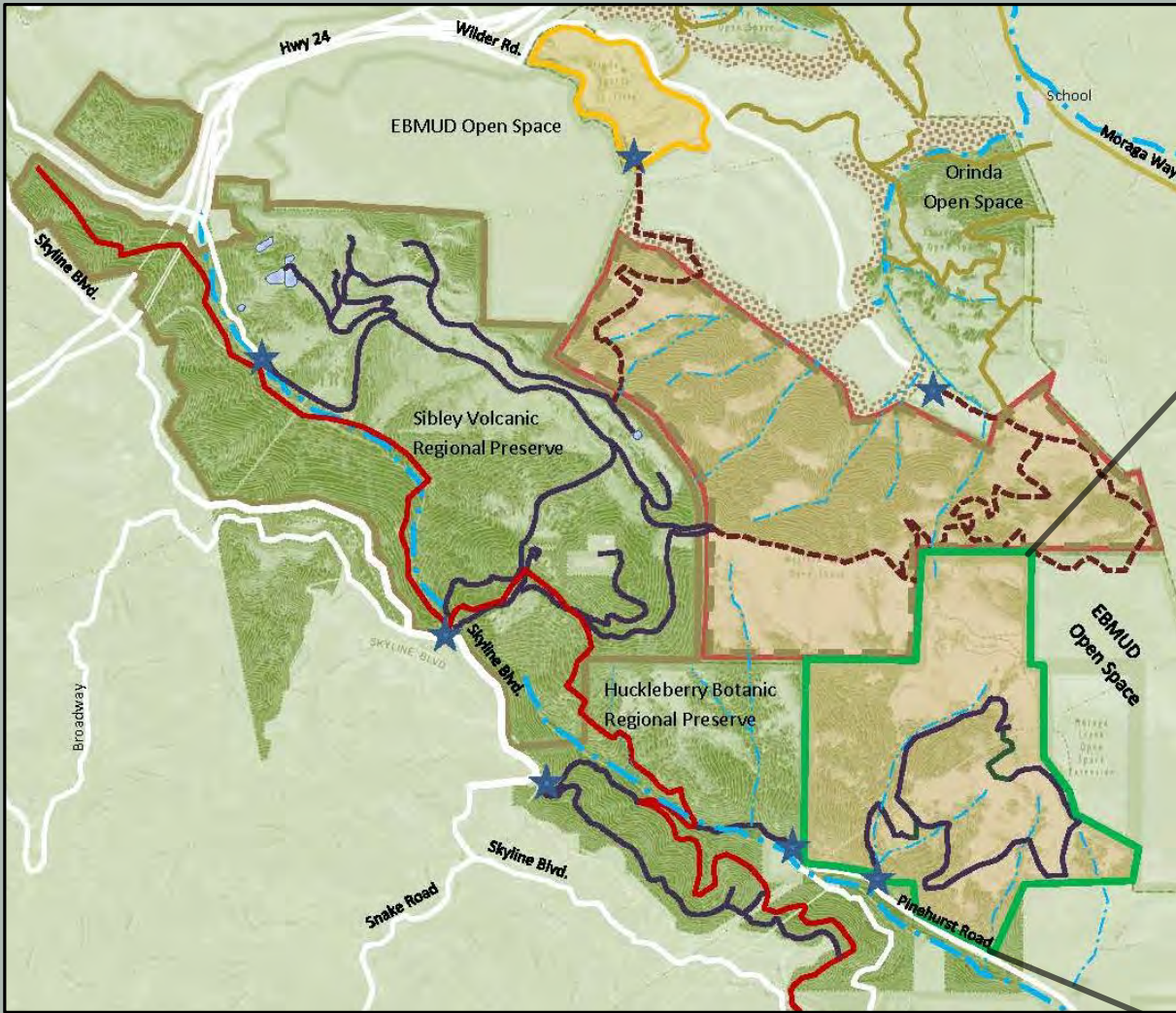


TRAILS PLAN – NO PROJECT



- Existing Preserve Trails
- - - Permitted New Trails (as part of Wilder Development)
- Existing Bay Area Ridge Trail

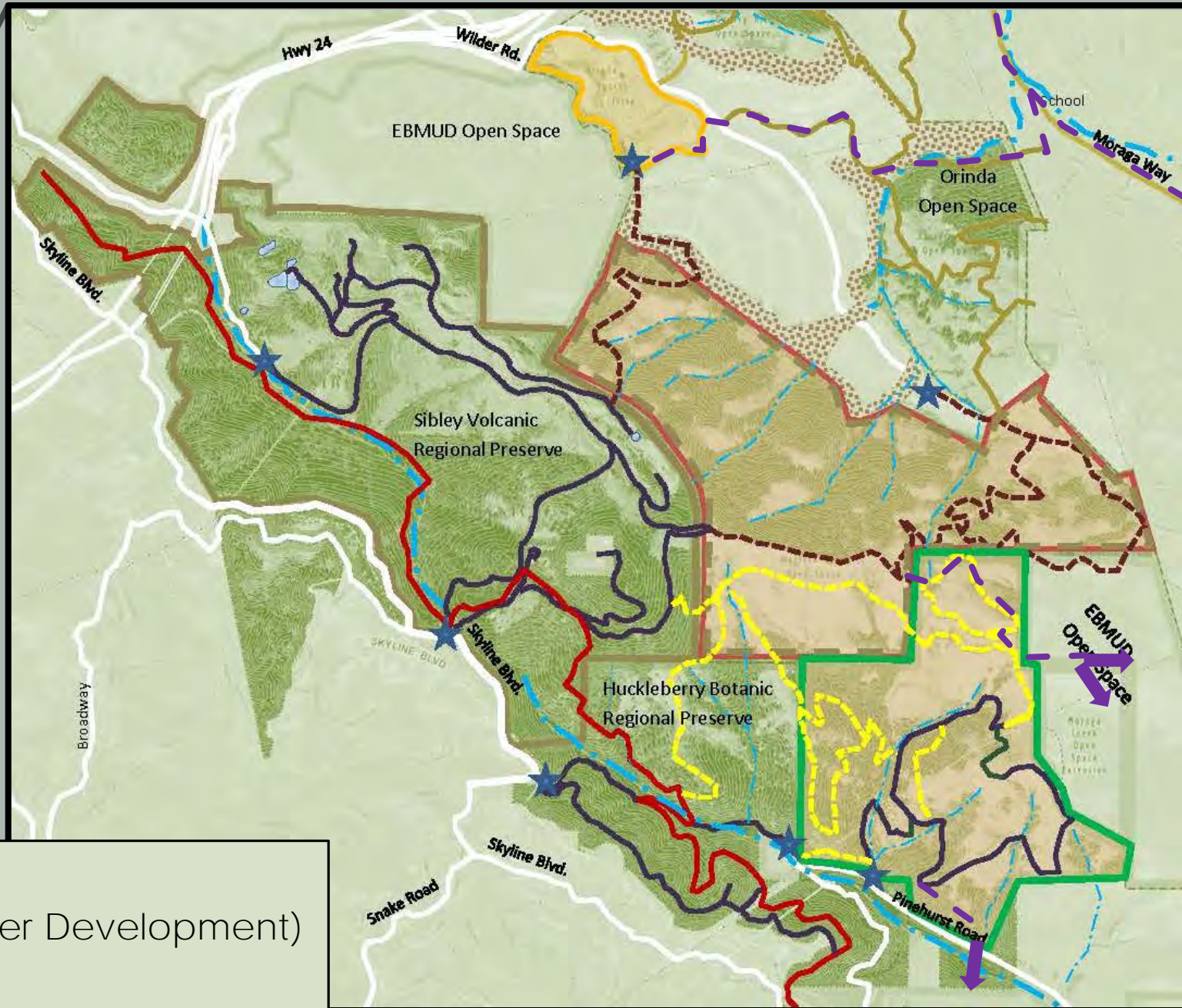
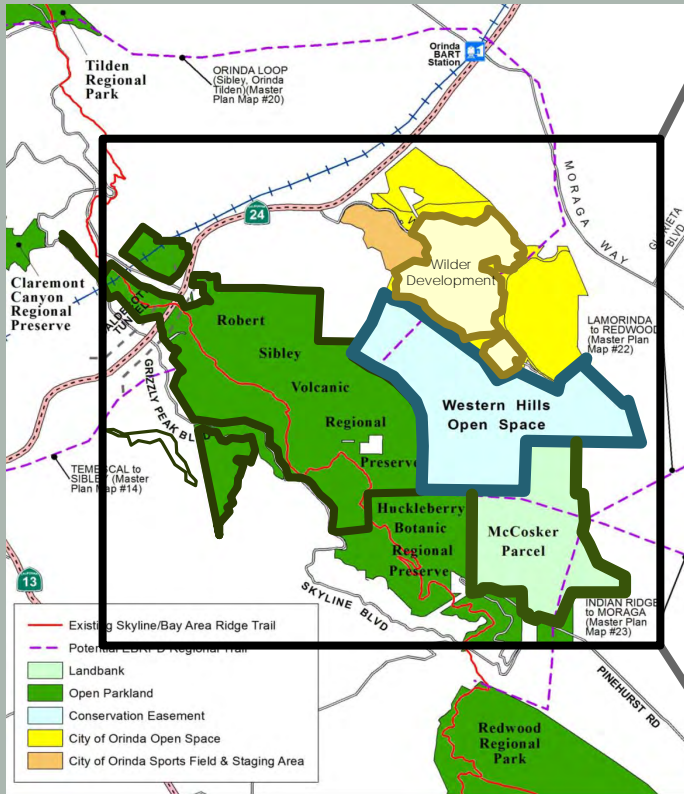
TRAILS PLAN – NO PROJECT



McCosker Area

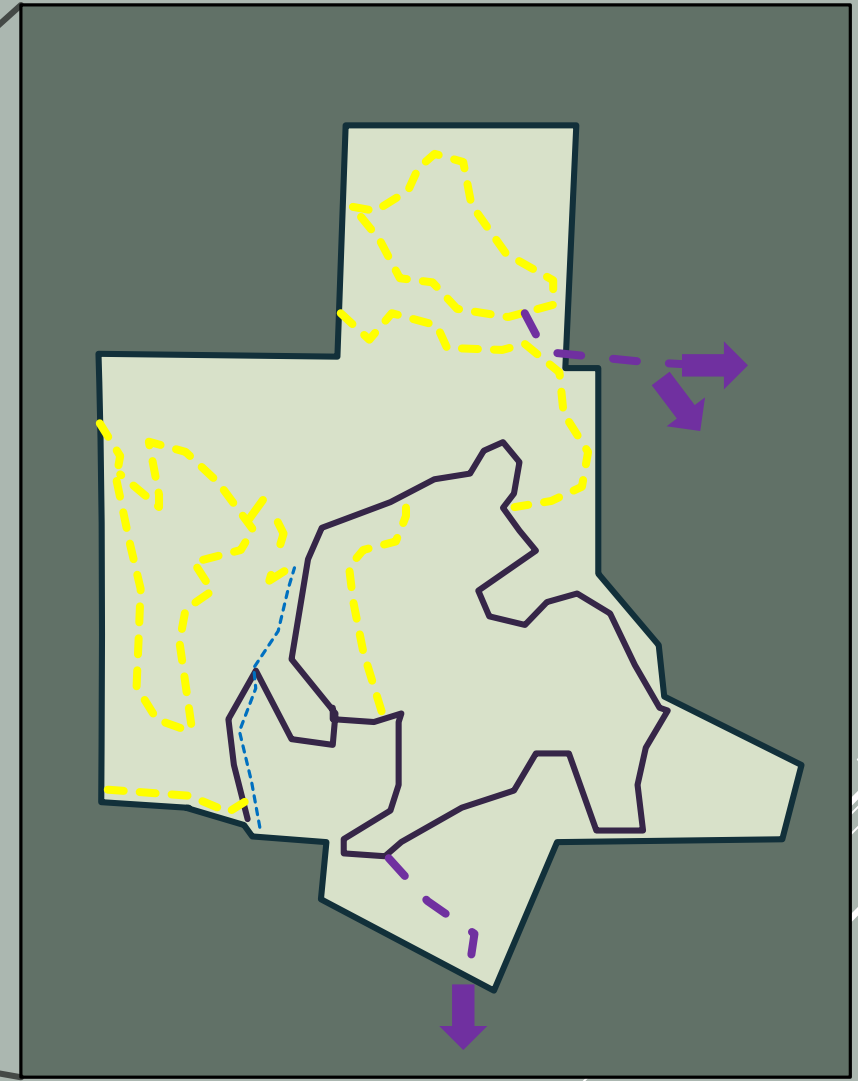
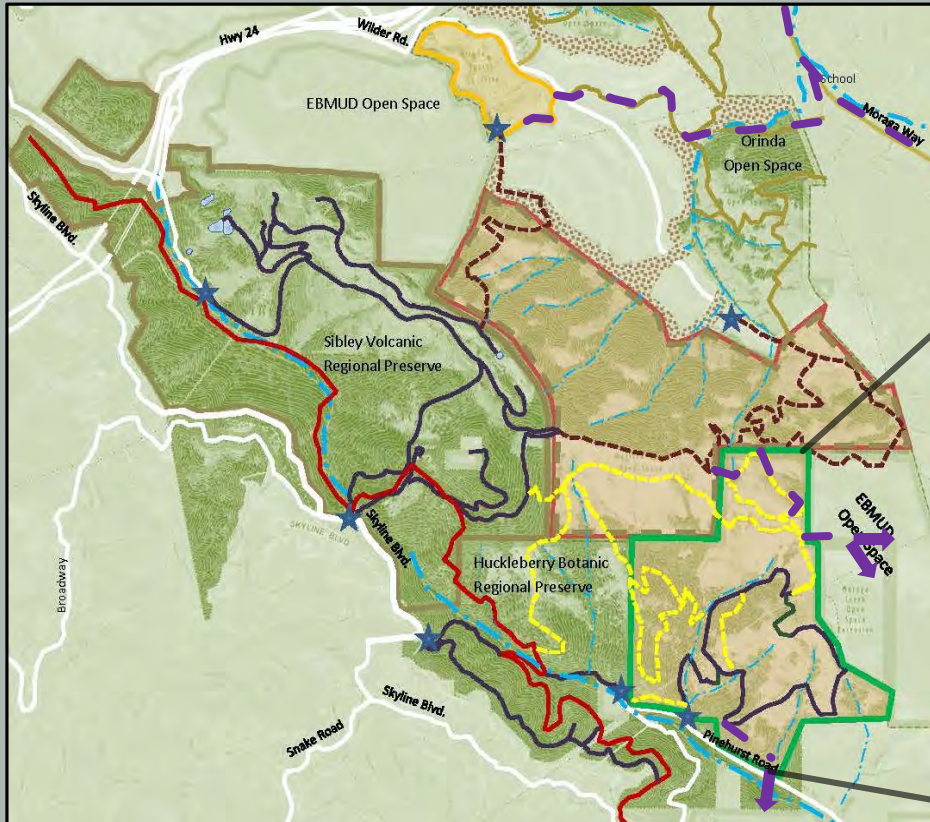
- Existing Preserve Trails
- - - Permitted New Trails (as part of Wilder Development)
- Existing Bay Area Ridge Trail

TRAILS PLAN ALTERNATIVE 1 & 2



- Existing Preserve Trails
- - - Permitted New Trails (as part of Wilder Development)
- Existing Bay Area Ridge Trail
- - - Proposed Preserve Trails
- - - Proposed Regional Master Plan Trails

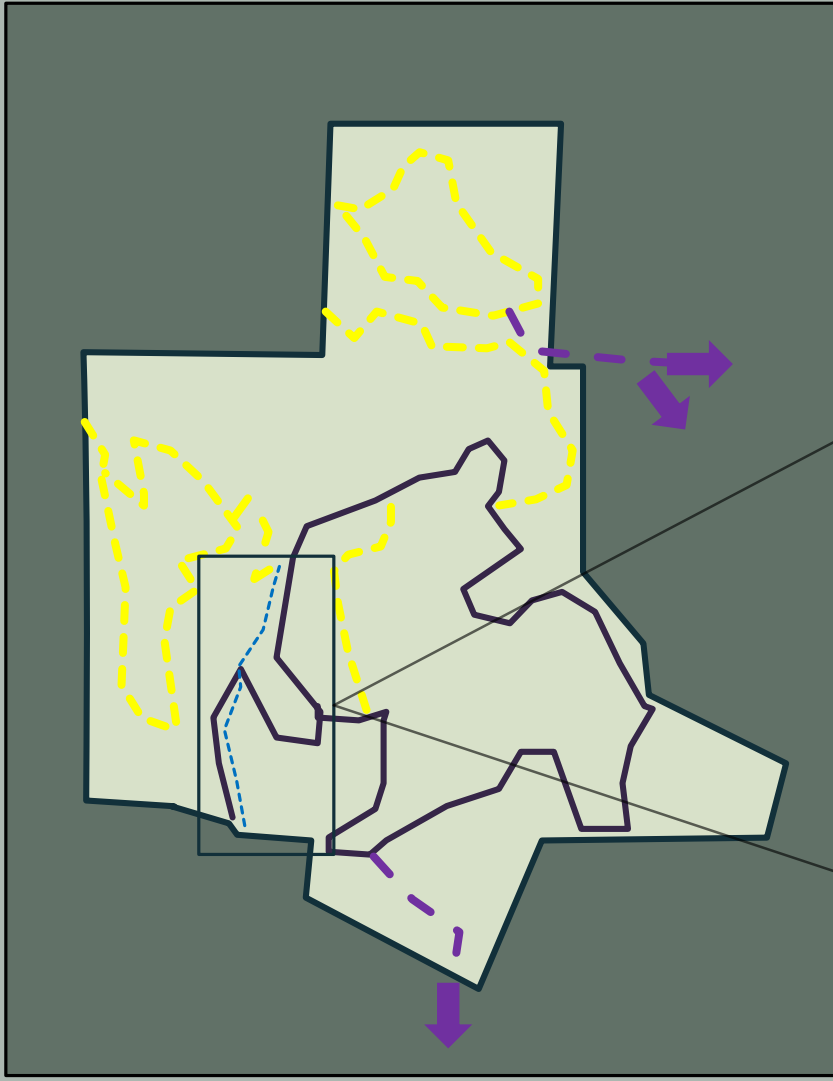
TRAILS PLAN ALTERNATIVE 1 & 2



McCosker Area

- Existing Preserve Trails
- - - Permitted New Trails (as part of Wilder Development)
- Existing Bay Area Ridge Trail
- - - Proposed Preserve Trails
- - - Proposed Regional Master Plan Trails
- - - Creekside Trail

RECREATION ALTERNATIVES 1 & 2



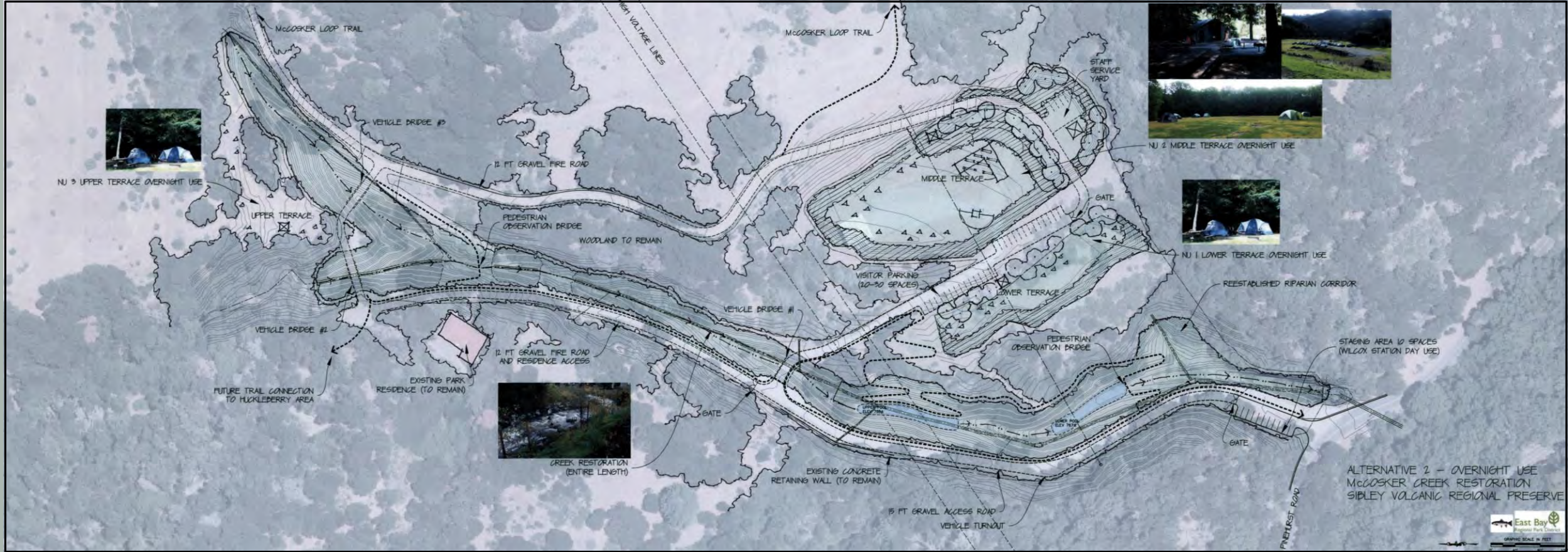
McCosker Area



RECREATION ALTERNATIVE 1



RECREATION ALTERNATIVE 2



COMMUNITY DISCUSSION

McCOSKER SITE DESIGN OPTIONS

- No Project
- Alternative 1 - Day Use Focus
- Alternative 1 - Overnight Use Focus
- Combination of Recreation Features

TRAIL SYSTEM OPTIONS

- New Internal Trails at the McCosker Site
- Connections to Huckleberry
- Connections to Sibley Ridge
- Connections to Western Hills Open Space, Sibley & City of Orinda



PRESENT COMMENTS ON CONCEPT PLANS



Ground Rules – Be Respectful

- Acknowledge others – Be inclusive
- Active listening - Consider interests & philosophy each individual—no pre-judging, no putdowns, attacks or threats
- Tolerance – Observe courtesy & agree to disagree



NEXT STEPS

Winter 2017

- 3rd Newsletter
- LUPA initiated incorporating Community input
- CEQA Notice of Preparation

Summer 2017

- Community Review of LUPA Concept Plans
- 4th Newsletter



LUPA & CEQA





Land Use Plan Amendment incorporating the McCosker & Western Hill Open Space will:

- Evaluate park resources & facilities
- Document agreements & restrictions related to park use
- Provide recommendations for managing resources
- Identify future recreation uses & facilities incorporating recommendations from community workshops

CEQA analysis will:

- Inform decision-makers & public of potential environmental effects
- Identify ways to avoid or significantly reduce effects
- Prevent significant, avoidable damage through project alternatives or mitigation measures

CEQA PROCESS

Notice of Preparation

- EBRPD, as lead agency, circulates a Notice of Preparation (NOP) advising its intention to prepare a Draft EIR (CEQA Guidelines Section 15082).
- Agencies and the public have a maximum of 30 calendar days from receipt of a NOP to comment on a proposed project (CEQA Guidelines Section 15103).

Draft CEQA Document

- EBRPD, as lead agency, prepares and distributes draft EIR
- Responsible and Trustee Agencies and the public have 45 calendar days to review and submit comments on the draft document (PRC Section 21091(a) and CEQA Guidelines Section 15105)

Final CEQA Document

- EBRPD, as lead agency, respond to comments, prepares and certifies Final EIR, makes a decision on the project

Notice of Determination

- EBRPD, as lead agency, has five working days after approving a project for which the EIR is prepared to file a NOD with the county clerk of the county where the project will be located

STAYING INVOLVED & CONNECTED



There are several easy ways for you to participate in this Land Use Planning process:

- *Sign up on the attendance sheet to be placed on the e-mail mailing list*
- *Visit our website at the following link: <http://www.ebparks.org>*
- *Attend upcoming public planning open houses & presentations: Summer 2017*
- *Volunteer - Information about our volunteer program can be accessed at the following link: <http://www.ebparks.org>*

NAME PLEASE PRINT CLEARLY	GROUP OR ORGANIZATION (if any)
✓ <i>Steve Smith</i>	
✓ Joanne Drabek	Sierra Club
✓ Adam Schwarz	
✓ Alan Barbaran	
✓ <i>DAN McAVOY</i>	BTCEB
✓ ELENA TYRRELL	
✓ PETER REPETTI	
RICHARD LEWINGTON	BTCEB
✓ Karen Pickett	Canyon

NAME PLEASE PRINT CLEARLY	GROUP OR ORGANIZATION (if any)
✓ Christine Lamm LAMM	Canyon
✓ MICHAEL ROCHETTE	
✓ Ernesto Montenegro	
✓ Tom Grandesberry	BTCEB
✓ STEVE KOWALZESKI	
✓ CHUCK PERSYAL	
✓ AUSTIN MCINEANY	RIODE TRAIL
✓ Mike Kowalewski	Oakland Bike Patrol
✓ Greg Merritt	

NAME PLEASE PRINT CLEARLY	GROUP OR ORGANIZATION (if any)
✓ Jeff Stephens	
✓ Rick Rosbaum	
✓ Rob Igner	
✓ Baird Wheatley	BTCEB Canyon Creek
✓ Mike Udman	BTCEB
✓ Jamie Barret Riley	Canyon community
✓ Logan Baird	" "
✓ Amelia Wilson	
Leslie Floren	BTCEB

NAME PLEASE PRINT CLEARLY	GROUP OR ORGANIZATION (if any)
✓ Joe Floren	Berkeley HS Mountain Bike Team
✓ Scott Stoller	
✓ William Hudson	ccc
✓ Jill Ray	BOS DIST 2
✓ Dylan Gong	Oakland Composite MTB Team
✓ Moha Palaei	EBRPD PAC
✓ Gilbert Gong	City of Oakland Parks & Rec.
✓ MORGAN FLETCHER	OAKLAND COMPOSITE (NICA)

Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment January 18, 2017 Community Meeting #3



On Wednesday January 18, 2017 the Park District held the third community meeting for the Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment (LUPA). The meeting began with staff giving a presentation of the LUPA planning process including the project purpose, consistency with the Park District Master Plan, project goals, and elements that will be included in the LUPA. Next, staff described the design concepts under consideration including existing study area features and programs and design concept alternatives. Alternatives presented included: **No Project** – Activities and development limited to existing/permitted access and trails; **Alternative 1** – Existing/permitted access and trails, new trails, stream restoration and day use recreation and interpretive focus at McCosker Site; **Alternative 2** – Existing/permitted access and trails, new trails, stream restoration and overnight recreation use focus at McCosker Site; and **Alternative 3** – Some combination of Alternatives 1 and 2. Trail system options included: new internal trails at the McCosker Site; connections to Huckleberry Preserve; Sibley Ridge; Western Hills Open Space, and the City of Orinda. Following the hands-on workshop activity staff gave an overview of the distinctions between the LUPA and California Environmental Quality Act (CEQA) purposes and processes.

A copy of the PowerPoint presentation that was presented at the meeting can be found at: http://www.ebparks.org/about/planning#robert_sibley_lupa

A hands-on workshop activity gave the community an opportunity to provide input on the design concepts for the trail system and recreation concepts for the portion of the Preserve that connects to Pinehurst Rd. in the community of Canyon (McCosker parcel) for Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment (LUPA). Community input from this exercise included: 1) support for restoring the stream channel on the McCosker site and interpretive opportunities along the stream channel as long as it will not lead to degradation of the stream; 2) preference for limited development (e.g., backpack or rustic group camp and open education/interpretive structures), but concern about parking overwhelming the natural character of the site and/or adding to traffic along Pinehurst Road and fire hazards associated with these activities; and 3) preference for a multi-use trail system (e.g., hike, bike, equestrian) including narrow, natural surface trails, that would provide connectivity from the McCosker site to Western Hills Open Space Staging Area, Orinda bike routes, existing Sibley Round Top Trail, and Huckleberry Preserve, as well as recognition that not all uses may be appropriate for all trails.

The results of this community exercise will be used to develop the preferred design concepts that will be incorporated into the LUPA and evaluated in an Environmental Impact Report in accordance with CEQA.

APPENDIX B

Trail Construction and Trail Modification Best Management Practices

APPENDIX B

Trail Construction and Trail Modification Best Management Practices (BMPS)

Following are best management practices that will be employed to minimize adverse impacts to the parkland environment during trail construction, modification and/or restoration activities, as appropriate:

- Develop trails to contour alongside slopes (not the fall line of a slope) as fall-line trails become watercourses, erode easily and then are difficult to maintain. Contour trails should be cut on a full bench, rather than a combination of cut and fill. The cut material should be broadcast downslope, unless the trail is near a creek. Cut material can also be utilized for the ramp section of rolling dips if it is compacted one layer at a time.
- Out-slope trails in most cases (except for short sections at outside bends) to encourage water to run off the side of the trail, rather than along the trail. Trails should be built to have about 3 to 5 percent outslope after trail compaction has occurred, so initial out-sloping should be greater than 5 percent. After a year or two, it should be expected that maintenance would be needed to return and “de-berm” sections of trail where soil compaction and displacement have exceeded the outsloping.
- Incorporate rolling dips (grade reversals 12 to 20 feet long) that avoid the short and abrupt style of traditional “water bars” into a trail where they will enhance natural grade dips (as a backup to out-sloping) to avoid water flow along a trail.
- Locate the outside bend of a trail at a relative high point to help reduce erosion; a reduction in erosion is achieved because the upslope naturally slows a bicycle rider, which reduces the need to brake or skid, which can displace sediments on the trail surface.
- Locate climbing turns or switchbacks whenever possible where the side-slope is 10 percent or less, to create a sustainable, low-erosion trail. The actual trail gradient should be determined by site geology and terrain. The wider the turn and the lower the slope of the turn itself, the less braking and skidding (going downhill) is needed, and less wheel spinning (going uphill) is likely.
- Reduce locations where bicycles tend to brake heavily and or have to climb steep hills, which could cause erosion. Make a conscious effort to design trails with consistent “flow” (IMBA, 2004). Exaggerate grade reversals at outside bends. Gradual flow transitions should also reduce user conflicts.
- If landslides or slope failures occur, cut a temporary ramp through the edge of the scarp, have the trail traverse across the slide, and then cut another ramp to go up the scarp on the other side to reduce the tendency for users to create unsanctioned trails around the head of the landslide scarp.
- Close trails in areas with active landslides and highly erodible soils during wet weather and storm events.

- Maintain the trail corridor by trimming encroaching vegetation to keep trail in a safe and operable condition thereby encouraging users to stay within the constructed trail bed.
- Conform trail approaches as they intersect with other trails to reduce water collection at the junction and moderate the speed of trail users.
- Minimize disturbance to the soil surface to reduce erosion and maintenance problems; minimized trail widths to reduce the amount of bare soil subject to erosion and produce less concentrated runoff than wider trails (with all other factors being equal).
- Prepare specific erosion control plans as part of the trail construction documentation for new trail alignments. Criteria to be used in determining the erosion potential and developing the plan include: slope; soil type; soil composition and permeability; and the relative stability of the underlying geologic unit.
- Incorporate erosion- and sediment-control measures where trails are in riparian zones to minimize the mobilization of sediment to creeks and other water bodies including:
 - Using paving stones or other rock work (to armor the trail surface).
 - Providing settling areas for trail drainage where water can infiltrate and sediment can settle out.
 - Constructing creek crossings so that they do not greatly alter the cross-sectional shape of the channel or floodplain.
 - Sloping the approach to a creek or drainage crossing downward toward the creek and then climbing upward when traveling away from the creek drainage bed, so that in the event of a blockage in the channel, the creek water would not be diverted to flow along the trail.
 - Enclosing and covering exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
 - Containing soil and filtering runoff from distributed areas by berms, vegetated filters, silt fencing, straw wattles, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from disturbed areas.
 - Prohibiting the placement of earth or organic material where it may be directly carried into a stream, swale, ditch, marsh, pond, or body of standing water.
 - Prohibiting the following types of materials from being rinsed or washed into waterways: concrete, solvents and adhesives, fuels, dirt, gasoline, asphalt, and concrete saw slurry.
 - Only conducting dewatering activities with implementation of proper construction water quality control measures in place.
- Use rock drains and gravel surfaces where trails cross seep areas to minimize potential for trail users to bypass the soggy area in ever-increasing arcs. Use soil amendments such as sand, crushed rock, or gravel to make a trail less prone to compaction and displacement; amendments can also help the tread drain better.
- Limit the source of water for horse troughs to seeps, springs and existing water lines; do not divert water from creeks or other waterways.
- Abandon, obliterate and restore trails where it has been determined that the trail would be a significant risk to park resources or safety of the park users. In these cases, the decommissioned trail will be:

- Blocked with local native vegetation materials such as limbs, logs, rocks and brush (or fencing) that will be placed in such a way as to create obstacles for the trail user
- Rehabilitated by filling and reshaping the former trail surface to blend with the natural contours. If soil compaction has occurred, the soil will be scarified and aerated.
- Revegetated by planting native vegetation, transplanted from the vicinity, or seeded with native species found in the area.
- Posted “*not a trail, habitat restoration taking place.*”

Once the obliteration and restoration has been completed, the decommissioned trail should be totally obscured, present a difficult and uncomfortable route to the potential trail user, and, if possible, the view of the trail blocked from a designated trail.

APPENDIX C

Plant and Wildlife Species Lists for the Project Area

**SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF
MCCOSKER CREEK RESTORATION AND RECREATIONAL INFRASTRUCTURE IMPROVEMENTS PROJECT**

Common Name Scientific Name	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
SPECIES LISTED OR PROPOSED FOR LISTING			
Plants			
Pallid manzanita <i>Arctostaphylos pallida</i>	FT/CE/1B.1	Broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub; 185-465 m. Blooms December - March.	High. Suitable habitat exists in study area and CNDDDB observations have been reported in the vicinity of the study area.
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	FE/--/1B.1	Dunes, openings, coastal habitats within coastal strand, foothill woodland, and northern coastal scrub habitats; 0 - 150m. Blooms April – September.	Unlikely. Suitable habitat not found in the study area. No CNDDDB observations within three miles of study area.
Presidio clarkia <i>Clarkia franciscana</i>	FE/CE/1B.1	Coastal scrub, valley and foothill grassland; endemic to serpentine soils; 30 – 340 m. Blooms May – July.	Unlikely. Serpentine soils not present in the study area. Nearest CNDDDB observation approximately three miles from study area.
Santa Cruz tarplant <i>Holocarpha macradenia</i>	FT/CE/1B.1	Coastal prairie, coastal scrub, valley and foothill grassland, often in clay or sandy soil. 0 – 110m. Blooms June – October.	Low. Marginal habitat present. No CNDDDB occurrences of this species within three miles of the study area.
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE/--/1B.1	Vernal pools and seasonal wetlands in grassland and woodland. 4 – 180m. Blooms March – June.	Unlikely. Vernal pools and seasonal wetlands not found in the study area.
Beach layia <i>Layia carnosa</i>	FE/CE/1B.1	Coastal dunes, coastal scrub. 0 – 550m. Blooms March – July.	Unlikely. Suitable habitat not found in the study area.
Antioch Dunes evening primrose <i>Oenothera deltoides</i> ssp. <i>howellii</i>	FE/CE/1B.1	Inland dunes. 5 – 30m. Blooms March – September.	Unlikely. Suitable habitat not found in the study area.
San Francisco popcornflower <i>Plagiobothrys diffusus</i>	--/CE/1B.1	Open dry rocky slopes and grassland, often on soils derived from serpentinite. 17 – 260m. Blooms March-June.	Low. Marginal habitat present. Nearest CNDDDB occurrence is approximately three miles from the study area.
Adobe sanicle <i>Sanicula maritima</i>	--/CR/1B.1	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland; often in clay or serpentinite soils. 18 – 190m. Blooms February – May.	Unlikely. Suitable habitat not found in the study area.
California seablite <i>Suaeda californica</i>	FE/--/1B.1	Margins of coastal salt marshes and swamps. 0-5 m. Blooms July – October	Unlikely. Suitable habitat not found in the study area.
Invertebrates			
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/*/--	Rock outcrop pools, clay pan pools or other non-flow-through areas capable of ponding water seasonally.	Unlikely. Suitable habitat not found in the study area.
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>	FE*/Xerces CI	Coastal scrub on rocky outcrops with broadleaf stonecrop (<i>Sedum spathulifolium</i>). Occurs in San Mateo County only.	Not expected. Outside of species' range.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)			
Invertebrates (cont.)			
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT*/Xerces CI	Native grasslands on serpentine soils in San Francisco Bay area. Host plants: foothill plantain (<i>Plantago erecta</i>) (primary); denseflower Indian paintbrush (<i>Castilleja densiflora</i>) and owl's clover (<i>C. exserta</i>). Period of identification: March - May	Low. Suitable habitat not found in the project study area and supportive host plants not observed during reconnaissance survey. One CNDDDB observation ~1 miles from study area. Observation from the 1980s and population is presumed extirpated.
callippe silverspot butterfly <i>Speyeria callippe callippe</i>	FE/--/Xerces CI	Grasslands, especially hilltops and ridges. Requires large patches of host plant, johnny jump-up (<i>Viola pedunculata</i>). Populations limited to San Bruno Mountain in San Mateo County and Alameda County. Period of identification: late April - July	Low. No known populations of callippe silverspot butterfly in the East Bay hills and no populations of host plant recorded or observed in study area.
Fish			
tidewater goby <i>Eucyclogobius newberryi</i>	FE/CSC/--	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Unlikely. Suitable habitat not found in the project study area.
Delta smelt <i>Hypomesus transpacificus</i>	FT/CE/--	Endemic to the Sacramento-San Joaquin Delta distributed from Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, and Solano Counties. Spawning occurs in brackish-water river channels and sloughs of the Delta.	Unlikely. The project study area is outside of the species range.
steelhead <i>Oncorhynchus (=Salmo) mykiss irideus</i> central California coast DPS	FT*/--	Spawns and rears in coastal streams between the Russian River in Sonoma County and Soquel Creek in Santa Cruz County, as well as drainages tributary to San Francisco Bay, where gravelly substrate and shaded riparian habitat occurs.	Unlikely. The watershed above San Leandro Reservoir Dam is inaccessible to ocean-going steelhead. An isolated population of rainbow trout has been documented in upper San Leandro Creek and in the plunge pool north of Pinehurst Rd. Upstream portions of Alder Creek are inaccessible to the trout due to the position of the culvert above the plunge pool.
longfin smelt <i>Spirinchus thaleichthys</i>	FC/CT/--	Found throughout the nearshore coastal waters and open waters of San Francisco Bay-Delta including the river channels and sloughs of the Delta. Spawns in the Delta.	Unlikely. The project study area is outside of the species range. Stream is inaccessible to this species based on extensive stretches of culverted stream.
Amphibians			
California tiger salamander <i>Ambystoma californiense</i>	FT/CT/--	Vernal or temporary pools in annual grasslands, or open stages of woodlands. Typically, adults use mammal burrows for aestivation in non-breeding season.	Low. Vernal and temporary pools, and burrows, not observed within the project study area.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
SPECIES LISTED OR PROPOSED FOR LISTING (cont.)			
Amphibians (cont.)			
foothill yellow-legged frog <i>Rana boylei</i>	--/CC/--	Partly-shaded, usually perennial, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Low. Recent and past surveys by the District have not identified this species in Alder Creek. Current conditions in Alder Creek lack suitable water depths and velocities to provide breeding habitat to this species. Alder Creek may provide suitable non-breeding habitat for dispersing juveniles and adults, but no adjacent reaches are believed to support breeding populations (EBRPD, 2018).
California red-legged frog <i>Rana draytonii</i>	FT/CSC/--	Streams, freshwater pools, and ponds with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources such as reservoirs and slow moving streams and needs pools of >0.5 m depth for breeding.	Moderate (non-breeding) to Low (breeding). Presence of pools within Alder Creek with overhanging banks and vegetation, as well as riparian woodland, provide suitable general habitat for this species; breeding habitat is marginal due to a lack of emergent vegetation. One recent (1997) CNDDB record of adult CRLF on the banks of an outlet pool at a culvert in a seasonal tributary.
Reptiles			
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT/CT/--	Coastal ranges, in chaparral and riparian habitat and adjacent grasslands.	High. Species is known to use grasslands, woodlands, and other non-scrub habitat, which is present in the watershed. The study area is in Critical Habitat designated for this species and non-site-specific observations are recorded in the vicinity of the project area (exact locations are not provided to protect the species). Many non-specific but recent CNDDB records of AWS within 3 miles of the study area.
Birds			
Western snowy plover <i>Charadrius nivosus ssp. nivosus</i>	FT/CSC/--	Nest on coasts and estuaries on dune-backed beaches and salt pans at lagoons/estuaries.	Unlikely. Suitable habitat not found in the study area.
bald eagle <i>Haliaeetus leucocephalus</i>	FD/CE/--	Winter foraging at lakes and along major rivers	Unlikely (nesting). Suitable habitat not found in the study area.
California black rail <i>Laterallus jamaicensis coturniculus</i>	--/CT,FP/--	Salt and freshwater marshes, grassy wet meadows.	Unlikely. Suitable habitat not found in the study area.
California Ridgway's rail <i>Rallus obsoletus obsoletus</i>	FE/CE,FP/--	Salt marsh wetlands along the San Francisco Bay.	Unlikely. Suitable habitat not found in the study area.
California least tern <i>Sterna antillarum browni</i>	FE/CE,FP/--	Open beaches free of vegetation along the California coast.	Unlikely. Suitable habitat not found in the study area.
Mammals			
Salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE/CE,FP/--	Dense pickleweed vegetation required with other halophytes often present.	Unlikely. Suitable habitat not found in the study area.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES			
Plants			
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	--/--/1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. 30 – 680m. Bloom period March – June.	High. Recent Calflora observations on north edge of study area.
California androsace <i>Androsace elongata</i> ssp. <i>acuta</i>	--/--/4.2	Slopes in chaparral, foothill woodland, northern coastal scrub and coastal sagebrush scrub. Blooms March - June	Low. Marginal habitat and no observations within three miles of study area.
slender silver moss <i>Anomobryum julaceum</i>	--/--/4.2	Damp rock and soil outcrops in broadleaf upland forest, lower montane coniferous forest, and North Coast coniferous forest.	Low. Marginal habitat and no observations within three miles of study area.
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	--/--/1B.2	Alkali playa and flats, valley, annual, and foothill grassland, vernal pools, low ground, and flooded lands. 1 – 170 m. Blooms March – June	Unlikely. Suitable habitat not found in the study area.
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	--/--/1B.2	Cismontane woodland, grassland. 90 – 1740 m. Blooms March – June	Low to Moderate. Suitable habitat could be found in relatively undisturbed grasslands; however, no recent observations of this species exist in or near the study area.
big tarplant <i>Blepharizonia plumosa</i>	--/--/1B.1	Valley and foothill grasslands, usually clay. 9 – 470m. Blooms July – October.	Low to Moderate. Suitable habitat could be present in relatively undisturbed grasslands; however, nearest occurrence is over 3 miles away and is presumed extirpated.
round-leaved filaree <i>California macrophylla</i>	--/--/1B.2	Valley grassland and foothill woodland. 15 – 1200m. Blooms March – May	Low. Suitable habitat could be present in relatively undisturbed grasslands; however, this species is considered extirpated from this area of the East Bay hills.
Mt. Diablo fairy lantern <i>Calochortus pulchellus</i>	--/--/1B.2	Chaparral, valley grassland, foothill woodland. 60 – 780 m. Blooms April – June.	Low to Moderate. Suitable habitat could be present in relatively undisturbed grasslands; however, nearest occurrence is over 4 miles away.
Oakland star-tulip <i>Calochortus umbellatus</i>	--/--/4.2	Chaparral, valley grassland, yellow pine forest and mixed evergreen forest. Has an affinity to serpentine soils. Blooms March - May	Low to Moderate. Suitable habitat may exist in vicinity of study area if serpentine soils present. Observations from the 1980s have been recorded in Calflora in Redwood Regional Park, approximately 2.5 miles from study area.
Coastal bluff morning-glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i>	--/--/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest. 5 – 490 m. Blooms May – September.	Low. Suitable habitat not found in the project study area. Nearest occurrence over 9 miles away, on Carquinez Ave. in neighborhood in El Cerrito.
bristly sedge <i>Carex comosa</i>	--/--/2B.1	Coastal prairie, marshes and swamps (lake margins), valley and foothill grasslands. 270 – 1030 m. Blooms May – September.	Low. Suitable habitat not found in the project study area and no recorded occurrences.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
Plants (cont.)			
johnny-nip <i>Castilleja ambigua</i> ssp. <i>ambigua</i>	--/--/4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. 0 – 350m. Blooms March – August.	Low. Suitable habitat not found in the project study area and no recorded occurrences.
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congonii</i>	--/--/1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 1-230m. Blooms May – October.	Unlikely. Suitable habitat not found in the study area.
Point Reyes salty bird's-beak <i>Chloropyron maritimum</i> ssp. <i>palustre</i>	--/--/1B.2	Coastal salt marsh usually with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-15m. Blooms June – October.	Unlikely. Suitable habitat not found in the study area.
San Francisco Bay spineflower <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	--/--/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, on sandy soils. Blooms April – July.	Unlikely. Suitable habitat not found in the study area.
Bolander's water-hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	--/--/2B.1	Marshes and swamps, coastal, fresh or brackish water. 4 – 120m. Blooms July – September.	Unlikely. Suitable habitat not found in the study area.
Franciscan thistle <i>Cirsium andrewsii</i>	--/--/1B.2	Mixed evergreen forest, northern coastal scrub and wetland, riparian areas along the coast. Affinity to serpentine soil. 13 – 1950m. Blooms March – July.	Unlikely. Suitable habitat not found in the study area.
Santa Clara red-ribbons <i>Clarkia concinna</i> ssp. <i>automixa</i>	--/--/4.3	Cismontane woodland, chaparral. Found on slopes and near drainages. 90-1500m. Blooms May – June.	Low to Moderate. Suitable habitat present; however, no occurrences reported in vicinity of project area.
western leatherwood <i>Dirca occidentalis</i>	--/--/1B.2	Chaparral, foothill woodland, mixed evergreen forest, broadleaved upland forest, closed-cone pine forest, north coastal coniferous forest, and wetland-riparian areas. Equally likely to occur in wetlands and non-wetlands. 12 – 560m. Blooms January – March.	High. Suitable habitat is found in the project study area. Occurrences documented within the study area. Presumed extant in the area.
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	--/--/1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. 20 – 630m. Blooms May – September.	Unlikely. Suitable habitat not found in the study area.
Jepson's coyote thistle <i>Eryngium jepsonii</i>	--/--/1B.2	Valley and foothill grassland, vernal pools. Present only in vernal pools and seasonal wetlands. Blooms April – August 3 – 300m.	Low. Minimal suitable habitat present. Not observed in seasonal wetlands near barn.
San Joaquin spearscale <i>Extriplex joaquinana</i>	--/--/1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland; alkali soils. Blooming period April – September.	Unlikely. Suitable habitat not found in the study area.
minute pocket moss <i>Fissidens pauperculus</i>	--/--/1B.2	North coast coniferous forest with damp coastal soils. 10 – 1024m.	Unlikely. Suitable habitat not found in the study area.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
Plants (cont.)			
fragrant fritillary <i>Fritillaria liliacea</i>	--/--/1B.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland; heavy clay soils, often serpentinite. Blooms February – April.	Low to Moderate. Observation in CNDDB overlaps with study area; however, date of occurrence and exact location are unknown, and species identification “very questionable”.
blue coast gilia <i>Gilia capitata</i> ssp. <i>chamissonis</i>	--/--/1B.1	Coastal dunes and scrub. 0 – 580 m. Blooms April – July.	Unlikely. Suitable habitat not found in the study area.
dark-eyed gilia <i>Gilia millefoliata</i>	--/--/1B.2	Coastal dunes. 2 – 30 m. Blooms April – July.	Unlikely. Suitable habitat not found in the study area.
Diablo helianthella <i>Helianthella castanea</i>	--/--/1B.2	Broad-leaved upland forest, chaparral, cismontaine woodland, coastal scrub, riparian woodland, valley and foothill grassland; 20 – 960 m. Blooms March – June.	Moderate. Suitable habitat present.
congested-headed hayfield tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i>	--/--/1B.2	Valley and foothill grassland; sometimes roadsides. 30 – 1060m. Blooms April – November.	Low. Suitable habitat present; however, no occurrences reported in the East Bay.
water star-grass <i>Heteranthera dubia</i>	--/--/2B.2	Marshes and swamps (alkaline, still or slow-moving water); usually in slightly eutrophic waters. Blooms July – August.	Unlikely. Suitable habitat not found in the study area.
Loma Prieta hoita <i>Hoita strobilina</i>	--/--/1B.1	Mixed evergreen forest and chaparral. Affinity for serpentine soil. 90 – 1170m. Blooms May – July	Low. Suitable habitat not found in the study area and no recent occurrences reported.
Kellogg’s horkelia <i>Horkelia cuneata</i> var. <i>sericea</i>	--/--/1B.1	Closed-cone coniferous forest, coastal scrub, chaparral (maritime), coastal dunes; 0 – 1690m. Blooms February – July.	Low. Marginal habitat may be present; however, this species is considered extirpated from the vicinity of the study area.
Coast iris <i>Iris longipetala</i>	--/--/4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps, mesic sites. 5 – 430m. Blooms March – May	Low. Marginal habitat may be present; however, no occurrences are reported within 3 miles of the study area.
Carquinez goldenbush <i>Isocoma arguta</i>	--/--/1B.1	Valley and foothill grassland. 8 – 100m. Blooms August – December.	Low. Outside of species range. Species occurs along Delta and Jepson Prairie.
Southern California black walnut <i>Juglans californica</i>	--/--/4.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland. 5 – 1790m. Blooms March – June.	Unlikely. Occurs in specific and patchy locations in northern California. Not present within the study area.
Northern California black walnut <i>Juglans hindsii</i>	--/--/1B.1	Riparian forest, riparian woodland. 0 – 1200m. Blooms April – May.	Unlikely. Occurs in specific and patchy locations in northern California. Not present within the study area.
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE/--/1B.1	Cismontane woodland, alkaline playas, vernal pools, valley and foothill grasslands. Mesic soils.	Not expected. CNPS documents an extant occurrence in the Benicia quad near Crockett Hills Regional Park; however, no occurrences within 3 miles of the study area.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
Plants (cont.)			
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	--/--/1B.2	Marshes and swamps. 0 – 530m. Blooms May – July.	Unlikely. Suitable habitat not found in the study area.
bristly leptosiphon <i>Leptosiphon acicularis</i>	--/--/4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. 10 – 960m. Blooms April – July.	Low. Suitable habitat present; however, no observations recorded in vicinity of study area.
rose leptosiphon <i>Leptosiphon rosaceus</i>	--/--/1B.1	Coastal bluff scrub. Blooms April – July.	Unlikely. Suitable habitat not found in the study area.
Hall's bush-mallow <i>Malacothamnus hallii</i>	--/--/1B.2	Chaparral. 70 – 430m. Blooms May – September	Low. Suitable habitat present; however, nearest observations are over 10 miles from the study area.
Oregon meconella <i>Meconella oregana</i>	--/--/1B.1	Shaded canyons. Blooms March – May.	High. Suitable habit present and several observations in the vicinity of the study area.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	--/--/3.2	Valley grassland, foothill woodlands and mixed evergreen forest. Has an affinity to serpentine soils. Blooms March - May	Low to Moderate. Suitable habit present; however, no recent observations in the vicinity of the study area.
San Antonio Hills monardella <i>Monardella antonina</i> ssp. <i>antonina</i>	--/--/3	Chaparral, cismontane woodland. Blooms June – August.	Low. Suitable habitat present; however, nearest observation is over 5 miles from the study area.
woodland woollythreads <i>Monolopia gracilens</i>	--/--/1B.2	Mixed evergreen forest, broadleaved upland forest, redwood forest, and chaparral, and valley and foothill grasslands. Affinity to serpentine soil. 60 – 1360m. Blooms March – July	Low to Moderate. Suitable habit present; however, no recent observations in the vicinity of the study area.
Lime Ridge navarretia <i>Navarretia gowenii</i>	--/--/1B.1	Chaparral. Blooms May – June.	Low. Marginal habitat and no observations reported in the vicinity of the study area.
Michael's rein orchid <i>Piperia michaelii</i>	--/--/4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest. 15 – 590m. Blooms April – August.	Low. Marginal habitat and no observations reported in the vicinity of the study area.
Choris' popcornflower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	--/--/1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie. 4 – 300m. Blooms March – June	Low. Marginal habitat. One observation reported in East Bay (downtown Oakland) over 100 years ago; considered extirpated.
hairless popcornflower <i>Plagiobothrys glaber</i>	--/--/1A	Coastal salt-marsh, alkali flats. Blooms April – May	Unlikely. Suitable habitat not found in the study area.
Marin knotweed <i>Polygonum marinense</i>	--/--/3.1	Marshes and swamps (coastal silt or brackish). 0 – 40m. Blooms May – August.	Unlikely. Suitable habitat not found in the study area.

**SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF
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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
Plants (cont.)			
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	--/--/4.2	Valley grassland, foothill woodland, redwood forest, freshwater wetlands, wetland-riparian areas and vernal pools. Occurs almost always under natural conditions in wetlands. 12 – 810m. Blooms February – May	Low. Aquatic species that occurs in wetlands. Suitable habitat may be present near pump house in the study area.
most beautiful jewelflower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	--/--/1B.2	Serpentine grassland, chaparral. Blooms April – June	Unlikely. Suitable habitat not found in the study area.
slender-leaved pondweed <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	--/--/2B.2	Marshes and swamps, in shallow, clear water of lakes and drainage channels. 15-2,310m. Blooms May – July	Unlikely. Suitable habitat not found in the study area.
saline clover <i>Trifolium hydrophilum</i>	--/--/1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. 0 – 220m. Blooms April – June.	Unlikely. Suitable habitat not found in the study area.
San Francisco owl's-clover <i>Triphysaria floribunda</i>	--/--/1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually serpentine soils. 17 – 200m. Blooms April – June.	Unlikely. Suitable habitat not found in the study area.
oval-leaved viburnum <i>Viburnum ellipticum</i>	--/--/2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 100 – 1160m. Blooms May – June.	Low to Moderate. Suitable habit present; however, no observations reported within 5 miles of the study area.
Invertebrates			
Monarch butterfly <i>Danaus plexippus</i> (wintering sites)	--*/--	Eucalyptus groves (winter sites). Period of identification: Winter	Moderate. Eucalyptus groves that could support overwintering monarchs are present in the project study area.
Fish			
Sacramento perch <i>Archoplites interruptus</i>	--/CSC/--	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of water conditions.	Unlikely. Suitable habitat not found in the study area.
Amphibians			
Northern California legless lizard <i>Anniella pulchra</i>	--/CSC/--	Occurs in moist, warm, loose soil with plant cover, sparsely vegetated beach dunes, pine-oak woodland, chaparral, riparian woodland, desert scrub, sandy washes and stream terraces with sycamores, cottonwoods or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat.	Unlikely. Suitable habitat not found in the study area.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
Reptiles			
Western pond turtle <i>Emys marmorata</i>	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	Low. Marginal habitat in the deeper pools of Alder Creek; lack of basking sites and lack of observations of burrows within study area suggests this is not high quality breeding or hibernating habitat.
Birds			
Cooper's hawk <i>Accipiter cooperii</i>	--/WL/--	Nests in riparian areas and oak woodlands, and hunts songbirds at woodland edges.	High. Suitable nesting habitat is present in the project study area.
sharp-shinned hawk <i>Accipiter striatus</i>	--/WL/--	Nests in dense groves of usually mid-sized conifers, in the tops of live oaks, and sometimes deciduous trees. Usually on hilltops or hillsides, near grasslands or chaparral, but typically not water. Hunts songbirds along edge habitat.	High. Suitable nesting habitat is present in the project study area.
golden eagle <i>Aquila chrysaetos</i>	BCC/FP,WL/--	Nests in cliffs, canyons and large trees in open habitats	High. Suitable nesting habitat is present in the project study area. A golden eagle nest site has been used consistently since 2005 in Sibley Volcanic Regional Preserve approximately 0.1 miles from the study area, and documented by EBRPD.
great blue heron <i>Ardea herodias</i>	--/*/--	Colonial nester in tall trees near wetland foraging areas	Unlikely. Suitable nesting and roosting habitat not found in the study area.
Western burrowing owl <i>Athene cunicularia</i>	BCC/CSC/--	Open grasslands and shrublands where perches and existing rodent burrows are available	Low. Burrows not found in the study area. Species may use adjacent grasslands for foraging.
Cackling (=Aleutian Canada) goose <i>Branta hutchinsii leucopareia</i>	FD/CSC/--	Nests individually or semi-colonially in remote areas, preferring sites that command a clear view in all directions with permanent water not far away, including lakes, ponds, larger streams, marshes, muskegs, and wet hummocky areas.	Not expected. Extant occurrence documented at Sobrante Ridge; however, no suitable nesting habitat in study area.
Northern harrier <i>Circus cyaneus</i>	--/CSC/--	Nests on ground in salt or freshwater wetlands, forages over wetlands, annual grasslands.	Low (nesting)/ High (foraging). Suitable nesting habitat not found in the study area. Species may use adjacent grasslands for foraging. Has been observed by District staff in study area.
Yellow rail <i>Coturnicops noveboracensis</i>	--/CSC/--	Habitat includes shallow marshes, wet meadows, drier fresh-water and brackish marshes, as well as dense, deep grass, and rice fields. Forages for small snails, aquatic insects, and wetland plant seeds in shallow water concealed by dense vegetation.	Unlikely. Suitable and sufficient nesting and foraging habitat not found in the study area. Wetlands are few, small and isolated.

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Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
OTHER SPECIAL-STATUS SPECIES (cont.)			
snowy egret <i>Egretta thula</i>	BCC/CSC/-- (rookery site)	Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Unlikely. Suitable nesting and roosting habitat not found in the study area.
white-tailed kite <i>Elanus leucurus</i>	--/FP/--	Nests in shrubs and trees next to grasslands, forages over grasslands and agricultural lands.	High. Suitable nesting habitat present on margins of project study area.
American peregrine falcon <i>Falco peregrinus anatum</i>	FD/CD, FP/--	Breeds near water with nearby vertical structure such as niches in steep banks and ledges, bridges or high rise buildings to serve as nesting sites.	Unlikely (nesting)/ Moderate (non-breeding). Suitable habitat not present in the study area; only nest site documented within 3 miles of the study area was in an urban structure.
saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC/CSC/--	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Unlikely. Suitable nesting habitat is not present.
Birds (cont.)			
Alameda song sparrow <i>Melospiza melodia pusillula</i>	BCC/CSC/--	Salt marshes of eastern and south San Francisco Bay.	Unlikely. Suitable nesting habitat is not present. Although on CNDDDB record exists for this species within ~1.5 miles of the project study area, the individual is described as a cat-caught nestling, whose young age may have resulted in a species misidentification. This species is a saltwater marsh obligate, habitat that is not present in the coastal hills.
black-crowned night heron (nesting colony) <i>Nycticorax nycticorax</i>	--/*/--	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Unlikely. Suitable nesting and roosting habitat is not present.
double-crested cormorant (nesting colony) <i>Phalacrocorax auritus</i>	--/WL/--	Colonial nester on coastal cliffs, offshore islands, under bridges, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Unlikely. Suitable nesting and roosting habitat is not present.
yellow warbler <i>Setophaga petechia</i>	BCC/CSC/--	Breeds in wet, deciduous thickets, especially willows.	Low. Riparian vegetation is composed primarily of bay laurel, coast live oak, poison oak, and native blackberry.
Mammals			
pallid bat <i>Antrozous pallidus</i>	--/CSC/ WBWG High	Most common in open, dry habitats with rocky areas for roosting. Roosts in buildings, caves, or cracks in rocks. Forages primarily on the ground.	Moderate. EBRPD reports that this species is present in the area. Several collections of specimens reported in CNDDDB in the 1930s and 1940s, from locations ~1-3 mi from the study area. May enter site to forage.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--/CSC/ WBWG High	Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and	Low. Typical, suitable roosting habitat not present in study area. Nearest occurrence reported in 1938 in CNDDDB

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Common Name Scientific Name	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
		nearby hills characterized by mixed vegetation throughout California below 3,300 meters.	is ~2 miles from the study area. May enter site to forage.
Berkeley kangaroo rat <i>Dipodomys heermanni berkeleyensis</i>	--/*/--	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands. Needs fine, deep, well-drained soil for burrowing.	Low. Marginal habitat present in study area. Nearest occurrence reported in CNDDDB are from first half of 20 th century and are approximately 3 miles from the study area.
western mastiff bat <i>Eumops perotis californicus</i>	--/CSC/WBWG High	Breeds in rugged, rocky canyons and forages in a variety of habitats. May occur in semi-arid open woodlands.	Low. Suitable roosting habitat is not present, though may enter site to forage. No CNDDDB observations within 3 miles of study area.
silver-haired bat <i>Lasionycteris noctivagans</i>	--/*/ WBWG Medium	Primarily a coastal and montane forest dweller. Roosts in dense foliage of trees, in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water.	Moderate. Suitable roosting habitat present on site. Nearest occurrence reported in CNDDDB in 1920 is approximately 2.3 miles from the study area.
Mammals (cont.)			
Hoary bat <i>Lasiurus cinereus</i>	--/*/ WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	Low. Suitable roosting habitat is not present, though may enter site to forage. Nearest occurrence reported in CNDDDB is ~2.5 miles from the study area.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	--/CSC/--	Regional subspecies with range limited to San Francisco Bay Area. Inhabits forests with moderate canopy cover and brushy understory.	High. Dusky-footed woodrat nests were observed within the project study area, and according to the CNDDDB this species was observed ~1.5 mi from the study area. This species has been observed by EBRPD staff in the study area.
Big free-tailed bat <i>Nyctinomops macrotis</i>	--/CSC/--	Low-lying arid areas in southern California. Needs high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Unlikely. No occurrences reported within 3 miles of the study area. The project study area is out of this species' range.
Salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	--/CSC/--	Salt marshes of the south arm of San Francisco Bay. Found at medium to high marsh 6-8 ft above sea level where abundant driftwood is scattered among pickleweed.	Unlikely. Suitable habitat not found in the study area.
American badger <i>Taxidea taxus</i>	--/CSC/--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents.	Low. Two historic occurrences from within 1.5 – 2 mi of the study area. Burrows and burrowing rodents not observed within the project study area.

NOTES:

a Potential to Occur Categories:

Unlikely = Study area and/or immediate vicinity do not support suitable habitat for a particular species. Study area is outside of the species known range. Species identified as unlikely to occur are not addressed further in the Habitat Assessment.

Low Potential = The study area and/or immediate vicinity only provide limited habitat. In addition, the species' known range may be outside of the study area.

Moderate Potential = The study area and/or immediate vicinity provide suitable habitat.

High Potential = The study area and/or immediate vicinity provide ideal habitat conditions.

STATUS CODES:

OTHER:

**SPECIAL-STATUS SPECIES CONSIDERED IN EVALUATION OF
MCCOSKER CREEK RESTORATION AND RECREATIONAL INFRASTRUCTURE IMPROVEMENTS PROJECT**

Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/Other	Habitat Description / Blooming Period	Potential to Occur in the Study Area
<p>FEDERAL: (U.S. Fish and Wildlife Service) FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government. BCC = Bird of Conservation Concern FSC = Federal Species of Concern FC = Candidate for federal listing FD= Delisted</p> <p>STATE: CT = Listed as Threatened by the State of California CE= Listed as Endangered by the State of California CC = California Candidate for Listing CSC = California Species of Special Concern FP= California Department of Fish and Wildlife designated "fully protected" CD – delisted</p> <p>WL = Watch list §3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls) * Special animal-listed on CDFW's Special Animal List</p>		<p>California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR): 1A = Presumed extirpated in California; Rare or extinct in other parts of its range. 1B = Rare, threatened, or endangered throughout range; Most species in this rank are endemic to California. 2A = Extirpated in California, but common in other parts of its range. 2B = Rare, threatened, or endangered in California but common in other parts of its range. 3 = Need more information about species to assign it a ranking. 4 = Limited distribution and therefore warrants monitoring of status. .1 = Seriously endangered in California .2 = Fairly endangered in California LS= Locally Significant Species</p> <p>WBWG = Western Bat Working Group: Low = Stable population Medium = Need more information about the species, possible threats, and protective actions to implement. High= Imperiled or at high risk of imperilment.</p> <p>Xerces Society for Invertebrate Conservation (Xerces) CI = Critically imperiled IM = Imperiled VU = Vulnerable DD = Data Deficit</p>	



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Briones Valley (3712282) OR Oakland East (3712272) OR Walnut Creek (3712281) OR Las Trampas Ridge (3712271) OR Hayward (3712261) OR San Leandro (3712262) OR Hunters Point (3712263) OR Oakland West (3712273) OR Richmond (3712283))

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Accipiter cooperii, Ambystoma californiense, and Bombus occidentalis.



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	
<i>Calochortus pulchellus</i> Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
<i>Calystegia purpurata ssp. saxicola</i> coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
<i>Carex comosa</i> bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
<i>Centromadia parryi ssp. congdonii</i> Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
<i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<i>Chloropyron maritimum ssp. palustre</i> Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
<i>Chorizanthe cuspidata var. cuspidata</i> San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
<i>Chorizanthe robusta var. robusta</i> robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
<i>Cicindela hirticollis gravida</i> sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
<i>Cicuta maculata var. bolanderi</i> Bolander's water-hemlock	PDAP10M051	None	None	G5T4	S2	2B.1
<i>Circus cyaneus</i> northern harrier	ABNKC11010	None	None	G5	S3	SSC
<i>Cirsium andrewsii</i> Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
<i>Clarkia concinna ssp. automixa</i> Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
<i>Clarkia franciscana</i> Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1	1B.1
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Coturnicops noveboracensis</i> yellow rail	ABNME01010	None	None	G4	S1S2	SSC
<i>Danaus plexippus pop. 1</i> monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
<i>Dipodomys heermanni berkeleyensis</i> Berkeley kangaroo rat	AMAFD03061	None	None	G3G4T1	S1	
<i>Dirca occidentalis</i> western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
<i>Efferia antiochi</i> Antioch efferian robberfly	IIDIP07010	None	None	G1G2	S1S2	



Selected Elements by Scientific Name
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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Egretta thula</i> snowy egret	ABNGA06030	None	None	G5	S4	
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Eriogonum luteolum var. caninum</i> Tiburon buckwheat	PDPGN083S1	None	None	G5T2	S2	1B.2
<i>Eryngium jepsonii</i> Jepson's coyote-thistle	PDAP10Z130	None	None	G2	S2	1B.2
<i>Eucyclogobius newberryi</i> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<i>Eumops perotis californicus</i> western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
<i>Extriplex joaquinana</i> San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
<i>Falco peregrinus anatum</i> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<i>Fissidens pauperculus</i> minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
<i>Gilia capitata ssp. chamissonis</i> blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
<i>Gilia millefoliata</i> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<i>Helianthella castanea</i> Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
<i>Helminthoglypta nickliniana bridgesi</i> Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1S2	
<i>Hemizonia congesta ssp. congesta</i> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
<i>Heteranthera dubia</i> water star-grass	PMPON03010	None	None	G5	S2	2B.2
<i>Hoita strobilina</i> Loma Prieta hoita	PDFAB5Z030	None	None	G2	S2	1B.1



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Holocarpha macradenia</i> Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
<i>Horkelia cuneata var. sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
<i>Hydroprogne caspia</i> Caspian tern	ABNNM08020	None	None	G5	S4	
<i>Isocoma arguta</i> Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
<i>Juglans hindsii</i> Northern California black walnut	PDJUG02040	None	None	G1	S1	1B.1
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G5	S3S4	
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
<i>Layia carnosa</i> beach layia	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
<i>Leptosiphon rosaceus</i> rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
<i>Malacothamnus hallii</i> Hall's bush-mallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
<i>Meconella oregana</i> Oregon meconella	PDPAP0G030	None	None	G2G3	S2	1B.1
<i>Melospiza melodia maxillaris</i> Suisun song sparrow	ABPBXA301K	None	None	G5T3	S3	SSC
<i>Melospiza melodia pusillula</i> Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	ABPBXA301W	None	None	G5T2	S2	SSC
<i>Microcina leei</i> Lee's micro-blind harvestman	ILARA47040	None	None	G1	S1	
<i>Microcina lumi</i> Lum's micro-blind harvestman	ILARA47050	None	None	G1	S1	
<i>Microtus californicus sanpabloensis</i> San Pablo vole	AMAFF11034	None	None	G5T1T2	S1S2	SSC
<i>Monolopia gracilens</i> woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
<i>Northern Coastal Salt Marsh</i> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<i>Northern Maritime Chaparral</i> Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
<i>Nycticorax nycticorax</i> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<i>Nyctinomops macrotis</i> big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
<i>Oenothera deltooides ssp. howellii</i> Antioch Dunes evening-primrose	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
<i>Phalacrocorax auritus</i> double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
<i>Plagiobothrys chorisianus var. chorisianus</i> Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2	1B.2
<i>Plagiobothrys diffusus</i> San Francisco popcornflower	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
<i>Plagiobothrys glaber</i> hairless popcornflower	PDBOR0V0B0	None	None	GH	SH	1A
<i>Polygonum marinense</i> Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	ABNME05016	Endangered	Endangered	G5T1	S1	FP
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
<i>Rynchops niger</i> black skimmer	ABNNM14010	None	None	G5	S2	SSC
<i>Sanicula maritima</i> adobe sanicle	PDAP11Z0D0	None	Rare	G2	S2	1B.1
<i>Scapanus latimanus parvus</i> Alameda Island mole	AMABB02031	None	None	G5THQ	SH	SSC
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
<i>Setophaga petechia</i> yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
<i>Sorex vagrans halicoetes</i> salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
<i>Sternula antillarum browni</i> California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
<i>Streptanthus albidus ssp. peramoenus</i> most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
<i>Stuckenia filiformis ssp. alpina</i> slender-leaved pondweed	PMPO03091	None	None	G5T5	S3	2B.2
<i>Suaeda californica</i> California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trachusa gummiifera</i> San Francisco Bay Area leaf-cutter bee	IIHYM80010	None	None	G1	S1	
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Triphysaria floribunda</i> San Francisco owl's-clover	PDSCR2T010	None	None	G2?	S2?	1B.2
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 116



Plant List

Inventory of Rare and Endangered Plants

53 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 3712283, 3712282, 3712281, 3712273, 3712272, 3712271, 3712263 3712262 and 3712261;

[Modify Search Criteria](#)
[Export to Excel](#)
[Modify Columns](#)
[Modify Sort](#)
[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S2S3	G2G3
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5?T3T4
Arctostaphylos pallida	pallid manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar	1B.1	S1	G1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	1B.1	S2	G2
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S2	G2
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	4.2	S3?	G3?
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Convolvulaceae	perennial herb	(Mar)Apr-Sep	1B.2	S2S3	G4T2T3
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	4.2	S4	G4T5
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	1B.1	S2	G3T2
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	1B.2	S1	G2T1
Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	annual herb	Apr-Sep	1B.1	S1	G2T1
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	Mar-Jul	1B.2	S3	G3
Clarkia concinna ssp. automixa	Santa Clara red ribbons	Onagraceae	annual herb	(Apr)May-Jun(Jul)	4.3	S3	G5?T3
Clarkia franciscana	Presidio clarkia	Onagraceae	annual herb	May-Jul	1B.1	S1	G1
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2

Eriogonum luteolum var. caninum

<u>Eryngium jepsonii</u>	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
<u>Extriplex joaquinana</u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
<u>Fissidens pauperculus</u>	minute pocket moss	Fissidentaceae	moss		1B.2	S2	G3?
<u>Fritillaria liliacea</u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
<u>Gilia capitata ssp. chamissonis</u>	blue coast gilia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G5T2
<u>Gilia millefoliata</u>	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	1B.2	S2	G2
<u>Helianthella castanea</u>	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
<u>Hoita strobilina</u>	Loma Prieta hoita	Fabaceae	perennial herb	May-Jul(Aug-Oct)	1B.1	S2	G2
<u>Holocarpha macradenia</u>	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
<u>Horkelia cuneata var. sericea</u>	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.1	S1?	G4T1?
<u>Iris longipetala</u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3
<u>Juglans californica</u>	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S3	G3
<u>Juglans hindsii</u>	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
<u>Lathyrus jepsonii var. jepsonii</u>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
<u>Leptosiphon acicularis</u>	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	4.2	S4?	G4?
<u>Meconella oregana</u>	Oregon meconella	Papaveraceae	annual herb	Mar-Apr	1B.1	S2	G2G3
<u>Micropus amphibolus</u>	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
<u>Monardella antonina ssp. antonina</u>	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	3	S1S3	G4T1T3Q
<u>Monolopia gracilens</u>	woodland woolythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
<u>Navarretia gowenii</u>	Lime Ridge navarretia	Polemoniaceae	annual herb	May-Jun	1B.1	S1	G1
<u>Piperia michaelii</u>	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	4.2	S3	G3
<u>Plagiobothrys chorisianus var. chorisianus</u>	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.2	S2	G3T2Q
<u>Plagiobothrys diffusus</u>	San Francisco popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.1	S1	G1Q
<u>Plagiobothrys glaber</u>	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH

Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	3.1	S2	G2Q
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	4.2	S3	G4
Sanicula maritima	adobe sanicle	Apiaceae	perennial herb	Feb-May	1B.1	S2	G2
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	1B.2	S2	G2T2
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	1B.1	S1	G1
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	Apr-Jun	1B.2	S2?	G2?
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

Suggested Citation

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Questions and Comments

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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

June 06, 2018

Consultation Code: 08ESMF00-2016-SLI-1417

Event Code: 08ESMF00-2018-E-06694

Project Name: McCosker Creek Daylighting

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2016-SLI-1417

Event Code: 08ESMF00-2018-E-06694

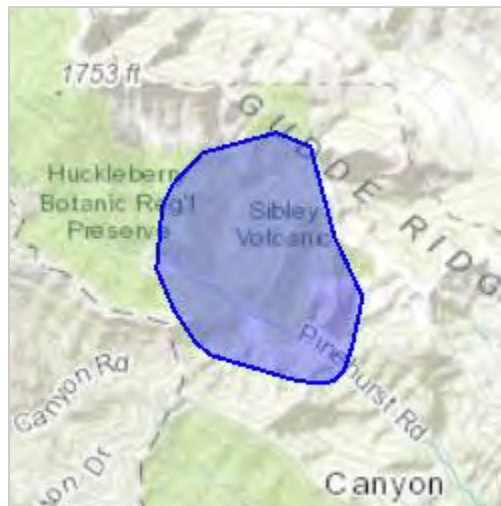
Project Name: McCosker Creek Daylighting

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: daylighting 2,000 ft of culverted creek on McCosker sub-parcel, restoring and enhancing riparian habitat, recreational infrastructure development, eg trails

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.84095295556598N122.17902168148734W>



Counties: Contra Costa, CA

Endangered Species Act Species

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover <i>Charadrius alexandrinus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Bay Checkerspot Butterfly <i>Euphydryas editha bayensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2320	Threatened
Callippe Silverspot Butterfly <i>Speyeria callippe callippe</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3779	Endangered
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Pallid Manzanita <i>Arctostaphylos pallida</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8292	Threatened
Presidio Clarkia <i>Clarkia franciscana</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3890	Endangered
Robust Spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9287	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> https://ecos.fws.gov/ecp/species/5524#crithab	Final

APPENDIX D

Project Correspondence with Native American Representatives



No.	Date	From	To	Type	Subject
1	May 9, 2016	Robin Hoffman (Environmental Science Associates)	California Native American Heritage Commission (NAHC)	email with formal request and map	Sacred Lands File request and Native American contacts list request (for McCosker sub-area portion of Project).
2	May 20, 2016	Sharaya Souza (NAHC)	Robin Hoffman	email with attachment	Sacred Lands File results and Native American contacts list (for McCosker sub-area portion of Project).
3	May 23, 2016	Robin Hoffman	Rosemary Cambra (Muwekma Ohlone Indian Tribe of the San Francisco Bay Area)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area portion of Project.
4	May 23, 2016	Robin Hoffman	Andrew Galvan (The Ohlone Indian Tribe)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area
5	May 23, 2016	Robin Hoffman	Raymond Hitchcock (Wilton Rancheria)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area
6	May 23, 2016	Robin Hoffman	Katherine Erolinda Perez (North Valley Yokuts Tribe)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area
7	May 23, 2016	Robin Hoffman	Ann Marie Sayers (Indian Canyon Mutsun Band of Costanoan)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area portion of Project.
8	May 23, 2016	Robin Hoffman	Irenne Zwierlein (Amah Mutsun Tribal Band of Mission San Juan Bautista)	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by McCosker sub-area portion of Project.
9	June 28, 2017	Gayle Totton (NAHC)	Julie Bondurant (East Bay Regional Parks District)	letter	Sacred Lands File results and Native American contacts list for entire CEQA Project Area.
10	September 25, 2017	Julie Bondurant	Andrew Galvan	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by entire CEQA Project.
11	September 25, 2017	Julie Bondurant	Raymond Hitchcock	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by entire CEQA Project.
12	September 25, 2017	Julie Bondurant	Katherine Erolinda Perez	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by entire CEQA Project.
13	September 25, 2017	Julie Bondurant	Ann Marie Sayers	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by entire CEQA Project.
14	September 25, 2017	Julie Bondurant	Irenne Zwierlein	letter with map	Project information and request for information on or concerns about cultural resources that may be impacted by entire CEQA Project.

From: Robin Hoffman
To: [NAHC \(nahc@nahc.ca.gov\)](mailto:NAHC@nahc.ca.gov)
Subject: SLF Search and Native American Contacts: McCosker Stream Restoration and Recreational Infrastructure Project
Date: Monday, May 09, 2016 12:03:00 PM
Attachments: [McCosker_NAHC_request.pdf](#)
Importance: High

To Whom It May Concern:

I would like to request a Sacred Lands File search and list of Native American contacts for the McCosker Stream Restoration and Recreational Infrastructure Project. The formal request form and project location map are attached. Please let me know if you have any questions.

Thank you,
-Robin

Robin Hoffman, M.A., RPA
Senior Archaeologist
ESA | Environmental Science Associates
1425 N McDowell Blvd., Suite 200
Petaluma, CA 94954
707.796.7006 direct | 707.494.3349 cell
rhoffman@esassoc.com | www.esassoc.com

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: McCosker Stream Restoration and Recreational Infrastructure Project (ESA #150779)

County: Contra Costa

USGS Quadrangle Name: Oakland East, CA

Township: 1 S **Range:** 3 W **Section(s):** 15

Company/Firm/Agency: Environmental Science Associates (ESA) c/o Robin Hoffman

Street Address: 1425 N. McDowell Blvd., Ste. 200

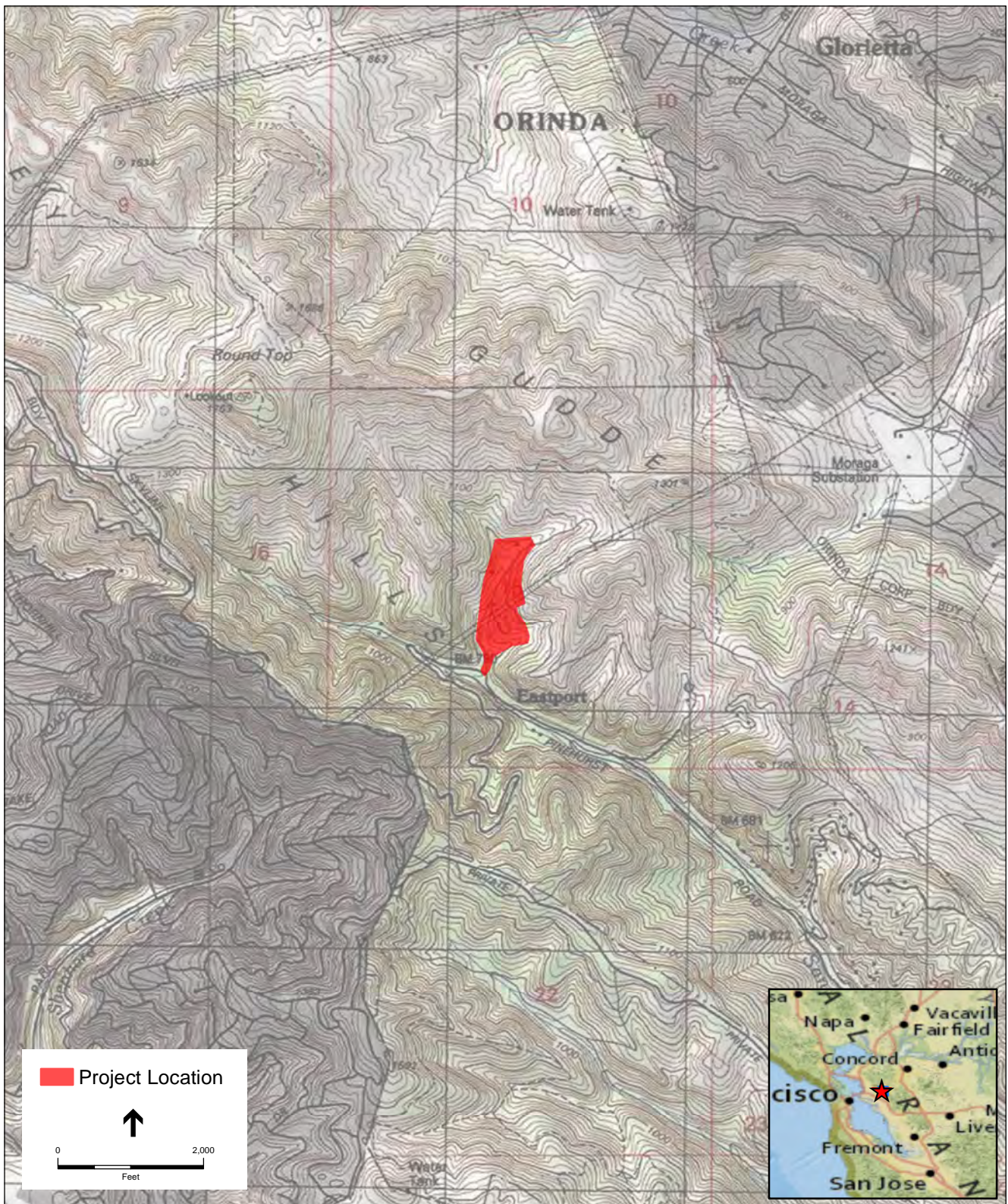
City: Petaluma, CA **Zip:** 94954

Phone: 707-796-7006

Fax: 707-795-0902

Email: rhoffman@esassoc.com

Project Description: East Bay Regional Parks District (EBRPD) proposes the project, which would restore the natural ecology of McCosker Creek by excavating fill material, daylighting the creek channel, removing existing culverts and drainage structures, and constructing in-stream and near-stream enhancements along the daylighted creek channel within an approximately 1,900-foot-long creek channel connecting the tributary area to Upper San Leandro Creek. The project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, creek crossing(s), utilities, and graded area for future recreational improvements. The project is subject to review under NEPA/Section 106 of NHPA, and CEQA, with EBRPD as lead agency for CEQA purposes, and the U.S. Army Corps of Engineers as anticipated lead federal agency for NEPA/Section 106 of NHPA purposes. Please include in the SLF results a list of Native American representatives that should be contacted about potential sites and resources of importance to Native Americans, per the requirements of NEPA/Section 106 and CEQA/AB 52.



SOURCE: USGS 7.5' Topographic Quadrangle (Oakland East, CA); ESA, 2016

McCosker Stream Restoration Project. 150779

Figure 1
Project Location

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX



May 20, 2016

Robin Hoffman
ESA

Sent by Email: robin.hoffman@esassoc.com
Number of Pages: 3

RE: McCosker Stream Restoration and Recreation, Contra Costa County

Dear Mr. Hoffman:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent above reference codes is to mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects.

As of July 1, 2015, Public Resources Code Sections 21080.1, 21080.3.1 and 21080.3.2 require public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
 - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
 - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - If the probability is low, moderate, or high that cultural resources are located in the APE.
 - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and

- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
 - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
 3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. **A search of the SFL was completed for the USGS quadrangle information provided with negative results.**
 4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
 5. Any geotechnical reports regarding all or part of the potential APE.

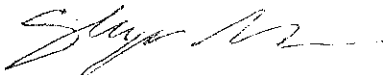
Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: sharaya.souza@nahc.ca.gov

Sincerely,



Sharaya Souza
Staff Services Analyst

**Native American Heritage Commission
Tribal Consultation List
Contra Costa County
May 19, 2016**

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irene Zwielerlein, Chairperson
789 Canada Road
Woodside, CA 94062
Ohlone/Costanoan
amahmutsuntribal@gmail.com
(650) 400-4806 Cell

Wilton Rancheria
Raymond Hitchcock, Chairperson
9728 Kent Street
Elk Grove, CA 95624
Miwok
rhitchcock@wiltonrancheria-nsn.gov
(916) 683-6000 Office

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA 95024
Ohlone/Costanoan
ams@indiancanyon.org
(831) 637-4238

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas, CA 95036
Ohlone / Costanoan
muwekma@muwekma.org
(408) 314-1898
(510) 581-5194

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden, CA 95236
Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok
canutes@verizon.net
(209) 887-3415

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3152
Fremont, CA 94539
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin
chochenyo@AOL.com
(510) 882-0527 Cell

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed McCoster Stream Restoration and Recreation, Contra Costa County.



1425 N. McDowell Boulevard
Suite 200
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

May 23, 2016

Chairperson Rosemary Cambra
Muwekma Ohlone Indian Tribe of the SF Bay Area
P.O. Box 360791
Milpitas, CA 95036

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Cambra:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

Because the Project requires a permit under Section 404 of the Clean Waters Act, to be issued by the U.S. Army Corps of Engineers (Corps), it is subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The Project is also subject to review under the California Environmental Quality Act (CEQA). The Corps and EBRPD are lead reviewing agencies for NHPA/NEPA and CEQA purposes, respectively.

Environmental Science Associates (ESA) has been retained to conduct environmental, including cultural resources, studies for the Project. The Native American Heritage Commission (NAHC) provided your name and contact information as a Native American representative who may have knowledge of cultural resources in the Project vicinity. The NAHC reported that a search of the Sacred Lands File returned negative results. A recent records search at the Northwest Information Center (NWIC), at Sonoma State University, Rohnert Park, indicated that there are no previously recorded archaeological resources in or adjacent to the Project footprint. To better assist in the analysis of potential Project impacts to cultural resources, we invite you to share information you may have regarding cultural resources in Project vicinity. Any information you provide regarding locations of cultural resources will be kept confidential in accordance with federal and state regulations. Your assistance in identifying resources so they may be avoided and protected whenever feasible is greatly appreciated.



Rosemary Cambra
May 23, 2016
Page 2

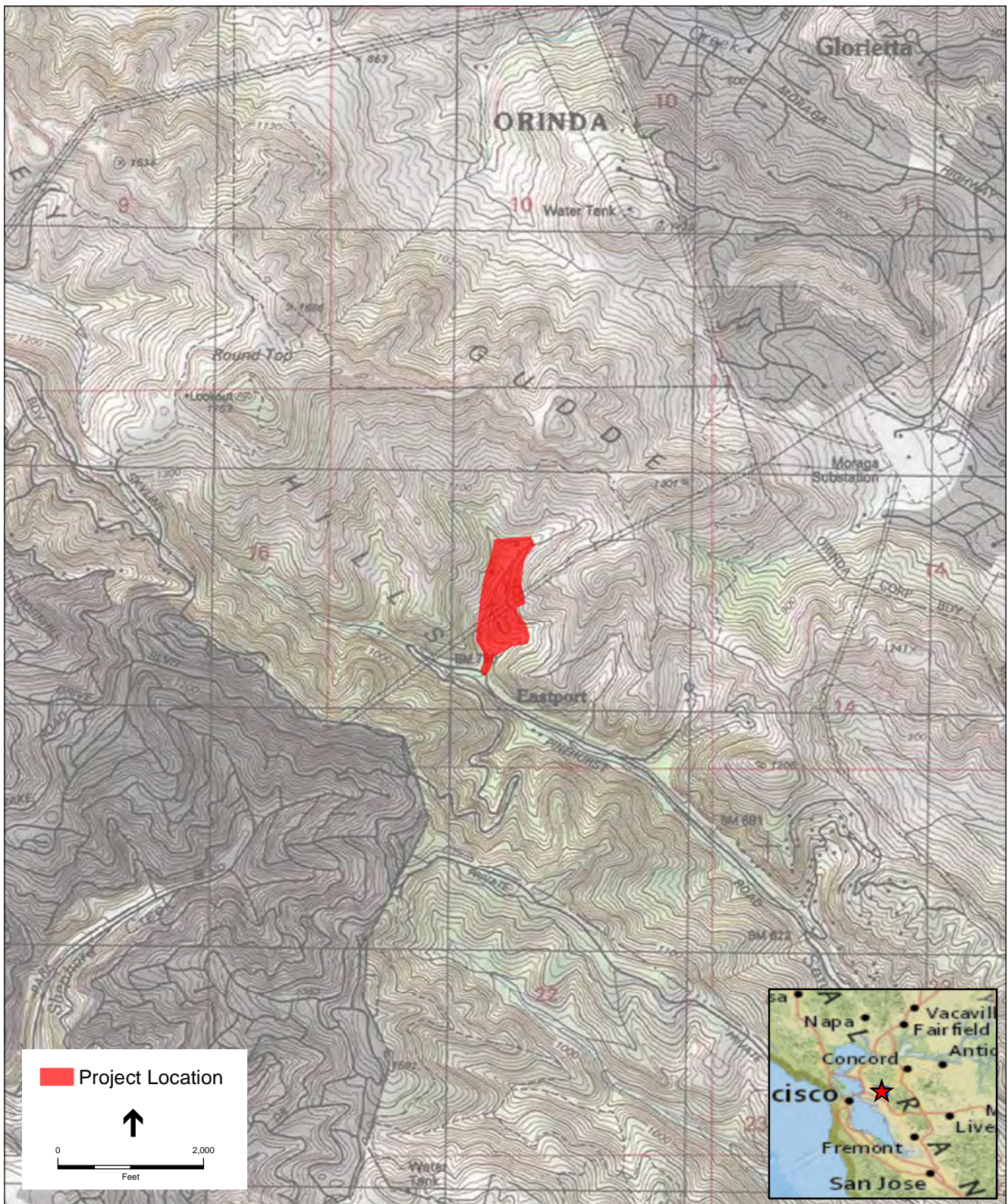
Thank you for your time and cooperation regarding this matter. Please feel free to contact me if you have any questions or comments regarding this Project, at 707-796-7006 or rhoffman@esassoc.com.

Sincerely,

A handwritten signature in black ink that reads "Robin D. Hoffman". The signature is written in a cursive, flowing style.

Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



SOURCE: USGS 7.5' Topographic Quadrangle (Oakland East, CA); ESA, 2016

McCosker Stream Restoration Project. 150779

Figure 1
Project Location



1425 N. McDowell Boulevard
Suite 200
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

May 23, 2016

Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3152
Fremont, CA 94539

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Mr. Galvan:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

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Andrew Galvan
May 23, 2016
Page 2

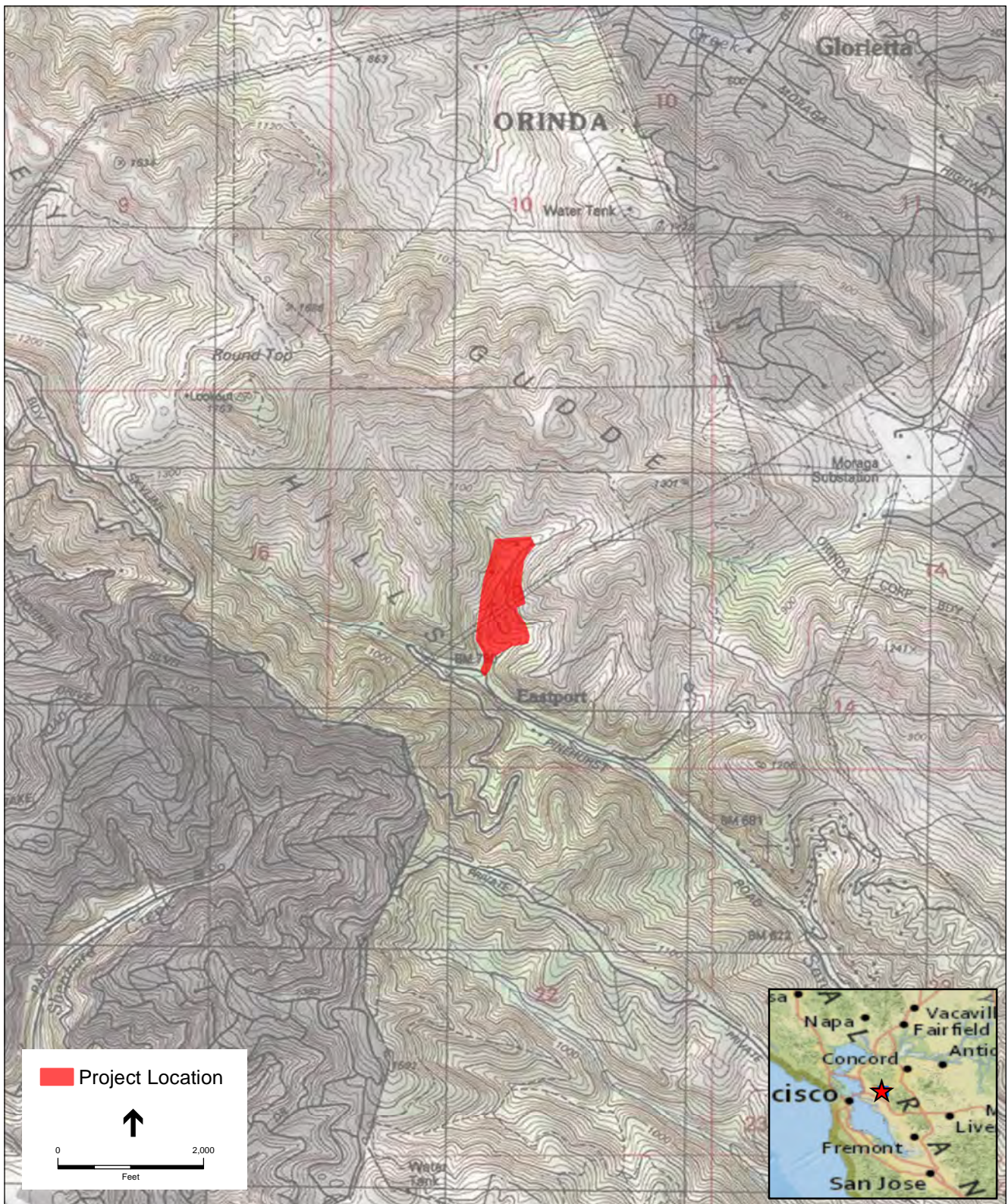
Thank you for your time and cooperation regarding this matter. Please feel free to contact me if you have any questions or comments regarding this Project, at 707-796-7006 or rhoffman@esassoc.com.

Sincerely,

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Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



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McCosker Stream Restoration Project. 150779

Figure 1
Project Location



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707.795.0902 fax

www.esassoc.com

May 23, 2016

Chairperson Raymond Hitchcock
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Hitchcock:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

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Raymond Hitchcock
May 23, 2016
Page 2

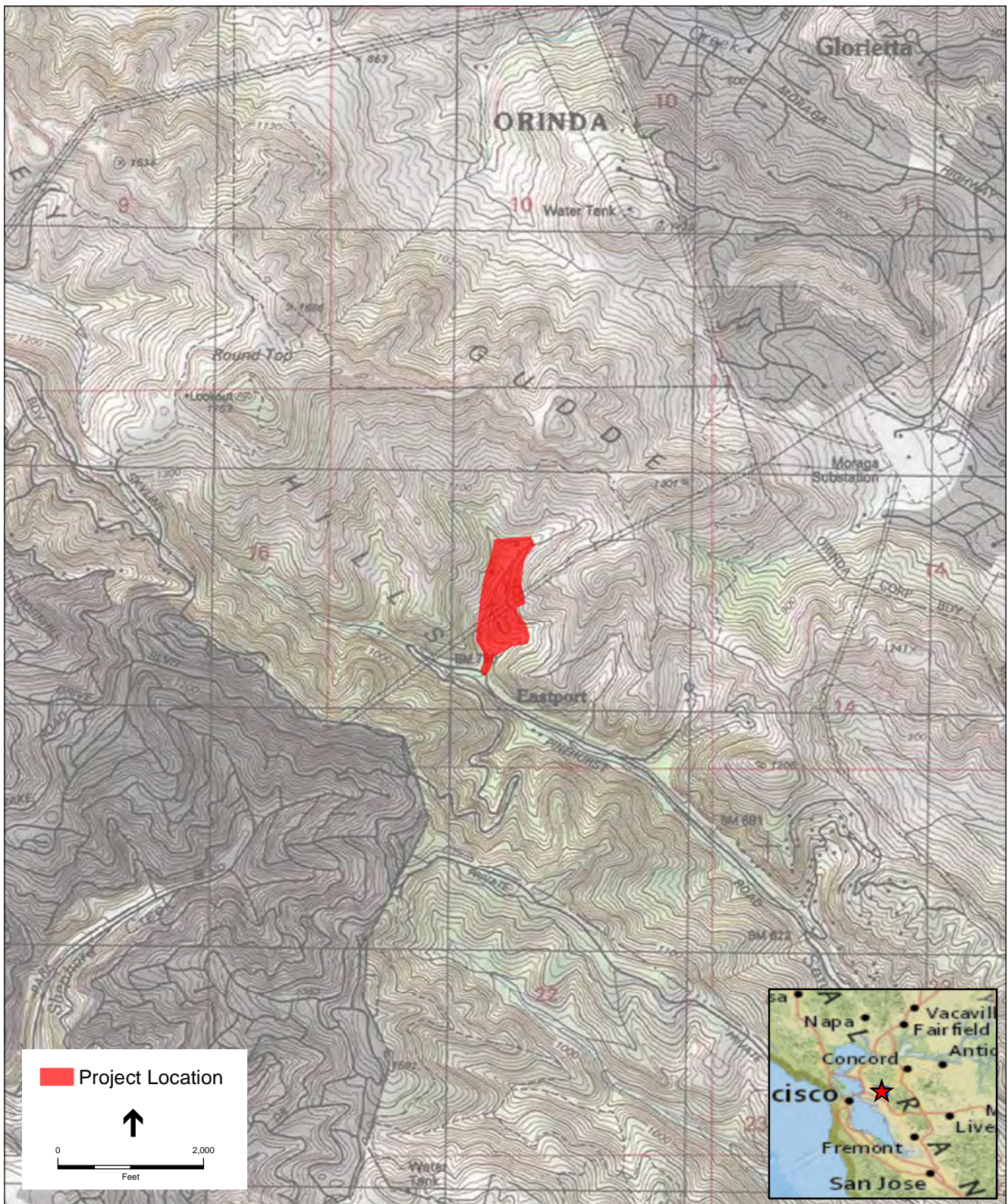
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Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



SOURCE: USGS 7.5' Topographic Quadrangle (Oakland East, CA); ESA, 2016

McCosker Stream Restoration Project. 150779

Figure 1
Project Location



1425 N. McDowell Boulevard
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707.795.0902 fax

www.esassoc.com

May 23, 2016

Chairperson Katherine Erolinda Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Perez:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

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Katherine Erolinda Perez
May 23, 2016
Page 2

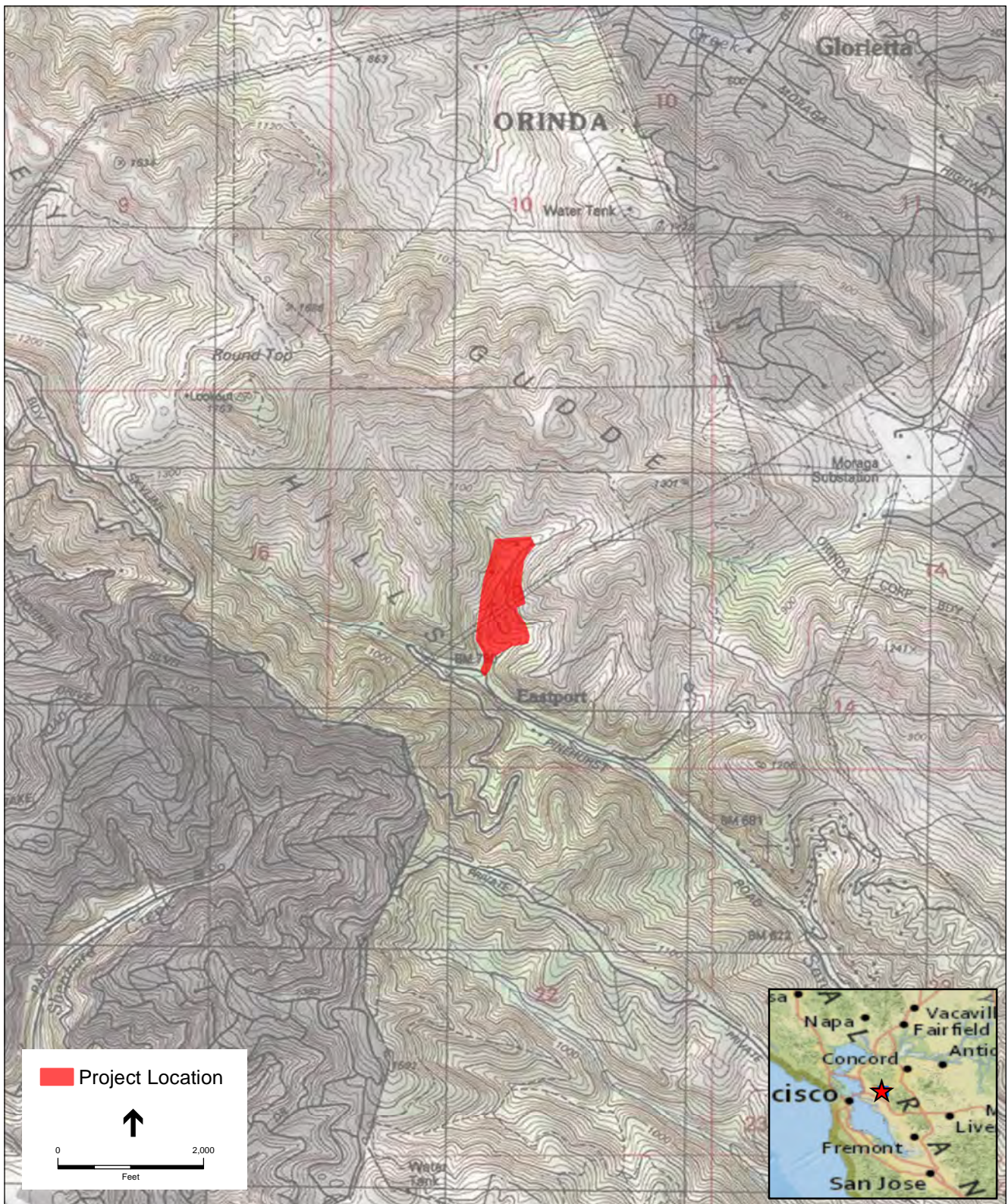
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Sincerely,

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Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



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McCosker Stream Restoration Project. 150779

Figure 1
Project Location



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707.795.0902 fax

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May 23, 2016

Chairperson Ann Marie Sayers
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Sayers:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

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Ann Marie Sayers
May 23, 2016
Page 2

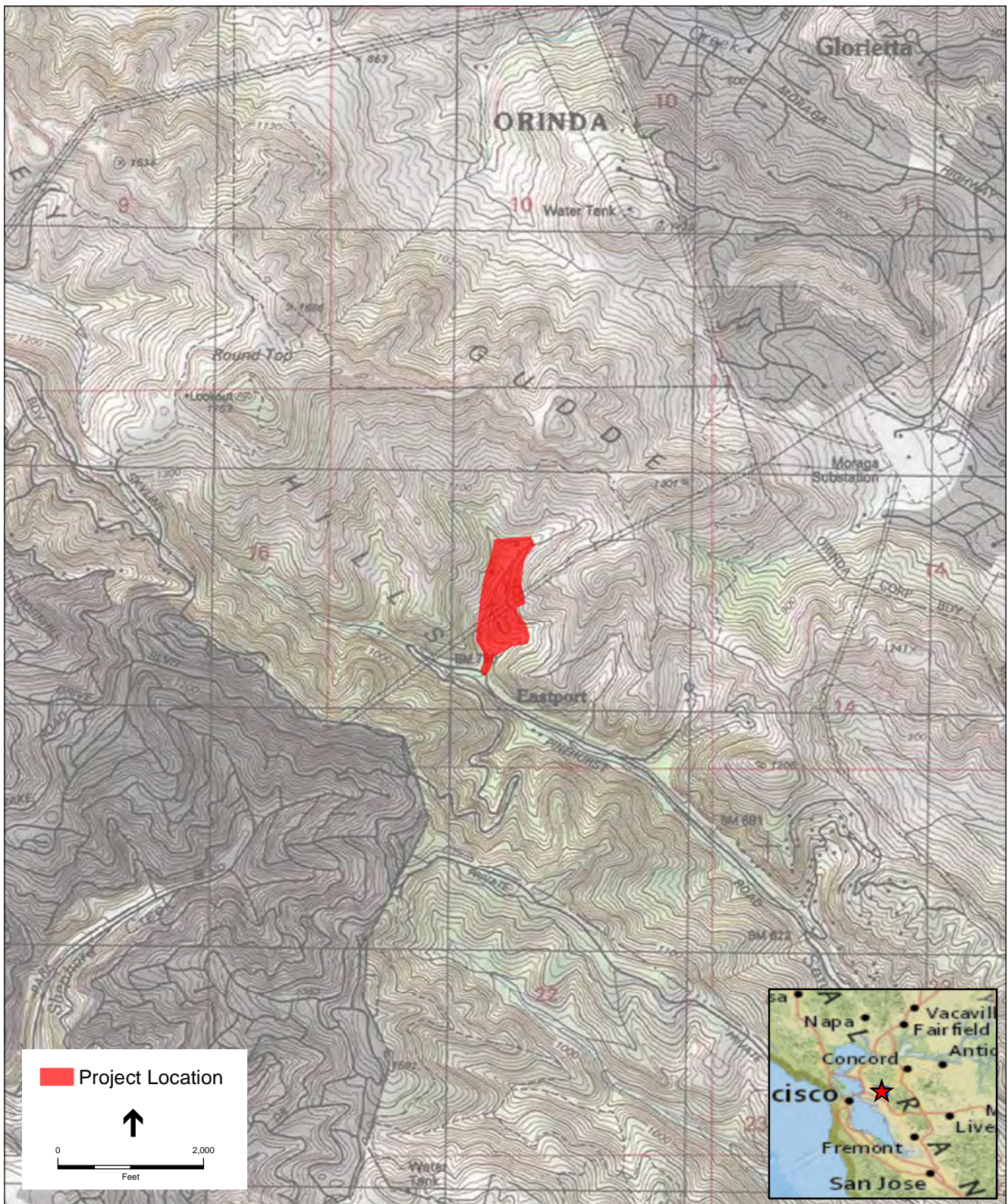
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Sincerely,

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Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



SOURCE: USGS 7.5' Topographic Quadrangle (Oakland East, CA); ESA, 2016

McCosker Stream Restoration Project. 150779

Figure 1
Project Location



1425 N. McDowell Boulevard
Suite 200
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

May 23, 2016

Chairperson Irenne Zwierlein
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Zwierlein:

East Bay Regional Parks District (EBRPD) proposes to restore the natural ecology of McCosker Stream within Sibley Volcanic Regional Preserve. The project, McCosker Stream Restoration and Recreational Infrastructure Project (Project), would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along the approximately 1,900-foot-long daylighted stream channel, and connecting the tributary area to Upper San Leandro Creek. The Project would also include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements. The Project is located on the Oakland East, California USGS 7.5' Quad, within Section 15 of Township 1 South Range 3 West (MDBM), in Contra Costa County (see attached map).

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Irene Zwerlein
May 23, 2016
Page 2

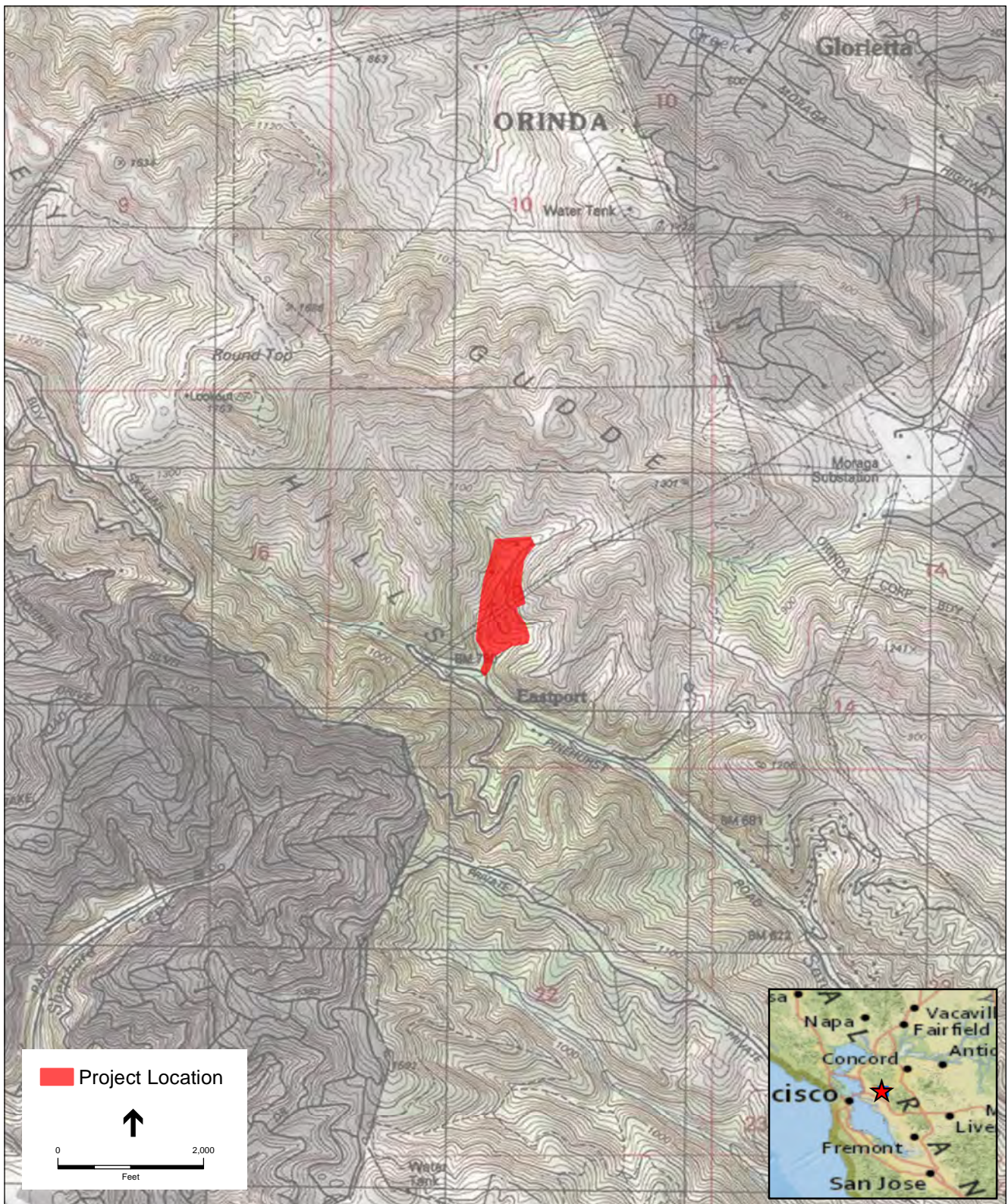
Thank you for your time and cooperation regarding this matter. Please feel free to contact me if you have any questions or comments regarding this Project, at 707-796-7006 or rhoffman@esassoc.com.

Sincerely,

A handwritten signature in black ink that reads "Robin D. Hoffman". The signature is written in a cursive, flowing style with a large, prominent initial 'R'.

Robin Hoffman, M.A. RPA
ESA, Senior Archaeologist

Attachment: Project Location Map



SOURCE: USGS 7.5' Topographic Quadrangle (Oakland East, CA); ESA, 2016

McCosker Stream Restoration Project. 150779

Figure 1
Project Location

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Chairperson Rosemary Cambra
Muwekma Ohlone Indian Tribe of the SF
Bay Area
P.O. Box 360791
Milpitas, CA 95036

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PS Form 3800, August 2006

See Reverse for Instructions

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7014 0510 0000 5492 8538

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Andrew Galvan
 The Ohlone Indian Tribe
 P.O. Box 3152
 Fremont, CA 94539

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Chairperson Raymond Hitchcock
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

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Chairperson Katherine Erolinda Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

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7074 0510 0000 5492 8558

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Chairperson Ann Marie Sayers
Indian Canyon Mutsun Band of
Costanoan
P.O. Box 28
Hollister, CA 95024

7074 0570 0000 5492 8576

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or PO Box #

City, State, ZIP

Chairperson Irenne Zwierlein
Amah Mutsun Tribal Band of Mission
San Juan Bautista
789 Canada Road
Woodside, CA 94062

PS Form 3800

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8958 2645 0000 5492 8583

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1. Article Addressed to:

Chairperson Ann Marie Sayers
 Indian Canyon Mutsun Band of
 Costanoan
 P.O. Box 28
 Hollister, CA 95024



9590 9403 0885 5223 4751 78

2. Article Number (Transfer from service label)

7014 0510 0000 5492 8576

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A. Signature Agent
 Addressee

B. Received by (Printed Name) *Kaynn Sayers Reeds*
 C. Date of Delivery *6/3/16*

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1. Article Addressed to:

Chairperson Katherine Erolinda Perez
 North Valley Yokuts Tribe
 P.O. Box 717
 Linden, CA 95236



9590 9403 0885 5223 4751 61

2. Article Number (Transfer from service label)

7014 0510 0000 5492 8552

COMPLETE THIS SECTION ON DELIVERY

A. Signature Agent
 Addressee

B. Received by (Printed Name) *KATHERINE PEREZ*
 C. Date of Delivery *6-1-16*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
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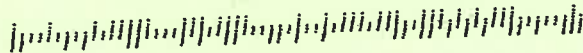


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Suite 200
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1. Article Addressed to:

Andrew Galvan
 The Ohlone Indian Tribe
 P.O. Box 3152
 Fremont, CA 94539



9590 9403 0885 5223 4751 47

2. Article Number (Transfer from service label)

7014 0510 0000 5492 8538

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

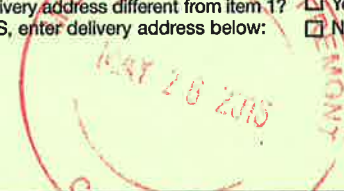
X *Andrew Galvan* Agent
 Addressee

B. Received by (Printed Name)

C. Date of Delivery

COFFEE MAN *26* *V 2016*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No



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- Collect on Delivery Restricted Delivery
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1. Article Addressed to:

Chairperson Irenne Zwierein
 Amah Mutsun Tribal Band of Mission
 San Juan Bautista
 789 Canada Road
 Woodside, CA 94062



9590 9403 0885 5223 4751 85

2. Article Number (Transfer from service label)

7014 0510 0000 5492 8583

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *Irenne Zwierein* Agent
 Addressee

B. Received by (Printed Name)

C. Date of Delivery

Irenne Zwierein *5/25/16*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

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1. Article Addressed to:

Chairperson Raymond Hitchcock
 Wilton Rancheria
 9728 Kent Street
 Elk Grove, CA 95624



9590 9403 0885 5223 4751 54

2. Article Number (Transfer from service label)

7014 0510 0000 5492 8545

PS Form 3811, July 2015 PSN 7530-02-000-9053

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A. Signature

X *Raymond Hitchcock* Agent
 Addressee

B. Received by (Printed Name)

C. Date of Delivery

Raymond Williams *5/25*

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

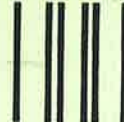
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- Adult Signature Restricted Delivery
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- Certified Mail Restricted Delivery
- Collect on Delivery
- Collect on Delivery Restricted Delivery
- Insured Mail
- Insured Mail Restricted Delivery (over \$500)
- Priority Mail Express®
- Registered Mail™
- Registered Mail Restricted Delivery
- Return Receipt for Merchandise
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- Signature Confirmation Restricted Delivery

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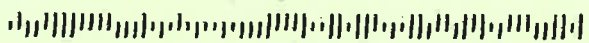


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NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710



June 28, 2017

Julie Bondurant
East Bay Regional Parks District
2950 Peralta Oaks Court/ P. O. Box 5381
Oakland, CA 94605

Sent via e-mail: jbondurant@ebparks.org

RE: SCH# 2017062055; 2017 Robert Sibley Volcanic Regional Preserve Land Use Plan Amendment (LUPA) Project, Cities of Oakland, Orinda, and Canyon; Alameda County, California

Dear Ms. Bondurant:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for Draft Environmental Impact Report for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd. (a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," <http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf>. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subs. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).
3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).
4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).
5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).
6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. **Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
 - a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. **Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. **Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. **Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
 - a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. **Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
 - a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. **Tribal Consultation**: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation**. There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality**: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation**: Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have been already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

- b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.
- 3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
- 4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

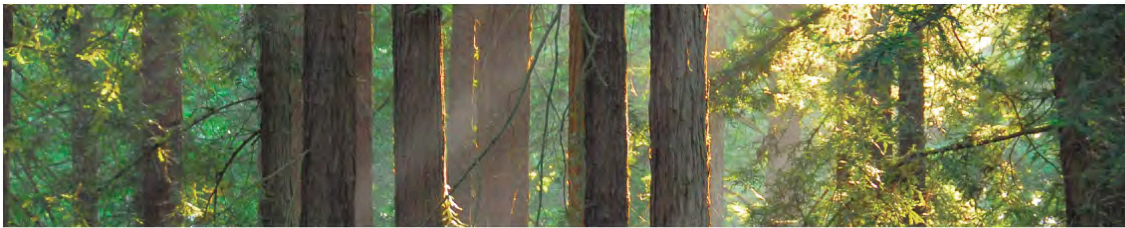
Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,



Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse



2950 PERALTA OAKS COURT P.O. BOX 5381 OAKLAND CALIFORNIA 94605-0381 T: 1-888-EBPARKS F: 510-569-4319 TRS RELAY: 711 WWW.EBPARKS.ORG

September 25, 2017

Andrew Galvan
The Oholone Indian Tribe
P.O. Box 3152
Fremont, CA 94539

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Galvan:

Assembly Bill (AB) 52 and Section 106 Correspondence. The East Bay Regional Park District (District) is preparing a Land Use Plan Amendment (LUPA) for Robert Sibley Volcanic Regional Preserve (hereafter Project). Because the Project requires a permit under Section 404 of the Clean Waters Act, to be issued by the U.S. Army Corps of Engineers (Corps), it is subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) (hereafter Section 106) and the National Environmental Policy Act (NEPA). The Project is also subject to review under the California Environmental Quality Act (CEQA). The Corps and the District are lead reviewing agencies for NHPA/NEPA and CEQA purposes, respectively.

Pursuant to State law under AB 52 (codified at California Public Resources Code [PRC] § 21080.3.1), the District, as part of CEQA review for the Project, is reaching out to California Native American Tribes listed in the Native American Heritage Commission’s (NAHC[’s]) contact list regarding the Project. On May 23, 2016, the District sent a letter inviting you for tribal consultation for the stream restoration and public access component of the Project under Section 106. This letter serves as formal notification of the Project for AB 52 purposes. Going forward, any tribal communication concerning the Project will be for both AB 52 and Section 106 purposes. Below, please find a description of the Project, maps showing the Project location, and the name of the Project point of contact.

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Project Location. The Project is located on the Oakland East, California USGS 7.5’ Quad. The Project Area includes three sub-areas totaling 1,318 acres located within Alameda and Contra Costa Counties: 1) Robert Sibley Volcanic Regional Preserve (Preserve); 2) Western Hills Open Space (Western Hills); and 3) the McCosker Parcel (McCosker). The Preserve sub-area encompasses a 678.71-acre area along the ridgelines of the East Bay Hills bordering the City of Oakland. The Western Hills sub-area comprises a 389.1-acre area, extending eastward from the ridgelines of the East Bay Hills to the western boundary of the Wilder residential development in the City of Orinda. The McCosker Sub-area comprises a 250-acre area approximately one mile northwest of the unincorporated township of Canyon in Contra Costa County. This sub-area extends from the canyon floor of the eastern face of the East Bay Hills to the east-west trending ridgelines of Gudde Ridge. Huckleberry Regional Preserve borders portions of each of the three sub-areas and trails connecting the three sub-areas are proposed to cross through Huckleberry Regional Preserve, which is owned and managed by the District.

Board of Directors

Beverly Lane President Ward 6	Dennis Waespi Vice-President Ward 3	Ayn Wieskamp Treasurer Ward 5	Ellen Corbett Secretary Ward 4	Whitney Dotson Ward 1	Dee Rosario Ward 2	Colin Coffey Ward 7	Robert E. Doyle General Manager
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Thank you for your time and cooperation regarding this matter. Please feel free to contact me if you have any questions or comments regarding this Project, at 510-544-2323 or jbondurant@ebparks.org.

Sincerely,

Julie Bondurant
Acting Chief Planning GIS

Attachments:

Attachment 1 - Project Location Map

Attachment 2 - Trail System

Attachment 3 - Preliminary Creek Restoration & Recreation Improvement Areas

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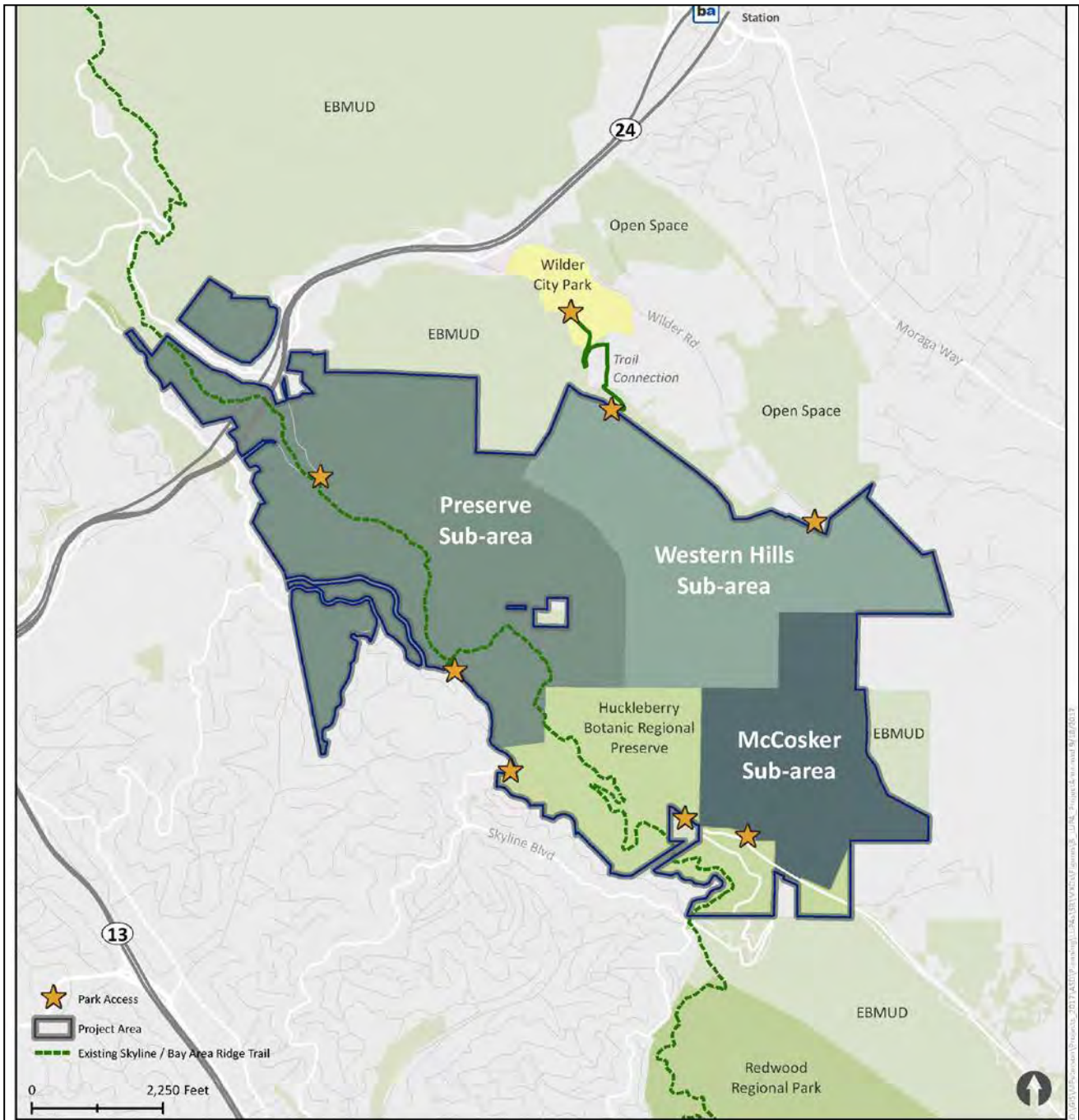
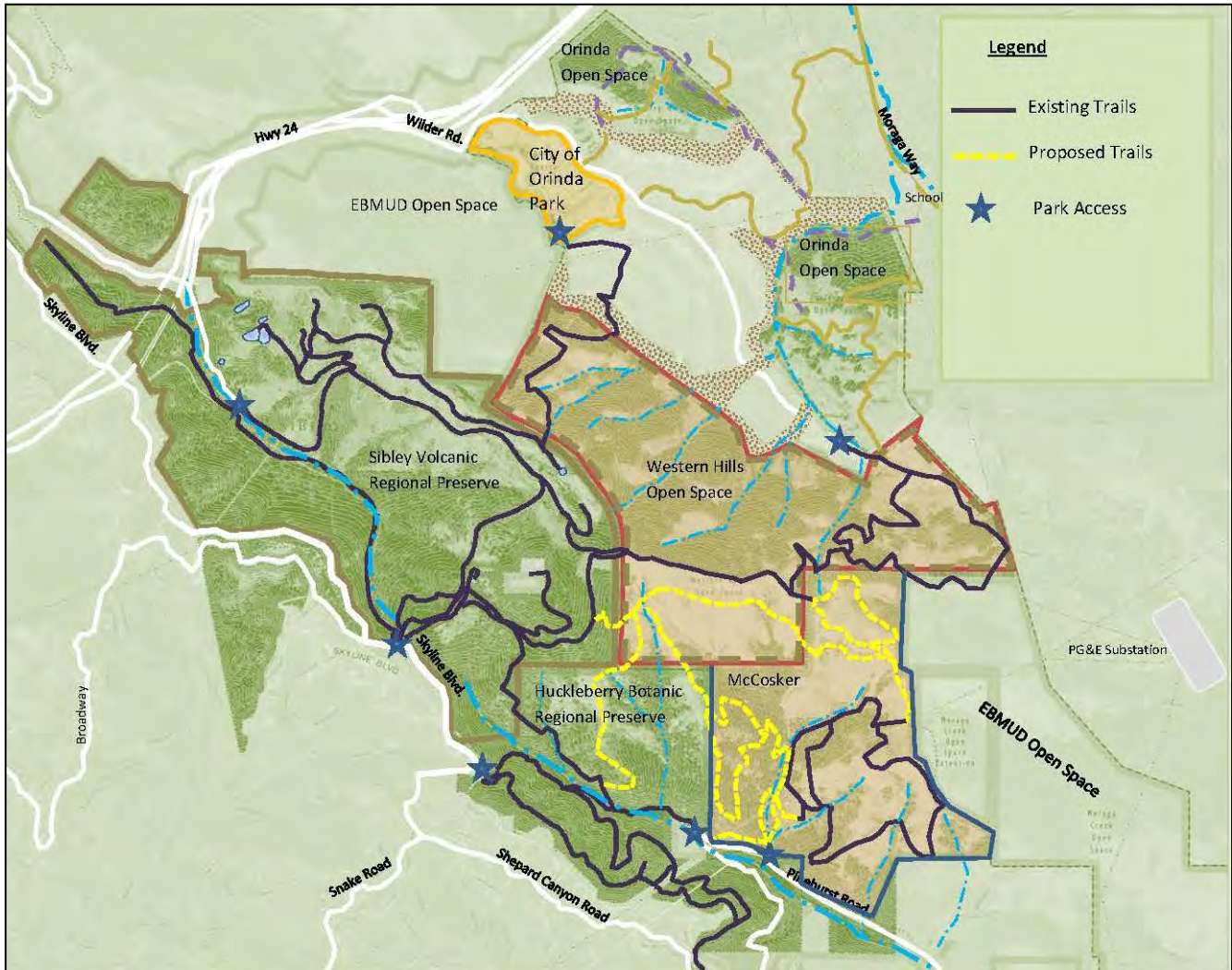


FIGURE X: LAND USE PLAN AMENDMENT PROJECT AREA

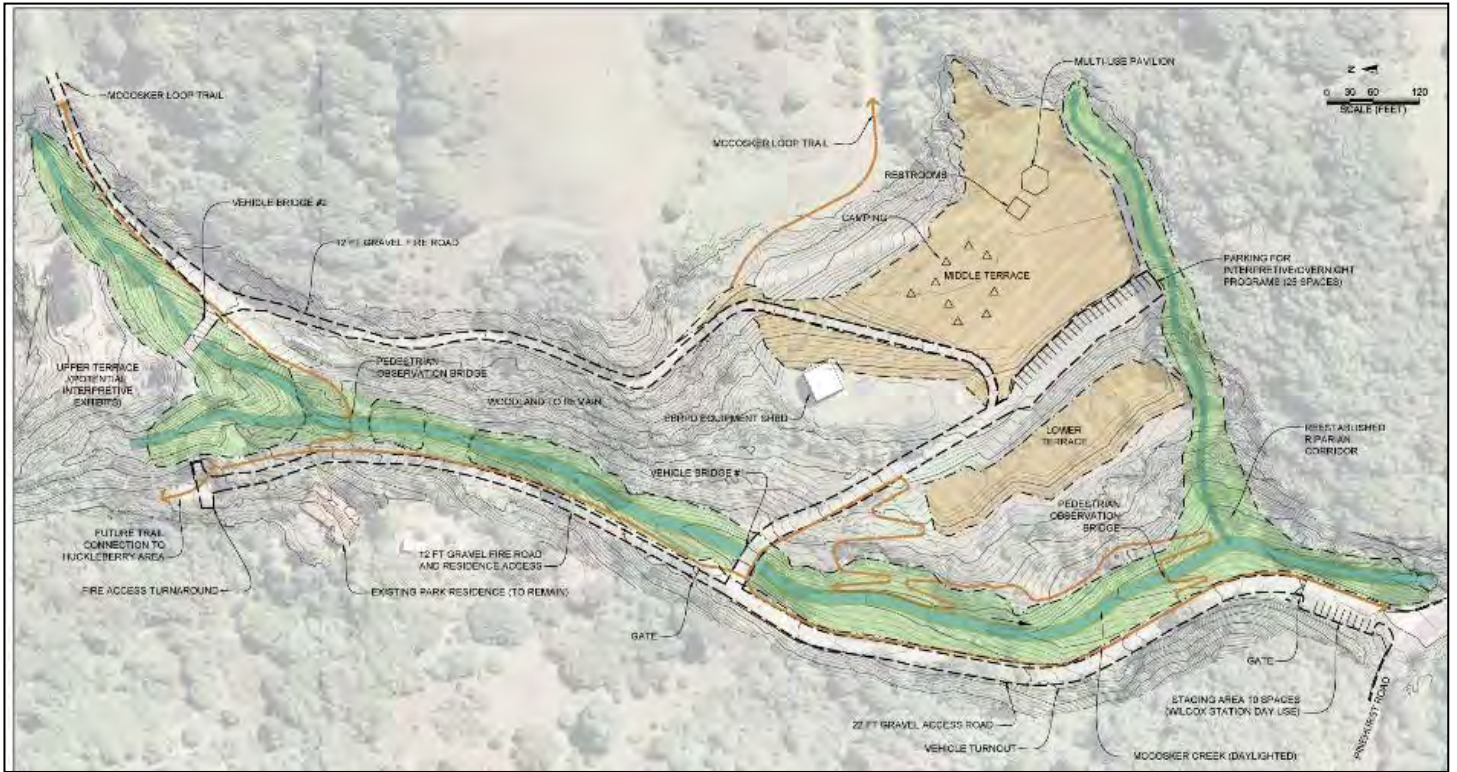
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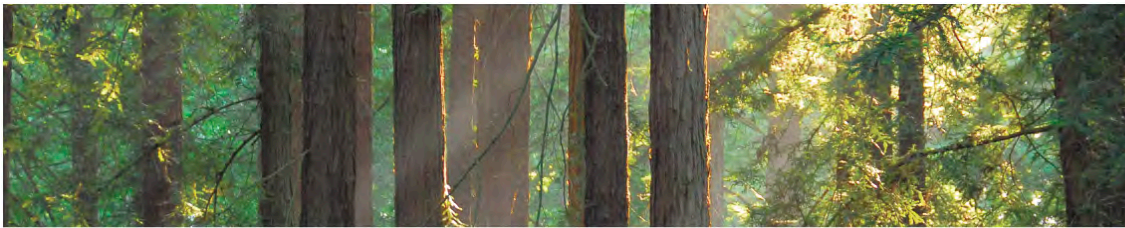
Robert Sibley Volcanic Regional Preserve
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September 25, 2017

Raymond Hitchcock, Chairperson
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Hitchcock:

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Sincerely,

Julie Bondurant
Acting Chief Planning GIS

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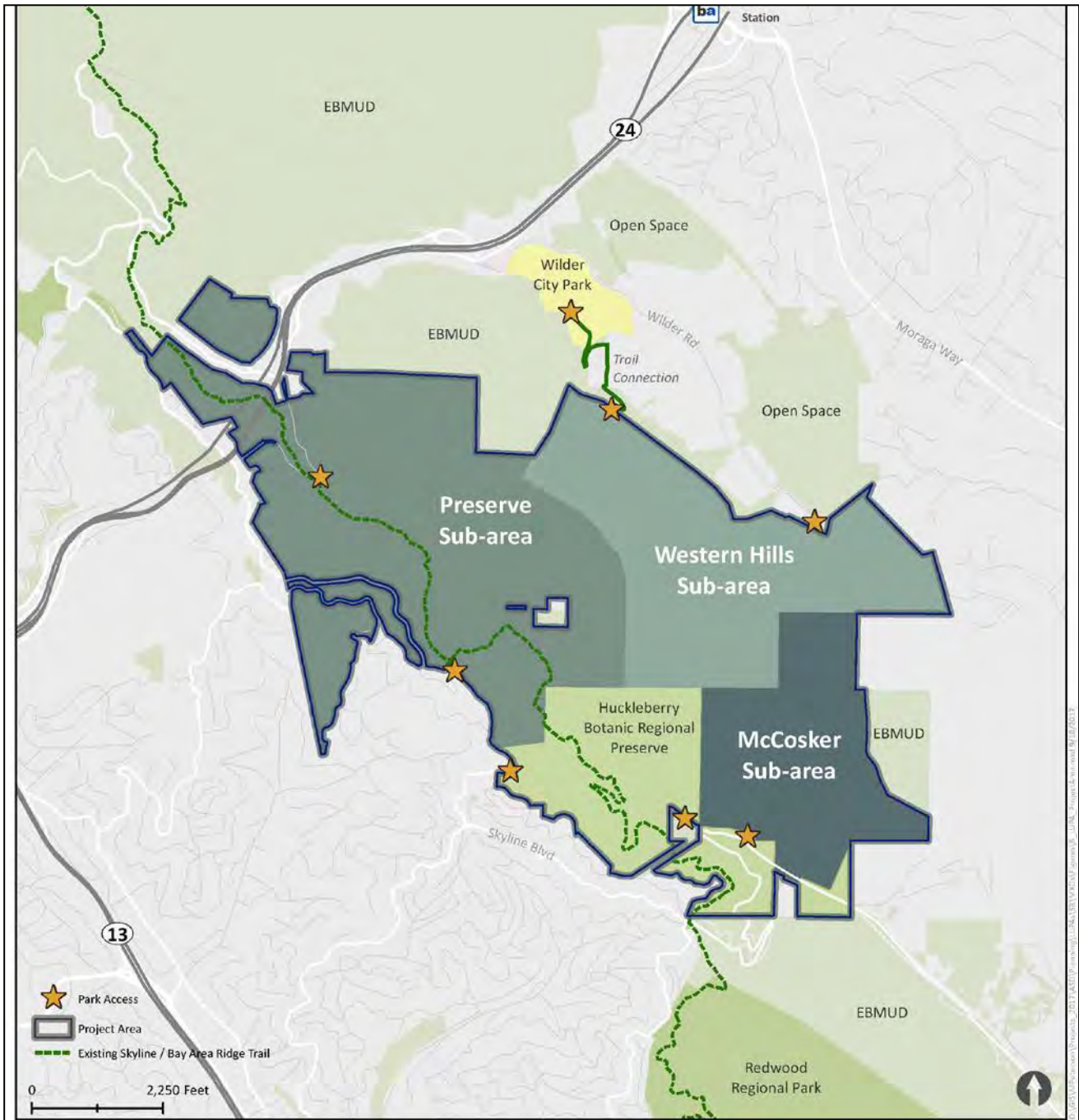
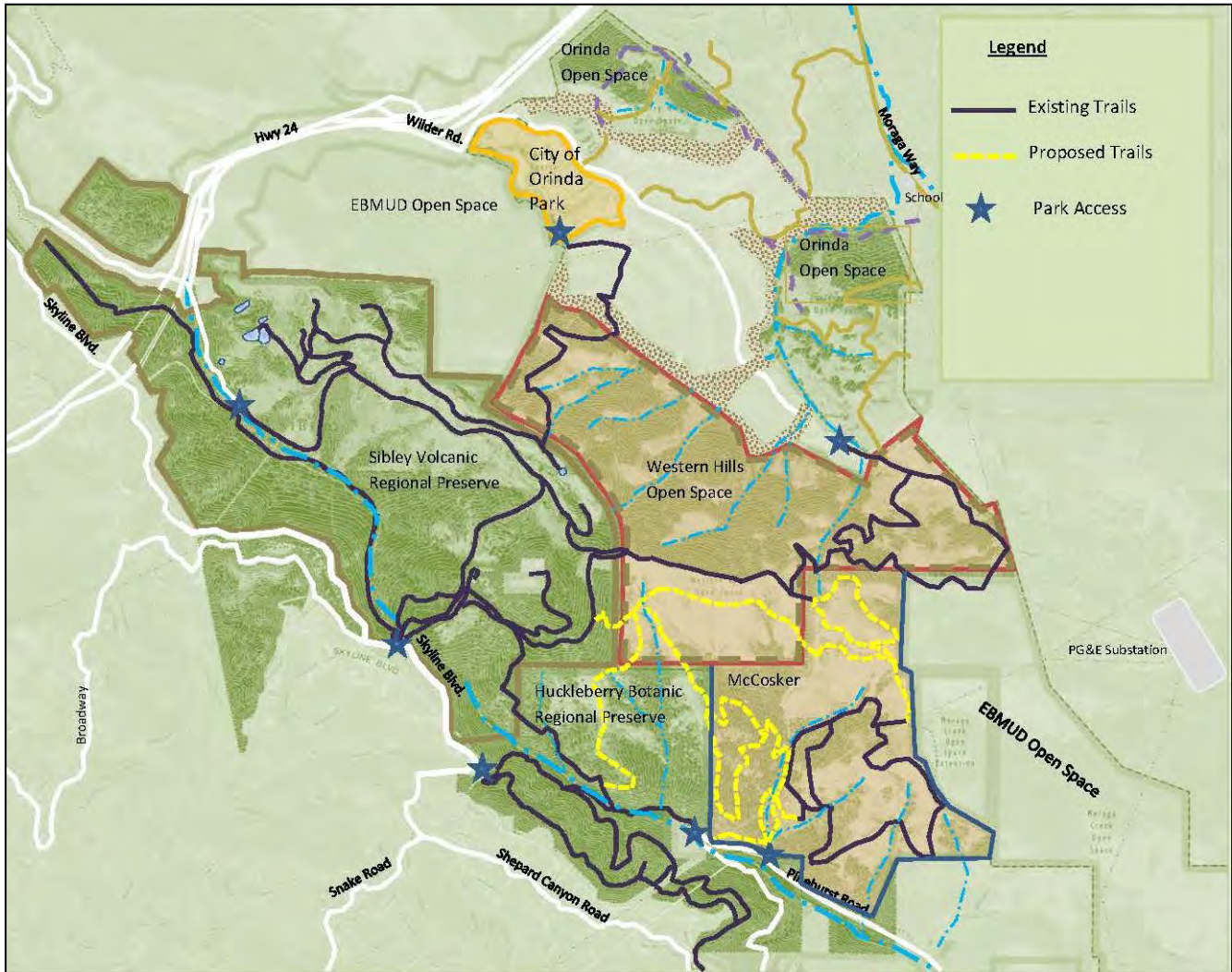


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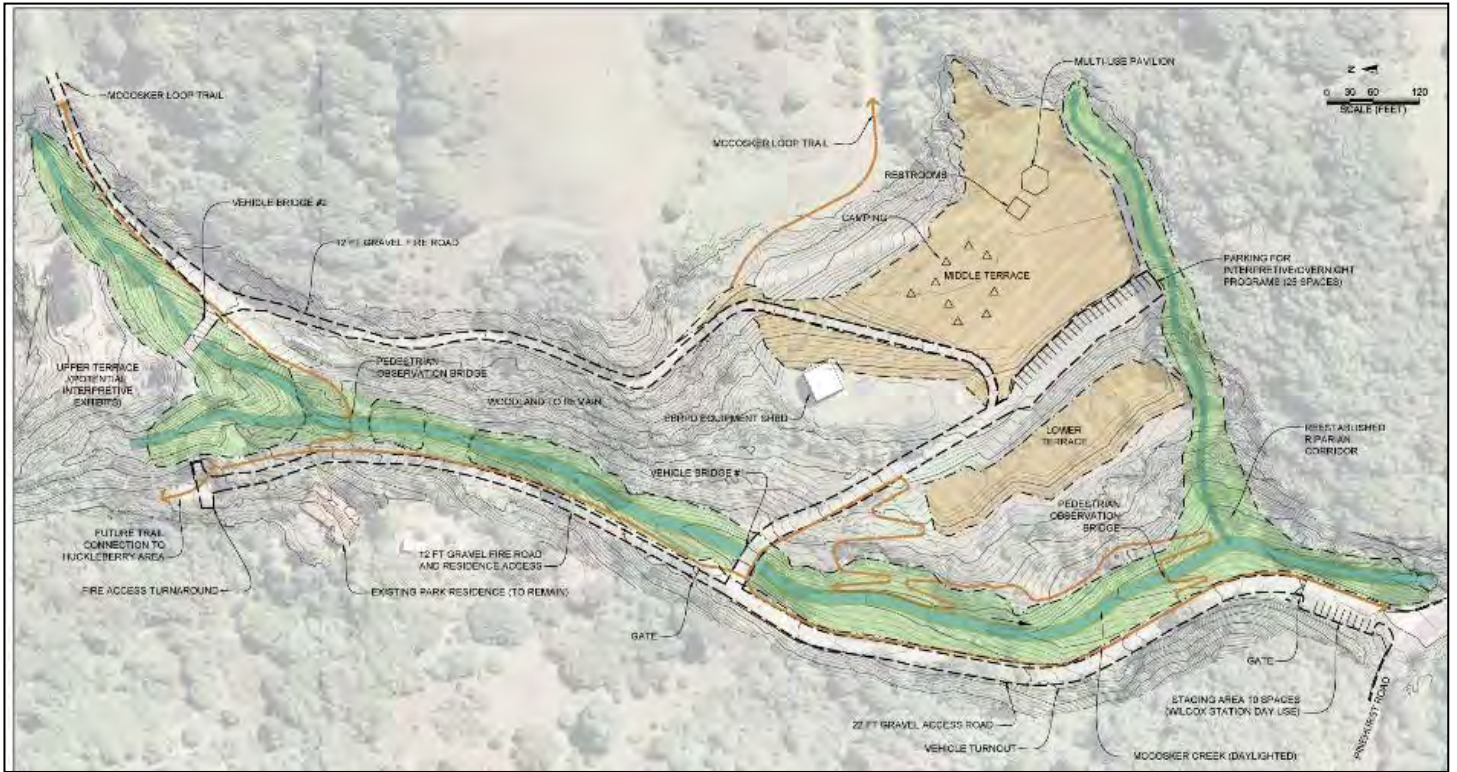
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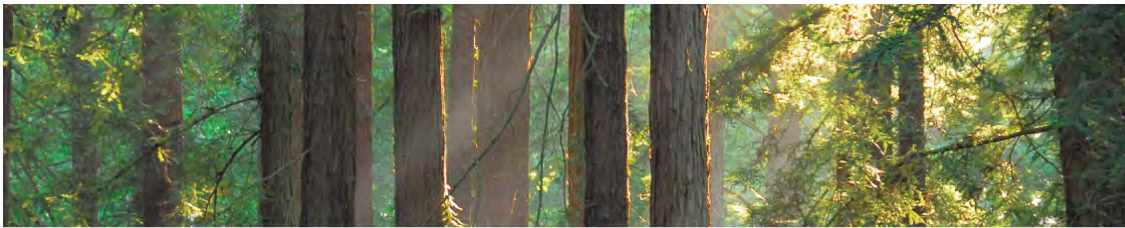
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September 25, 2017

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

Dear Chairperson Perez:

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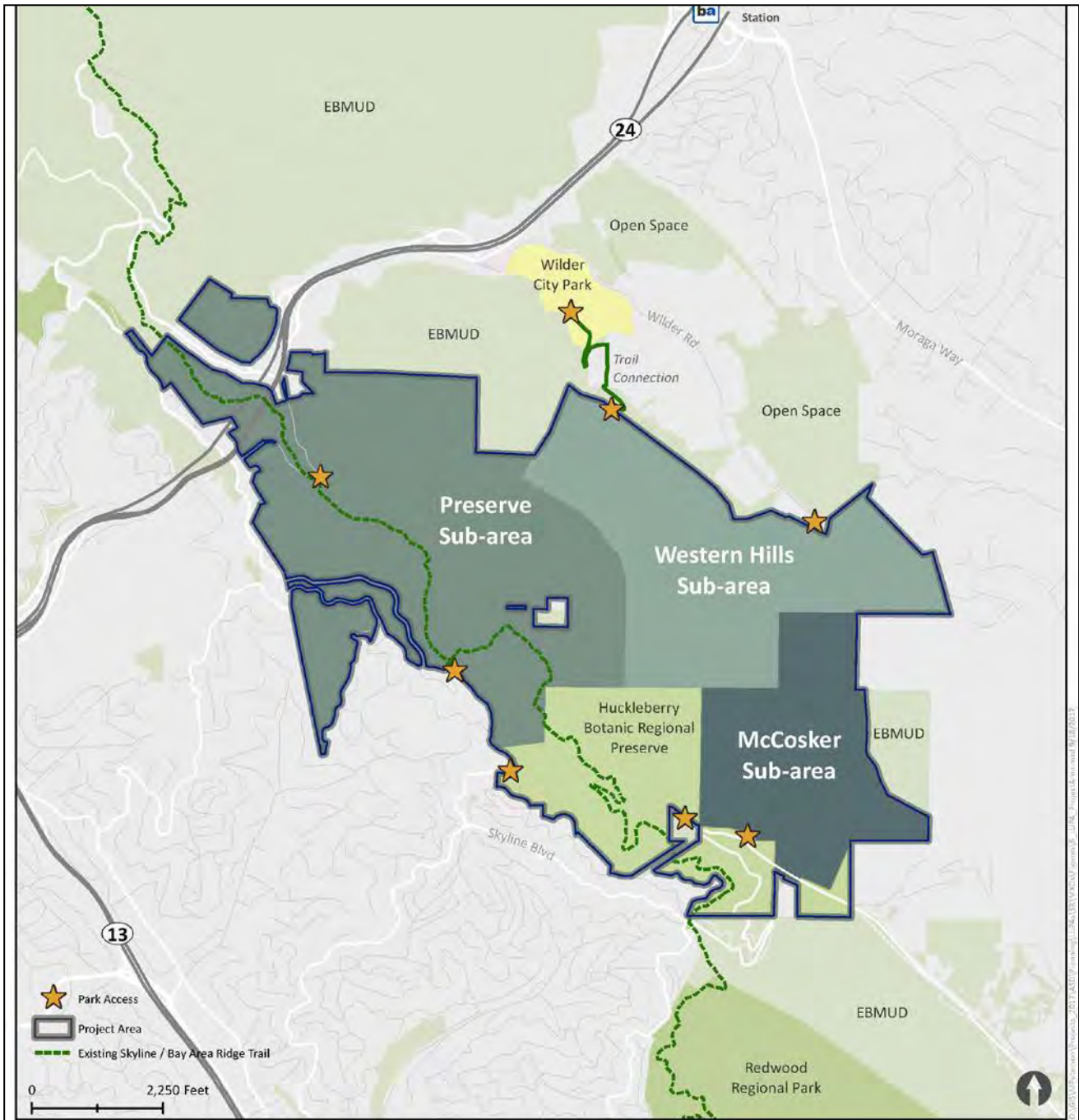
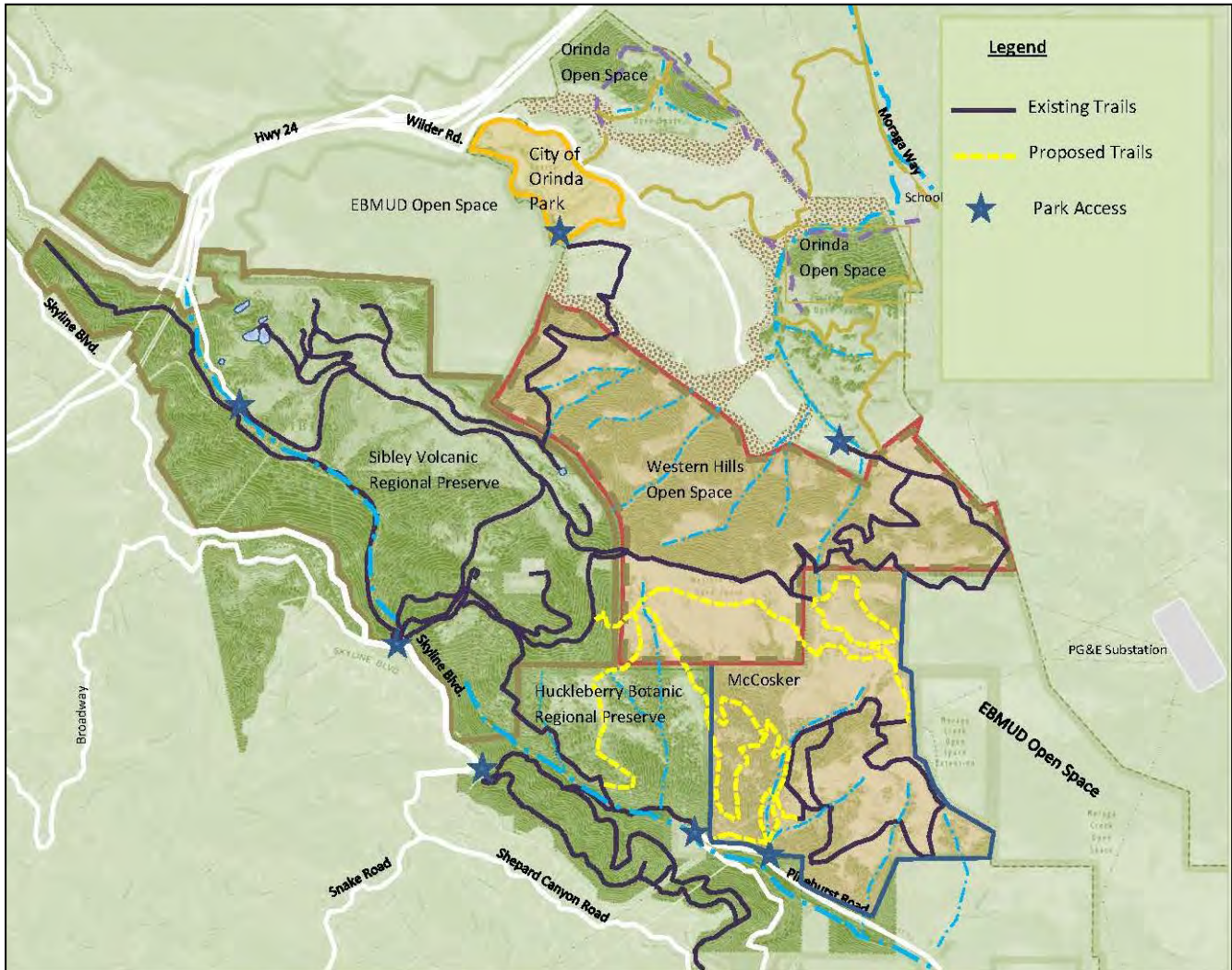


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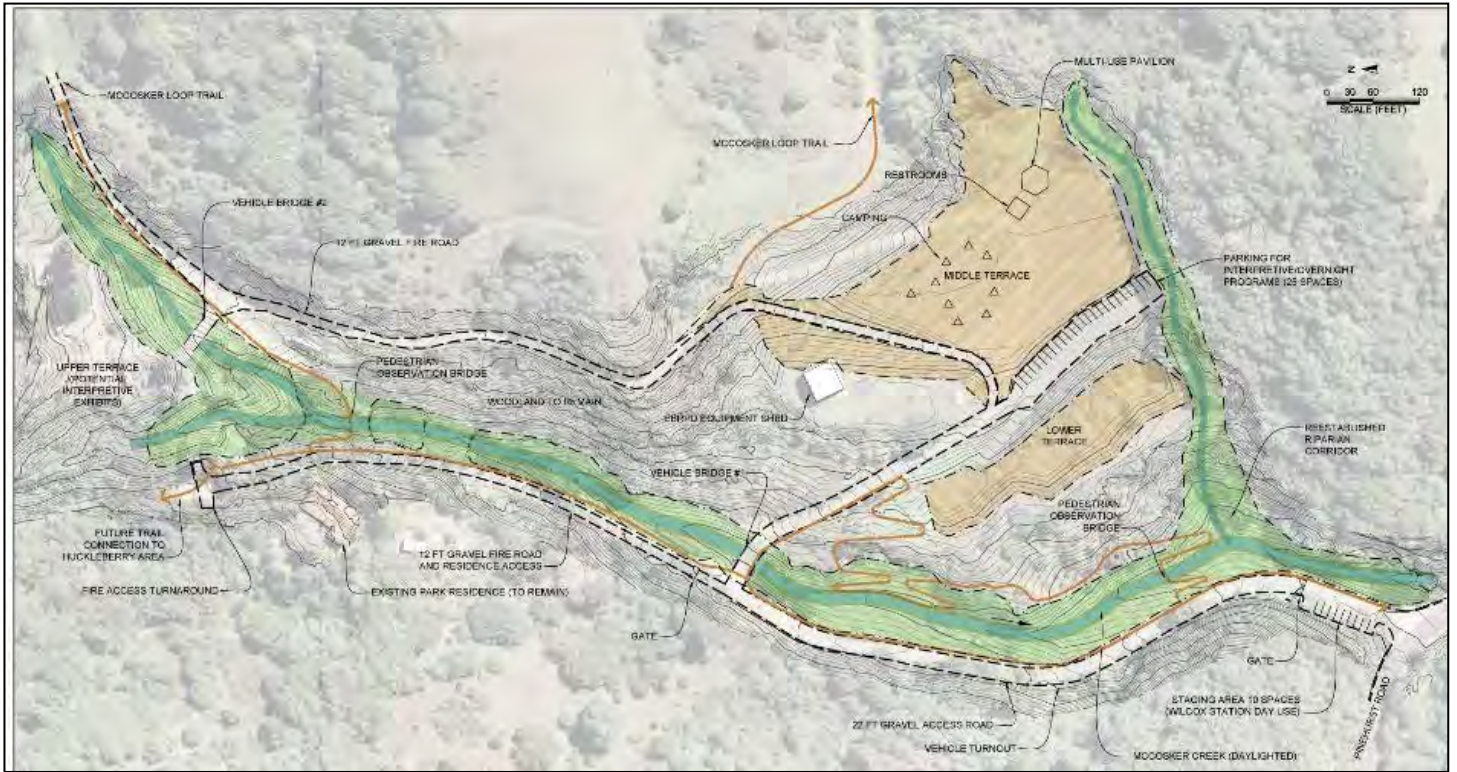
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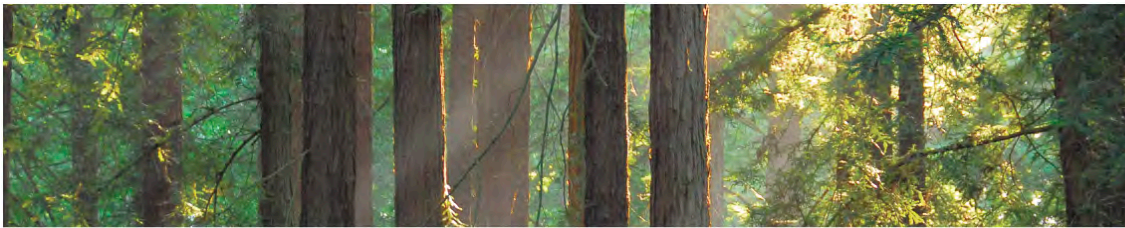
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September 25, 2017

Ann Marie Sayers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

SUBJECT: McCosker Stream Restoration and Recreational Infrastructure Project

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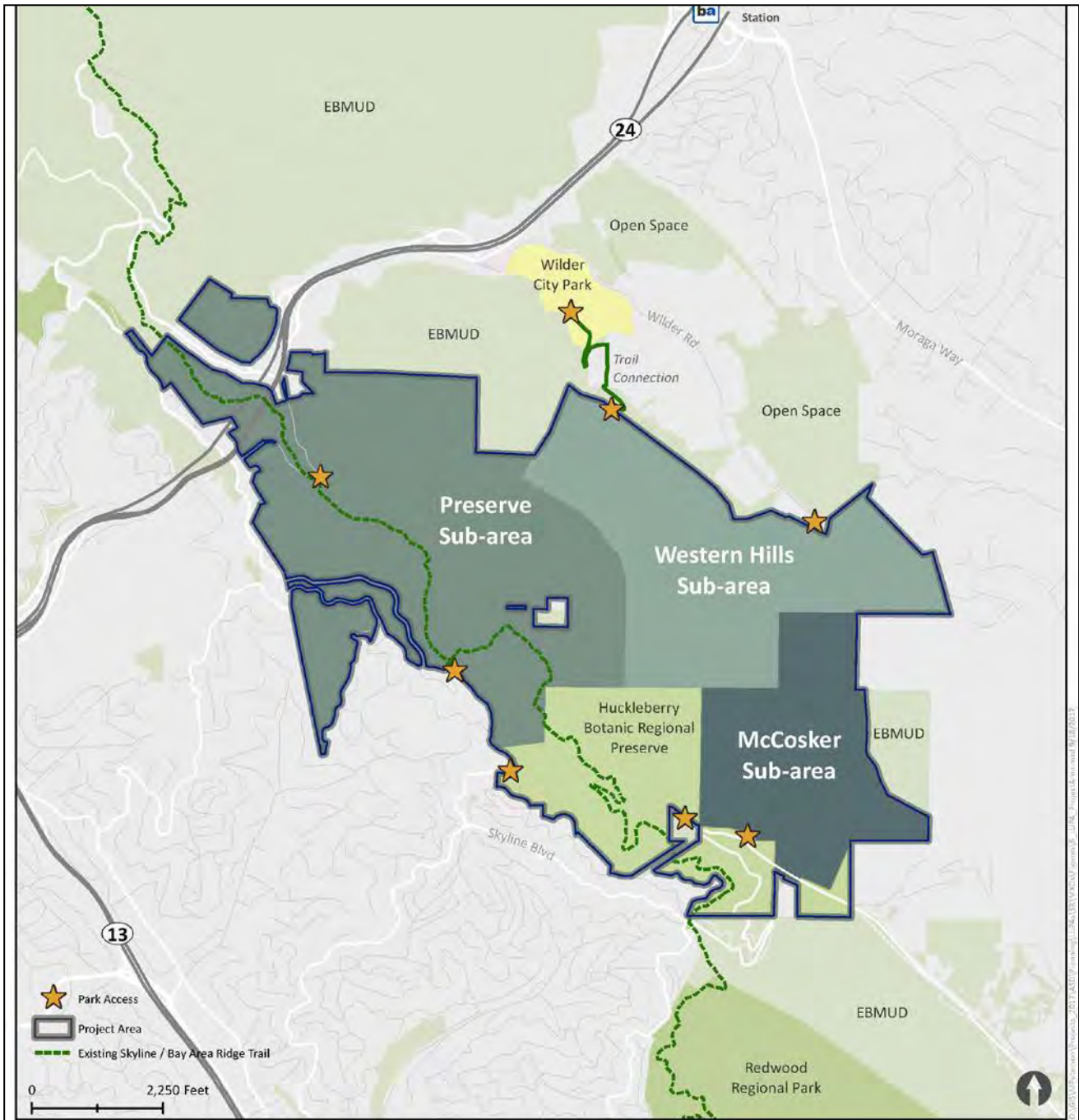
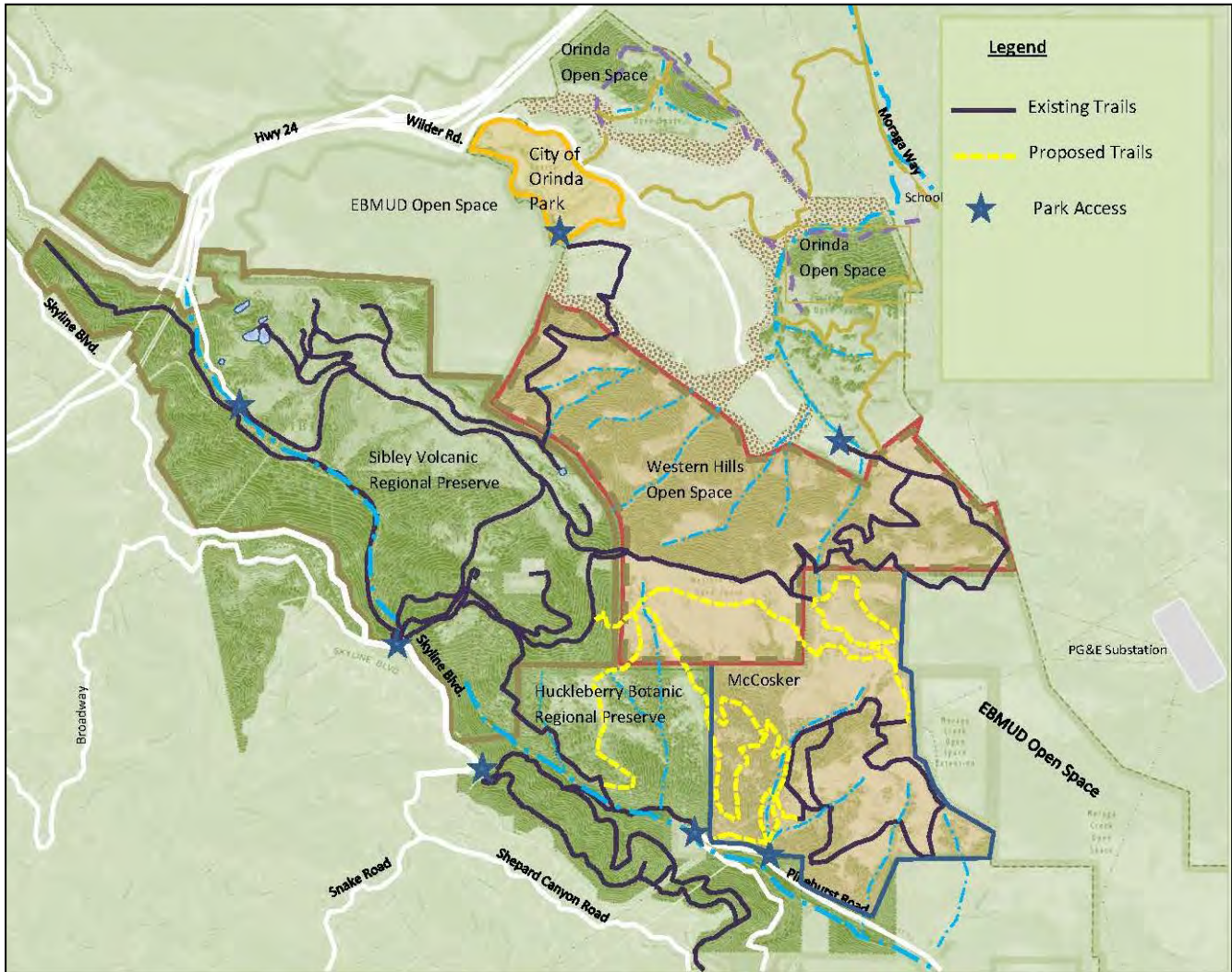


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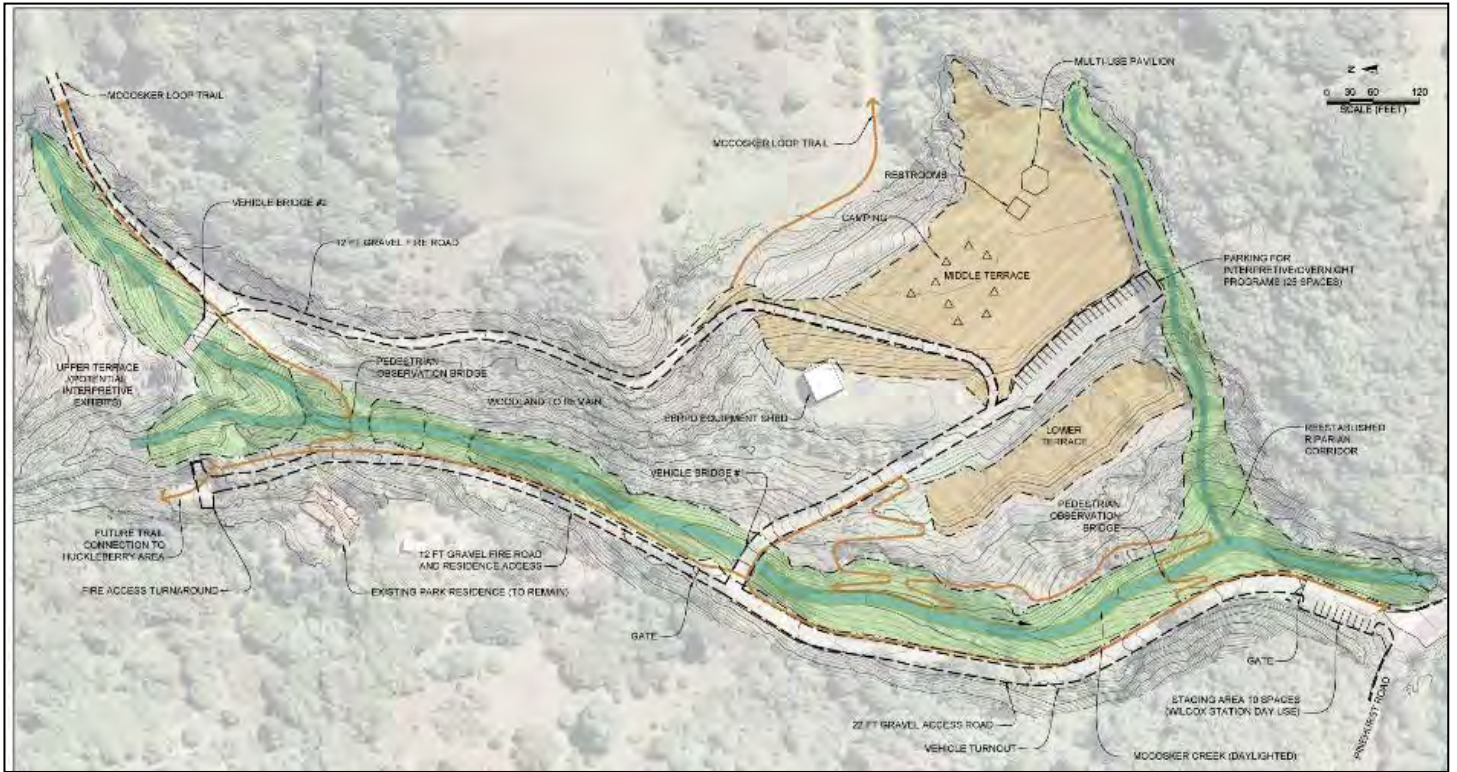
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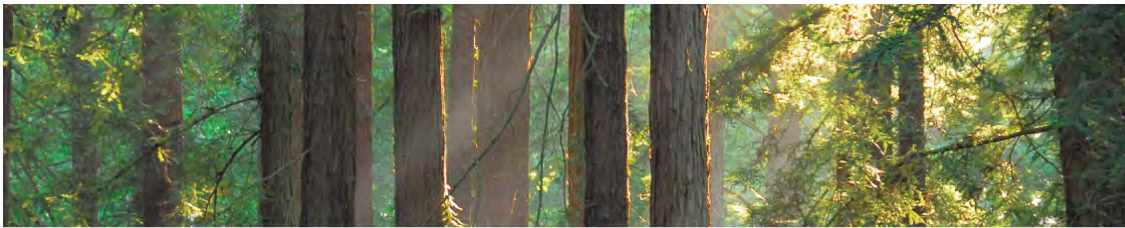
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Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

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Dear Chairperson Zwierlein:

Assembly Bill (AB) 52 and Section 106 Correspondence. The East Bay Regional Park District (District) is preparing a Land Use Plan Amendment (LUPA) for Robert Sibley Volcanic Regional Preserve (hereafter Project). Because the Project requires a permit under Section 404 of the Clean Waters Act, to be issued by the U.S. Army Corps of Engineers (Corps), it is subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) (hereafter Section 106) and the National Environmental Policy Act (NEPA). The Project is also subject to review under the California Environmental Quality Act (CEQA). The Corps and the District are lead reviewing agencies for NHPA/NEPA and CEQA purposes, respectively.

Pursuant to State law under AB 52 (codified at California Public Resources Code [PRC] § 21080.3.1), the District, as part of CEQA review for the Project, is reaching out to California Native American Tribes listed in the Native American Heritage Commission’s (NAHC[’s]) contact list regarding the Project. On May 23, 2016, the District sent a letter inviting you for tribal consultation for the stream restoration and public access component of the Project under Section 106. This letter serves as formal notification of the Project for AB 52 purposes. Going forward, any tribal communication concerning the Project will be for both AB 52 and Section 106 purposes. Below, please find a description of the Project, maps showing the Project location, and the name of the Project point of contact.

Pursuant to AB 52, please respond in writing within 30 calendar days if you wish to request consultation regarding possible significant effects that the Project may have on tribal cultural resources (TCRs). The consultation may include discussion concerning the type of environmental review necessary, the identification, presence and significance of TCRs, the significance of the Project’s impacts on TCRs, and, as warranted, mitigation measures and alternatives.

Project Location. The Project is located on the Oakland East, California USGS 7.5’ Quad. The Project Area includes three sub-areas totaling 1,318 acres located within Alameda and Contra Costa Counties: 1) Robert Sibley Volcanic Regional Preserve (Preserve); 2) Western Hills Open Space (Western Hills); and 3) the McCosker Parcel (McCosker). The Preserve sub-area encompasses a 678.71-acre area along the ridgelines of the East Bay Hills bordering the City of Oakland. The Western Hills sub-area comprises a 389.1-acre area, extending eastward from the ridgelines of the East Bay Hills to the western boundary of the Wilder residential development in the City of Orinda. The McCosker Sub-area comprises a 250-acre area approximately one mile northwest of the unincorporated township of Canyon in Contra Costa County. This sub-area extends from the canyon floor of the eastern face of the East Bay Hills to the east-west trending ridgelines of Gudde Ridge. Huckleberry Regional Preserve borders portions of each of the three sub-areas and trails connecting the three sub-areas are proposed to cross through Huckleberry Regional Preserve, which is owned and managed by the District.

Board of Directors

Beverly Lane President Ward 6	Dennis Waespi Vice-President Ward 3	Ayn Wieskamp Treasurer Ward 5	Ellen Corbett Secretary Ward 4	Whitney Dotson Ward 1	Dee Rosario Ward 2	Colin Coffey Ward 7	Robert E. Doyle General Manager
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Project Description. The Project amends a 1985 Land Use Plan and encompasses a 1,318-acre area. A Land Use Plan is a long-range plan for an entire park. Land Use Plans identify future resource management strategies and recreational use and establish appropriate Land Use Designations. The District amends existing Land Use Plans as needed to accommodate growth and change (2013 District Master Plan).

The Project includes: 1) improvements to existing staging areas and development of new parking areas; 2) improvements to existing roadways and infrastructure; 3) recreation facility development; 4) expansion of the existing trail system; and 5) restoration and enhancement of a creek, its tributaries, and adjacent uplands in the McCosker sub-area.

In the McCosker sub-area, the Project would include excavating fill material, daylighting the stream channel, removing existing culverts and drainage structures, constructing in-stream and near-stream enhancements along approximately 2,100 linear feet of the deteriorating, culverted McCosker Creek, and 600 linear feet of a buried side tributary. Also in the McCosker sub-area, the Project would include infrastructural improvements to support recreational uses at the site, including an access road and parking area, stream crossing(s), utilities, and graded area for future recreational improvements, including facilities to support interpretive programs and camping activities for 30 to 50 people, including parking for 20-25 vehicles. The trail system would be developed to incorporate: existing trails, approximately three and one-half miles of new narrow, natural surface trails, and changes in trail uses for approximately two miles of existing trails to improve circulation and provide greater connectivity with other District lands and neighboring residential communities.

The NAHC provided your name and contact information as a Native American representative who may have knowledge of cultural resources in the Project vicinity. The NAHC reported that a search of the Sacred Lands File returned negative results. A recent records search at the Northwest Information Center (NWIC), at Sonoma State University, Rohnert Park, indicated that there are no previously recorded archaeological resources in or adjacent to the Project footprint.

To better assist in the analysis of potential Project impacts to cultural resources, we invite you to share information you may have regarding cultural resources in the Project vicinity. Any information you provide regarding locations of cultural resources will be kept confidential in accordance with federal and state regulations. Your assistance in identifying resources so they may be avoided and protected whenever feasible is greatly appreciated.

Thank you for your time and cooperation regarding this matter. Please feel free to contact me if you have any questions or comments regarding this Project, at 510-544-2323 or jbondurant@ebparks.org.

Sincerely,

Julie Bondurant
Acting Chief Planning GIS

Attachments:

Attachment 1 - Project Location Map

Attachment 2 - Trail System

Attachment 3 - Preliminary Creek Restoration & Recreation Improvement Areas

Attachment 1 - Project Location Map

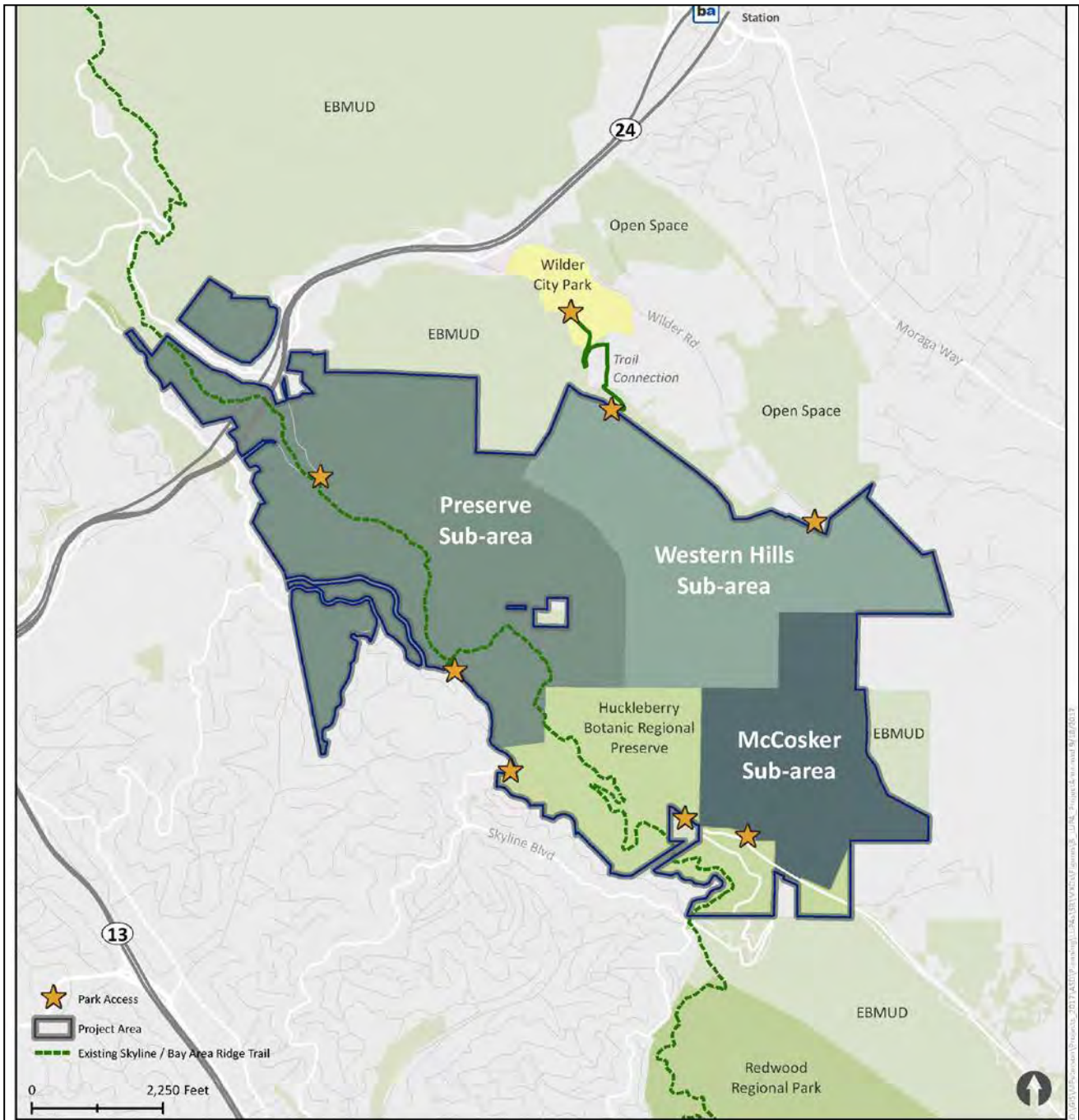
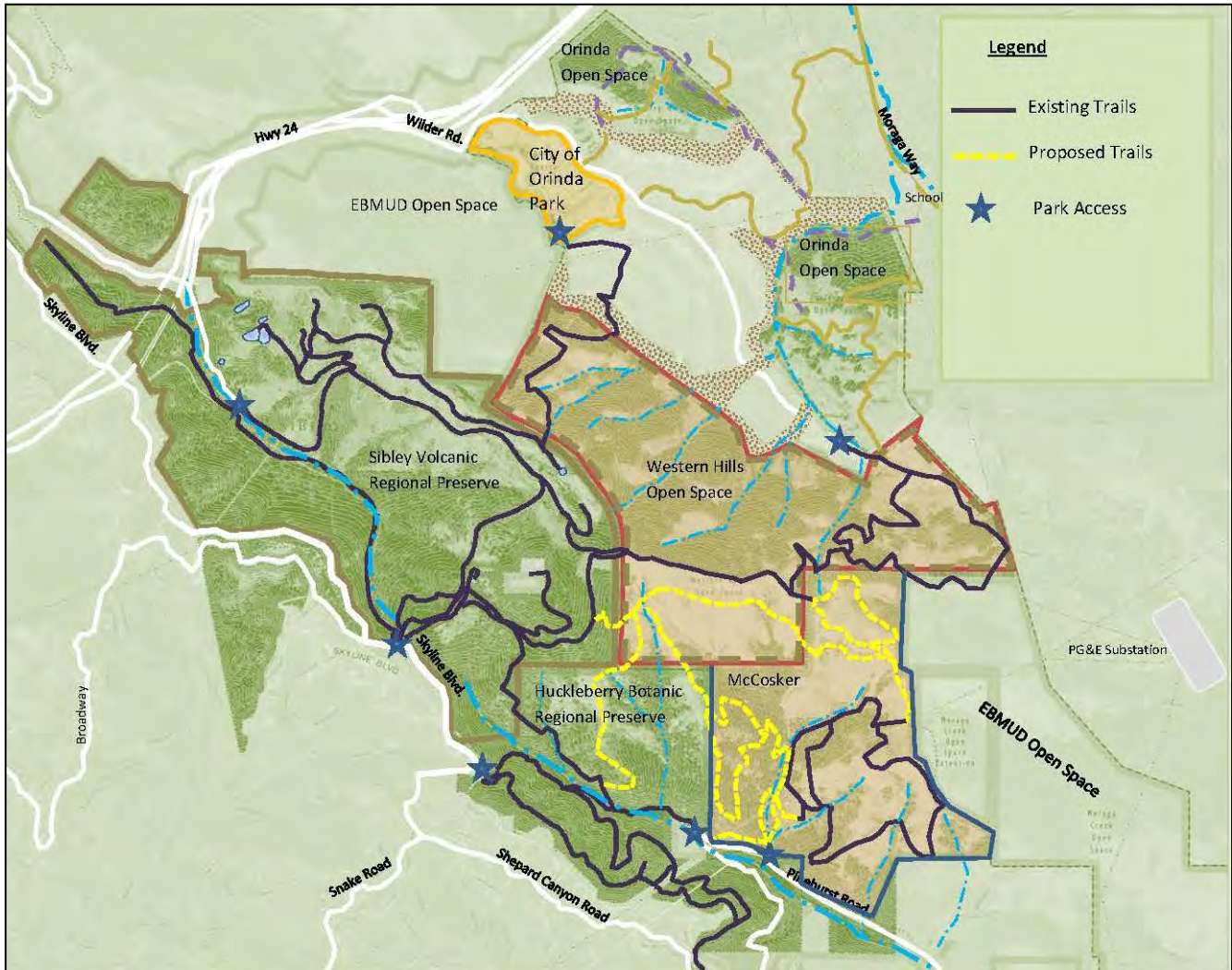


FIGURE X: LAND USE PLAN AMENDMENT PROJECT AREA

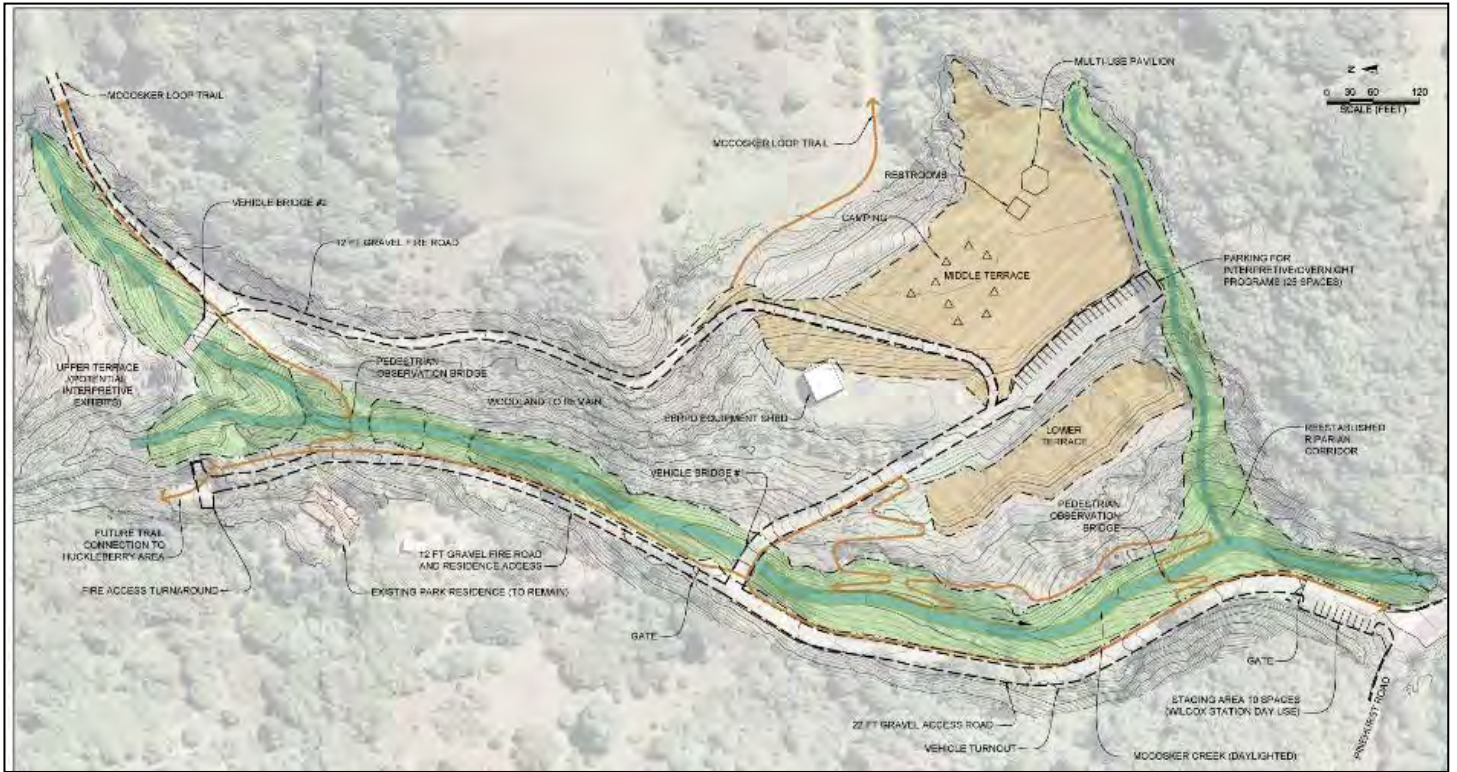
Acquisition, Stewardship and Development Division.
Planning Department.
September, 2017


Robert Sibley Volcanic Regional Preserve
Orinda, Contra Costa County, CA.

Attachment 2 - Trail System



Attachment 3 - Preliminary Creek Restoration & Recreation Improvement Areas



SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input checked="" type="checkbox"/> Agent <input checked="" type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) MR. J. D. ...</p> <p>C. Date of Delivery 11/28/17</p>
<p>1. Article Addressed to:</p> <p>Andrew Galvan The Ohlone Indian Tribe P.O. Box 3152 Fremont, CA 94539</p>  <p>9590 9402 2864 7069 7201 55</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input checked="" type="checkbox"/> No</p>
<p>2. Article Number (Transfer from service label)</p> <p>7017 0660 0001 0789 4576</p>	<p>3. Service Type</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adult Signature <input type="checkbox"/> Adult Signature Restricted Delivery <input checked="" type="checkbox"/> Certified Mail® <input type="checkbox"/> Certified Mail Restricted Delivery <input type="checkbox"/> Collect on Delivery <input type="checkbox"/> Collect on Delivery Restricted Delivery <input type="checkbox"/> Insured Mail <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) <input type="checkbox"/> Priority Mail Express® <input type="checkbox"/> Registered Mail™ <input type="checkbox"/> Registered Mail Restricted Delivery <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Signature Confirmation™ <input type="checkbox"/> Signature Confirmation Restricted Delivery
PS Form 3811, July 2015 PSN 7530-02-000-9053	Domestic Return Receipt

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) RAUL PEREZ</p> <p>C. Date of Delivery 9/27/17</p>
<p>1. Article Addressed to:</p> <p>Katherine Erolinda Perez North Valley Yokuts Tribe P.O. Box 717 Linden, CA 95236</p>  <p>9590 9402 2864 7069 7201 31</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p> 
<p>2. Article Number (Transfer from service label)</p> <p>7017 0660 0001 0789 4583</p>	<p>3. Service Type</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adult Signature <input type="checkbox"/> Adult Signature Restricted Delivery <input checked="" type="checkbox"/> Certified Mail® <input type="checkbox"/> Certified Mail Restricted Delivery <input type="checkbox"/> Collect on Delivery <input type="checkbox"/> Collect on Delivery Restricted Delivery <input type="checkbox"/> Insured Mail <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) <input type="checkbox"/> Priority Mail Express® <input type="checkbox"/> Registered Mail™ <input type="checkbox"/> Registered Mail Restricted Delivery <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Signature Confirmation™ <input type="checkbox"/> Signature Confirmation Restricted Delivery
PS Form 3811, July 2015 PSN 7530-02-000-9053	Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ann Marie Sayers
P.O. Box 28
Hollister, Ca. 95024



9590 9402 2864 7069 7201 24

2. Article Number (Transfer from service label)

7017 0660 0001 0789 4590

PS Form 3811, July 2015 PSN 7530-02-000-9053

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A. Signature

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- Agent
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- Addressee

B. Received by (Printed Name)

Kamryn Sayers

C. Date of Delivery

9-29-17

- D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type

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- Collect on Delivery Restricted Delivery
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- Insured Mail
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- Insured Mail Restricted Delivery (over \$500)
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- Priority Mail Express®
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- Registered Mail™
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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Irene Zwiernick
789 Canada Rd.
Woodside, Ca. 94062



9590 9402 2864 7069 7201 62

2. Article Number (Transfer from service label)

7017 0660 0001 0789 4569

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

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- Addressee

B. Received by (Printed Name)

Shelby Zimmer

C. Date of Delivery

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3. Service Type

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- Collect on Delivery Restricted Delivery
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- Insured Mail
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- Insured Mail Restricted Delivery (over \$500)
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- Priority Mail Express®
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- Registered Mail™
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- Registered Mail Restricted Delivery
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- Signature Confirmation™
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- Signature Confirmation Restricted Delivery

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- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Raymond Hitchcock
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624



9590 9402 2864 7069 7201 48

2. Article Number (Transfer from service label)

7017 0660 0001 0789 4552

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

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- Agent
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- Addressee

B. Received by (Printed Name)

Mariah Sangmaster

C. Date of Delivery

10-10-17

- D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type

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- Collect on Delivery Restricted Delivery
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- Insured Mail
-
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- Insured Mail Restricted Delivery (over \$500)
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- Priority Mail Express®
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- Registered Mail™
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- Registered Mail Restricted Delivery
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- Return Receipt for Merchandise
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- Signature Confirmation Restricted Delivery

Domestic Return Receipt

APPENDIX E

Geotechnical Investigation Report

Geotechnical Investigation Report McCosker Stream Restoration and Recreational Infrastructure Project Robert Sibley Volcanic Regional Preserve Contra Costa County, California



Upper Level Pad



Valley Floor

SUBMITTED TO:

Scott Stoller, P.E.
Associate Engineer
ESA PWA | Environmental Hydrology
550 Kearny Street, Suite 800
San Francisco, CA 94108
sstoller@esassoc.com

September 8, 2016

A3GEO

September 8, 2016

Scott Stoller, P.E.
Associate Engineer
ESA PWA | Environmental Hydrology
550 Kearny Street, Suite 800
San Francisco, CA 94108
SStoller@esassoc.com

**RE: Geotechnical Investigation
McCosker Stream Restoration and Recreational Infrastructure Project
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California**

Dear Mr. Stoller:

This report presents the results of our geotechnical investigation for the McCosker Stream Restoration and Recreational Infrastructure Project at the Robert Sibley Volcanic Regional Preserve in Contra Costa County, California. Our services were authorized under our May 22, 2016 Subcontractor Agreement with ESA, which references our February 23, 2015 proposal.

We understand that the primary objective of the project is to restore the natural ecology of the McCosker site, which will be achieved by daylighting approximately 1,600 linear feet of creek, removing existing culverts and drainage structures, and constructing in-stream and near-stream enhancements. The project will also provide infrastructure to support recreational uses at the site, including an access road and parking area, creek crossings, utilities, and a graded area for future recreational improvements.


The conclusions and recommendations presented in this report were developed in accordance with generally-accepted geotechnical principles and practices at the time that the report was prepared. Should you have questions or comments concerning our findings, the design concepts discussed, or our recommendations, please do not hesitate to call.

Yours very truly,

A3GEO, Inc.



Dona Mann, P.E., G.E.
Principal Engineer
Cell: (415) 425-0247



Wayne Magnusen, P.E., G.E.
Principal Engineer
Cell: (510) 325-5724



Attachments: Geotechnical Investigation Report
Plates 1 – 20
Figures 1 – 6
Appendices A - C

1.00 INTRODUCTION

This report presents the results of our geotechnical investigation for the McCosker Stream Restoration and Recreational Infrastructure Project in Robert Sibley Volcanic Regional Preserve in Contra Costa County, California. Our services were authorized under our May 22, 2016 Subcontractor Agreement with ESA, which references our February 23, 2015 proposal. A list of selected references used in our study is presented in Section 7.00 of this report; following the reference list are a series of illustrative plates, five technical figures and three appendices.

1.01 Project Setting

The project site is within the former McCosker Parcel, which is located at 920 Pinehurst Road near the unincorporated community of Canyon (Plate 1). The Robert Sibley Volcanic Regional Preserve lies within the East Bay Hills, which in the vicinity of the site consist of a series of roughly parallel ridges and valleys that trend southeast-northwest. Pinehurst Road and the community of Canyon lie within the valley of Upper San Leandro Creek, a perennial creek that provides habitat for native rainbow trout. Upper San Leandro Creek drains south-southwest from its origin in Sibley Volcanic Preserve, which includes a volcanic peak (Round Top) that has a summit elevation of 1,763 feet.

As shown on the Vicinity Map (Plate 2) the Project Area is situated northeast of Pinehurst Road and is traversed by a fire/access road that leads up to a southeast-trending ridgeline. In the vicinity of the site, the hillslopes northeast of Pinehurst Road are traversed by lesser tributaries that generally drain south and west towards Upper San Leandro Creek. The primary tributary within the Project Area, McCosker Stream, lies within a gently-sloping valley that is aligned roughly north-south (Plate 2). At the present time, McCosker Stream is largely contained in buried concrete and metal pipes.

Plate 3 and the Existing Features Map (Figure 1) show the locations of key topographic and cultural features in the vicinity of the Project Area. As shown on Plate 3 and Figure 1, there is an existing gravel road (which includes localized areas of asphalt concrete paving) that leads north from the Pinehurst Gate to a “loop” near the northern end of the Project Area. This primary access road is within the valley floor and is mostly underlain by fill that surrounds and overlies the buried culvert. An existing residence is located on the east-facing hillside upslope of the loop. In the middle of the Project Area, a secondary access road leads up from the valley floor to the two level- to gently-sloping pads. At the northwestern end of the upper pad, which is the larger of the two, is a small prefabricated metal building known as the “barn” (Plate 3). Two prominent drainage swales (North Swale and South Swale) are present upslope of the level area upon which the barn is located (Plate 3). The lower portions of the two swales are buried by fill placed in association with previous site development activities.

1.02 Project Description

We obtained information about the proposed project primarily through our discussions with ESA and our review of ESA’s conceptual drawings (see Section 2.04; Review of Conceptual Design Information). We understand that the Project, as currently envisioned, will include the following key geotechnical elements:

Creek Daylighting: The primary objective of the project is to restore the natural ecology of the McCosker site, including providing for upstream migration access for native rainbow trout. This objective will be achieved by excavating fill material and daylighting the creek channel, removing the existing culverts and drainage structures, and constructing in-stream and near-stream enhancements along the daylighted creek channel. The approximate location of the daylighted creek channel is delineated on the Site Plan, Figure 2. The centerline includes stationing every 100 feet from 0+00 at the south end to about 17+94 at the north end. As currently envisioned: 1) the daylighted creek banks will be laid back to an inclination of at least a 3:1 (horizontal:vertical), except where space limitations require a steeper slope; and 2) excavations to remove the culvert and construct the new channel will typically extend about 8 to 15 feet below current site grades.

Vehicular Creek Crossings: This study includes geotechnical investigations and recommendations for three vehicular creek crossings which have been identified as Crossings 1, 3 and 4 on the Site Plan, Figure 2. Crossings 1 and 4 will be arch culverts with a natural creek bottom. The type of crossing for Crossing 3 has not been selected at this time.

Fill Placement Areas: Soil excavated during creek daylighting and associated enhancements will be placed as engineered fill at various locations within the Project Area, including the two level- to gently-sloping pads south of the barn (identified as “Upper Level Pad” and “Lower Level Pad” on Figures 1 and 2). The thickness and location of the fill will be governed to a degree by slope stability considerations; completed fill areas south of the barn will be graded to accommodate future recreational improvements.

Fire/Access Roads: New fire/access roads are planned to follow the existing gravel roads with the exception of a new realigned access road planned directly upslope (east of) the barn. The proposed location of the new access road is delineated on the Site Plan, Figure 2.

The project will also involve the demolition of various existing site improvements and localized remedial grading.

1.03 Purpose and Scope

The primary purpose of our study was to: 1) investigate subsurface conditions in the areas of the proposed creek alignment, at the 3 vehicular channel crossings and at the soil disposal sites, and 2) provide geotechnical conclusions and recommendations for the design and construction of the creek banks, channel crossings and disposal sites.

As outlined in our proposal, our services consisted of:

- Reviewing relevant published materials pertaining to geologic, seismic, and geotechnical conditions;
- Reviewing any other relevant materials provided, such as conceptual designs, feasibility-level studies, and existing geotechnical/geological reports;
- Conducting a site reconnaissance;
- Drilling, sampling, and logging twelve geotechnical borings at proposed channel crossings, potential creek excavation disposal sites, and along the proposed channel alignment;
- Performing geotechnical laboratory tests on samples obtained from the borings;
- Characterizing the subsurface conditions at the site;
- Analyzing slope stability for fill placement;
- Developing geotechnical conclusions and recommendations for the project; and
- Preparing this geotechnical investigation report.

Please note that our scope of services did not include investigations, evaluations, conclusions or recommendations pertaining to: 1) earthquake-induced landsliding, liquefaction or lateral spreading; 2) surface hydrology, creek bank overtopping or flooding; 3) creek bank erosion, scour or slope stability immediately after flood conditions; or 4) hazardous, toxic, or corrosive materials on, below, or around the site.

2.00 **METHODS OF INVESTIGATION**

2.01 **Review of Published Information**

We reviewed a variety of materials containing information relevant to the geologic and seismic setting of the site, including maps and literature published by the U.S. Geological Survey (USGS) and California Geological Survey (CGS). A list of selected references is presented in Section 7.00 of this report. Information obtained from our review of published information is discussed in Section 3.01, Geologic and Seismic Setting.

2.02 **Review of Historical Information**

We obtained information on the site development history by reviewing historical aerial photographs available through Google Earth as well as the following sets of stereo-paired aerial photographs obtained from Quantum Spatial (formerly Pacific Aerial Surveys):

Stereo-Paired Aerial Photographs

Photograph Date	Approximate Scale	Photo ID Numbers
8-17-53	1:12,000	AV-119-15-23&24
7-2-59	1:9600	AV-334-17-28&29
7-2-68	1:12,000	AV-858-04-22&23
4-30-73	1:12,000	AV-1100-10-24&25
7-7-77	1:12,000	AV-1377-09-30&31
6-21-83	1:12,000	AV-2300-10-23&24
8-24-98	1:12,000	AV-6100-113-28&29

We also reviewed historical information contained in the following reference document:

East Bay Regional Park District (EBRPD), 2002, "McCosker Parcel Land Use Plan Checklist Amendment, Interim Improvements for Public Access and Public Safety in the Robert Sibley Volcanic Regional Preserve Land Use Plan," amendment checklist process adopted 2002, resolution No. 2000-3-54.

Information obtained from our review of historical aerial photography and the above-referenced EBMUD document is discussed in Section 3.02, Site Development History.

2.03 **Review of Site-Specific Information and Data**

We reviewed the following information and data relevant to the site:

P/A Design Resources, Inc. (P/A), 2008, "McCosker Ranch/Texas Parcel Water System," drawing dated October, 15, 2008.

California Department of Transportation (CalTrans), 2015, "Preliminary McCosker Ranch Subsurface Investigation Report," dated November 17, 2015.

The drawing by P/A shows the location of existing onsite water infrastructure, which includes underground pipes, underground tanks and a pump house (Figure 1).

The CalTrans report includes the logs of nine geotechnical borings (B-1 through B-9) that were drilled at the site in 2015. Bagged samples from the Caltrans borings were made available to us, which we reviewed in conjunction with the CalTrans logs. Information obtained from our review is discussed in Section 3.04 Subsurface Conditions; the logs of CalTrans borings B-1 through B-9 are included in Appendix A. Our edits, based on visual examination and laboratory tests performed, are included on the logs in red.

2.04 Review of Conceptual Design Information

We obtained general information about the Project from the following preliminary report:

Stantec, 2014, “McCosker Feasibility Report: Daylighting an Unnamed Tributary on the McCosker Property,” dated September 12, 2014.

We also reviewed the following plan sheets titled “McCosker Stream Restoration Project” by ESA:

- Sheet No. C01 of 3 – Existing Features South Reach (dated February 26, 2016)
- Sheet No. C02 of 3 – Existing Features North Reach (dated February 26, 2016)
- Sheet No. C03 of 3 – Cross Sections (dated February 26, 2016)
- Sheet No. C2 of 7 – Conceptual Plan & Profile STA 0+00 to 5+50 (dated March 16, 2016)
- Sheet No. C3 of 7 – Conceptual Plan & Profile STA 5+50 to 11+00 (dated March 16, 2016)
- Sheet No. C4 of 7 – Typical Cross Sections (dated March 16, 2016)
- Sheet No. C5 of 7 – Step Pool Details (dated March 16, 2016)
- Sheet No. C6 of 7 – Roughened Channel Details (dated March 16, 2016)
- Sheet No. C7 of 7 – Bank Protection Details (dated March 16, 2016)

2.05 Site Reconnaissance Visits

Site Reconnaissance visits were conducted at various times during the course of our field investigation in July and August 2016. During these visits, we observed the surficial conditions present and checked for obvious geotechnical/geologic concerns. Observations made during our site reconnaissance visits are discussed in Section 3.03, Surface Conditions.

2.06 Subsurface Explorations

On July 18, 21, 25 and 26, 2016, we drilled twelve borings at the approximate locations shown on the Site Plan presented on Figure 2. Northstar Drilling, Inc. of Escalon, California drilled the borings using a truck-mounted Mobile B-24 drill rig equipped with 4.5-inch solid stem flight augers. An A3GEO engineer logged the borings, directed the drilling, and obtained samples for logging and testing the materials. Soil samples were obtained using a 2-inch outside diameter (O.D.) Standard Penetration Test (SPT) sampler without liners and a 3-inch O.D. California Modified sampler with liners. The samplers were driven with a rope-and-cathead-activated 140-pound hammer falling 30 inches. The hammer blows required to drive the sampler the final 12 inches of each 18-inch drive are presented on the boring logs. Sampler blow counts presented on the logs are adjusted N-values. Blow counts have been adjusted for sampler type only. Where a full 12-inch drive could not be achieved, the number of blows and amount of penetration achieved is shown. Following the field operations, the borings were grouted in accordance with Contra Costa County permit regulations.

During drilling, an A3GEO engineer visually/manually classified the soil in general accordance with ASTM D2488 classifications, which are based on the Unified Soil Classification System (USCS). Field classifications were subsequently checked and revised, where appropriate, based on laboratory test data. The logs of the borings are attached in Appendix A and are preceded by: 1) a Key to Exploratory Boring Logs that describes the USCS and the symbols used on the logs, and 2) a Key to Rock Descriptions. The attached boring logs and related information depict subsurface conditions only at the approximate locations shown on the Site Plan on the particular date designated on the boring logs. The boring logs represent our interpretation of the subsurface materials at the boring locations at the time of drilling and the passage of time may result in changes in the subsurface conditions. The boring locations indicated on the attached materials were determined by measuring from existing improvements and should be considered approximate. A summary of our findings from our subsurface exploration can be found in Section 3.04, Subsurface Conditions.

2.07 Sample Review and Laboratory Testing

Samples from the borings were examined to check field classifications, assign laboratory tests and interpret geologic units. Dona Mann (G.E.) examined the samples, edited the field versions of the logs and supervised the preparation of the final logs presented in Appendix A.

Our geotechnical laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical properties of the soil that underlie the site. The following geotechnical laboratory tests were performed:

- Water Content per ASTM Test Designation D-2216;
- Dry Density per ASTM Test Designation D-2937;
- Atterberg Limits per ASTM Test Designation D-4318;
- Particle Size Analyses including Percent Minus #200 Sieve per ASTM Test Designation D1140; and
- Unconfined Compression per ASTM Test Designation D2166.

The results of the tests are presented on the attached boring logs at the corresponding sample depths. The laboratory test data sheets are included in Appendix B.

3.00 SITE CONDITIONS

3.01 **Geologic and Seismic Setting**

The digital geologic map presented on Plate 4 is based on a recent regional geologic map (Graymer, et al, 2006) published by the USGS. As shown on Plate 4, the site is mapped as being underlain by Miocene-age (older than about 5 million years ago) sedimentary rocks. The related USGS geologic map on Plate 5 (Graymer, 2000) subdivides the Miocene-age sedimentary rocks within the Project Area into the following units (from oldest to youngest):

Tcc - Claremont Chert (late to middle Miocene): Laminated and bedded chert, minor brown shale, and white sandstone. Chert crops out as distinct, massive to laminated, gray or brown beds as much as 10 cm thick with thin shale partings. Distinctive black, laminated chert crops out locally in the Berkeley Hills. Lawson (1914) named rocks of this unit and coeval rocks elsewhere in and around the map area Claremont Shale, but within the area of Assemblage I, including Claremont Canyon, this unit is made up of much more chert than shale.

Tor - Orinda Formation (late Miocene): Distinctly to indistinctly bedded, nonmarine, pebble to boulder conglomerate, conglomeratic sandstone, coarse- to medium-grained lithic sandstone, and green and red siltstone and mudstone. Conglomerate clasts are subangular to well rounded, and contain a high percentage of detritus derived from the Franciscan complex.

The Orinda Formation is locally overlain by younger volcanic rocks; however, no volcanics are mapped by the USGS within the Project Area (Plates 4 and 5). The principal volcanic unit in the area is described by Graymer (2000) as follows:

Tmb - Moraga Formation (late Miocene): Basalt and andesite flows, minor rhyolite tuff. Ar/Ar ages obtained from rocks of this unit range from 9.0+0.3 to 10.2+0.5 Ma (Curtis, 1989). Includes, mapped locally: Tms Interflow sedimentary rocks.

The site is located within the San Francisco Bay Region, which includes a series of major northwest-trending faults that are seismically active. The site is not located within an Alquist-Priolo Earthquake Fault zone designated by the State of California. There are no known faults which pass directly through the project site; therefore the potential for surface fault rupture at the site is minimal. A number of small faults are located in the area but are not considered active. As shown on Plate 6, the closest fault to the site that have been active in the Holocene period (last 11,700 years) is the Hayward Fault which is less than 2 miles southwest of the site. Other active faults in the region include the Mt. Diablo Fault (about 8.5 miles to the east), the Calaveras fault (about 9.5 miles to the southeast), the Hunting Creek, Berryessa, Green Valley, Concord Fault (about 11.25 miles to the northeast), the Greenville Fault (about 18 miles to the east), and the San Andres fault (about 20 miles to the west) (Jennings and Bryant, 2010). These faults all have the potential to produce ground shaking at the site.

Studies by the United States Geological Survey's Working Group on California Earthquake Probabilities have estimated a 72 percent probability of at least one magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Region before 2042 (Aagaard et al., 2014). Plate 5 shows the probability estimates for the specific faults listed above.

3.02 **Site Development History**

The EBRPD (2002) reference document that we reviewed provides the following information pertaining to the development of the site.

The project site was part of a larger Mexican land grant and settled by the McCosker family in the 1870's and was held as a family residence for several decades. A 2014 interview with family descendent, Dwayne McCosker, documents family history of the property. This includes a general genealogy and family history with the location of homesteads, ranch facilities, and later paving and quarry operations. The family also farmed a portion of the land for their own purposes and planted a

number of ornamental trees and shrubs in the lower areas of the property. The paving business and rock quarry/rock crushing mill occupied the property from the 1950s into the 1970s. Development during this period included residential home sites, equipment yards, and underground diesel fuel tanks. Most of these structures have since been demolished or removed from the site.

Remaining remnant features include a small “kitchen orchard” at the base of the slope leading up to the barn site and various other non-native, ornamental landscape features located in the lower areas of the property, a pump house near the Pinehurst Road entrance, the remains of a rock quarry and rock crushing plant, retaining walls and building foundations underground diesel fuel tanks, a large metal barn, a family residence and ranch roads that run throughout the property. The residence was built in the 1970’s and occupied by the family until the early 2000’s. It has been converted into a park security residence and is serviced by a septic system and spring fed water system. The large metal barn currently houses EBRPD equipment.

The earliest aerial photograph of the site available through Google Earth is from 1939 (Plate 7). The 1939 photograph illustrates the pre-development topography of the site, which included two natural drainage swales along the northwest facing slope within and upslope of the project area. The swales have been identified as the North Swale and South Swale on Plate 7. The valley floor streambed has also been delineated on Plate 7.

The stereo-paired aerial photographs of the site we reviewed date from 1953 to 1998; brief descriptions of the key development features that we observed on the photographs follow:

1953 – In 1953, the site was mostly undeveloped except for a few small structures near the lower reaches of McCosker Stream. Railroad tracks are evident at/near the location of what is now Pinehurst Road; outside the McCosker property entrance, there was a railroad bridge which the road leading to the McCosker property passed beneath.

1959 – In 1959, quarrying operations were underway north of the loop. At that time, it appears that the streambed had been filled in at the location of the quarry but still flowed within an open channel elsewhere within the Project Area.

1968 – By 1968, the lower reaches of the valley floor streambed appear to have been filled in and the railroad tracks in the vicinity of Pinehurst Road were no longer present.

1973 – In 1973, filling was underway in South Swale (Plate 8). An oblong structure and small buildings were present within the lower reaches of the valley floor streambed (McCosker Stream alignment). Minor cutting had occurred upslope of the future barn location; an erosion scar is evident within the North Swale.

1977 – By 1977, the upper pad on which the barn is presently sited was essentially complete by effectively filling in the South Swale (Plate 9). The Upper Access Road, which leads up from the Upper Level Pad towards the North Swale, was present at that time. On the west side of the valley, the residence was present on the hillside upslope of the loop.

1983 – In 1983, the barn was present at its current location on the Upper Level Pad and the Lower Level Pad had been graded.

1998 – In 1998, topographic conditions appear to have been much as they are today, although there were still various structures in the vicinity of the former quarry north of the loop and on the lower valley floor that are not present today.

Google Earth aerial photographs from 1993 and 2015 are presented on Plates 10 and 11 (respectively).

3.03 Surface Conditions

Current ground surface elevations at the site are shown on the Site Plan (Figure 1). Generalized descriptions of surface conditions noted during our site reconnaissance visits follow.

Lower to Middle Valley Floor: McCosker Stream presently flows from north to south within culverts that underlie the valley floor. The surface of the fill that surrounds and overlies the culverts is approximately level in an east-west direction, and slopes gently upwards towards the north from about Elevation +756 feet near the Pinehurst Gate (Station 1+00) to +830 feet at the southern end of the loop (Station 14+00). This 74-foot rise in elevation corresponds to an average grade of roughly 5 percent. At the mouth of the valley, bedrock consisting of Claremont Chert is exposed east of the existing culvert that passes below Pinehurst Road (Plate 12, top) and within the steep slope west of Pinehurst Gate. A short distance north of Pinehurst Gate, an existing pumphouse is present along the east side of the valley floor (Plate 12, bottom); the transition from Claremont Chert to Orinda Formation was noted in the cut slope west of the road in the general vicinity of Boring B-1 (Near Station 4+00). Plate 13 shows a sinkhole observed within the valley floor northwest of the pumphouse. Plate 14 shows an elongated sinkhole observed within the valley floor north of Boring B-4 (Near Station 12+50).

Upper Valley Floor (Loop Area): During our reconnaissance, we noted that directly south of the loop, culverts are absent and the stream flows within an open channel (Plate 15). Within the loop, two tributaries join. The northwest tributary passes below the loop road in a culvert near the locations of Borings B-17 and B-18. The northeast tributary also flows within a culvert that passes near Borings B-15 and B-16 where two sinkholes were observed (Plate 16). The northeast tributary culvert exits into a large hole near Boring B-6 (Plate 17).

Upper Level Pad: Plate 18 shows the upper level pad and the barn. The surface elevation of the pad ranges from about +846 feet on the northwest end to +842 feet on the southeast end overlying the former South Swale. Over the approximate 500-foot length of the pad, this 6-foot elevation change corresponds to an average grade of roughly 1.2 percent. As shown on Plate 18, the upper level pad was mostly covered in dry grassy vegetation at the time of our August 10, 2016 site visit.

Upper Access Road: The Upper Access Road (Plate 18, bottom), which is unsurfaced, exposes weak rock that is gray and reddish in color, typical of the Orinda Formation. The Upper Access Road traverses the location of the former North Swale, where there is a tank/pool that stores water collected from a natural spring (Plate 19, top). Farther upslope within the North Swale, we observed hummocky terrain, roadway rutting and green vegetation (Plate 19, bottom) along a higher access road that is outside of the Project Area. Localized outcrops of Moraga Formation volcanic rocks were observed along the higher access road to either side of the north swale. Large cracks indicative of creeping terrain were also observed on the hillside northeast of the barn in the area where the new access road is planned (Plate 20).

3.04 Subsurface Conditions

This section presents data and generalized descriptions of subsurface conditions developed based on: 1) our review of the logs and bagged samples from previous Caltrans borings B-1 through B-9; 2) our direct observations of conditions encountered during drilling and the samples that we retrieved from A3GEO borings B-10 through B-21; 3) the results of our geotechnical laboratory tests; 4) our general understanding of the local geology; 5) our analysis of historical aerial photography; and 6) our onsite observations. As documented in the preceding sections, portions of the Project Area have been modified by quarrying and mass grading operations involving large cuts and fills.

Most of the Project Area is underlain by Orinda Formation bedrock, which is a weak sedimentary rock comprised mostly of sandstone, siltstone and claystone with lesser amounts of conglomerate containing rounded gravels. Upslope of the Project area and in the vicinity of the former quarry, Moraga Formation volcanic rocks were observed in localized outcrops. Natural deposits derived from the Orinda Formation typically have appreciable clay contents. Based on the foregoing, we interpreted predominantly granular soils, soils containing angular rock fragments, and soils containing volcanic rock fragments to likely be of a non-natural origin (i.e., fill). Where such soils were absent, the presence or absence of fill was interpreted based on our understanding of

previous site grading, noting that it is often difficult to differentiate fill from the generally-similar onsite soils from which it was derived.

Valley Floor: Fourteen borings were drilled within the valley floor on or proximate to the existing primary access road and loop. Borings B-1 through B-6 were drilled by Caltrans in 2015. Borings B-10 through B-12 and B-15 through B-19 were drilled by A3GEO in 2016 (for this study). Approximate boring locations are indicated on Figures 1 and 2. Bedrock depths shown on the logs of the borings are tabulated below (from south to north in each table); “NE” signifies that bedrock was not encountered above the level of the boring bottom.

Bedrock Depth at Boring Locations

Lower and Middle Valley Floor				Upper Valley Floor (Loop Area)			
Boring	Side of Valley	Total Depth (feet)	Depth to Rock (feet)	Boring	Side of Valley	Total Depth (feet)	Depth to Rock (feet)
B-10	East	18.9	NE	B-5	West	26.5	14.5
B-1	West	26.5	NE	B-19	West	9.5	4.5
B-11	West	20.5	NE	B-6	East	26.5	20.0
B-2	West	26.5	24.0	B-18	West	38.5	35.0
B-3	West	26.5	20.0	B-17	West	21.3	18.5
B-12	East	18.4	11.5	B-16	East	17.6	NE
B-4	West	26.5	20.0	B-15	East	30.0	29.5

Only two borings (B-5 and B-12) drilled near the proposed creek alignment encountered bedrock near the planned excavation depths (i.e. shallower than about 15 feet). The logs in Appendix A show that the soils that overlie bedrock are highly variable and include medium stiff to stiff lean clay (CL), stiff to very stiff fat clay (CH), loose to dense clayey gravel (GC) and loose to medium dense clayey sand (SC). For the most part, the soils encountered are interpreted as fill noting that some of the deeper gravels encountered include mixtures of angular volcanic and sedimentary rock fragments consistent with quarrying activities further up the valley.

Groundwater depth measurements from the logs of the borings are shown in the following table; “NO” signifies that free groundwater was not observed in the borehole prior to backfilling with grout.

Groundwater Depths below Valley Floor

Lower and Middle Valley Floor				Upper Valley Floor (Loop Area)			
Boring	Side of Valley	Total Depth (feet)	Depth to Groundwater (feet)	Boring	Side of Valley	Total Depth (feet)	Depth to Groundwater (feet)
B-10	East	18.9	9.8	B-5	West	26.5	12.5
B-1	West	26.5	14.4	B-19	West	9.5	NO
B-11	West	26.5	12.5	B-6	East	26.5	19.9
B-2	West	26.5	NO	B-18	West	38.5	32.3
B-3	West	26.5	14.2	B-17	West	21.3	16.2
B-12	East	18.4	NO	B-16	East	17.6	13.8
B-4	West	26.5	20.6	B-15	East	30.0	7.9

The measurements in the preceding table are for the specific days/times shown on the logs in Appendix A; although the borings may not have remained open long enough to establish equilibrium conditions. We expect that groundwater levels at the site fluctuate due to rainfall, water levels in the creek, distance from the creek, or other factors.

Lower and Upper Level Pads and Upper Access Road: Appendix A includes the logs of one boring drilled on the lower level pad (B-7), four borings drilled on the upper level pad (B-8, B-9, B-13 and B-14) and two borings drilled upslope of the barn (B-20 and B-21). Borings B-7 through B-9 were drilled by Caltrans in 2015. Borings B-13, B-14, B-20 and B-21 were drilled by A3GEO in 2016 (for this study). Approximate boring locations are indicated on Figures 1 and 2.

Groundwater depth measurements from the logs of the borings are shown in the following table; “NO” signifies that free groundwater was not observed in the borehole prior to backfilling with grout.

**Groundwater Depths below Lower and Upper Level Pads
and Upper Access Road**

Boring	Total Depth (feet)	Depth to Groundwater (feet)
B-7	26.5	NO
B-8	26.5	20.2
B-9	26.5	14.2
B-13	21.5	NO
B-14	36.5	32.5
B-20	33.2	NO
B-21	24.5	NO

The measurements in the preceding table are for the specific days/times shown on the logs in Appendix A; although the borings may not have remained open long enough to establish equilibrium conditions. We expect that groundwater levels at the site fluctuate due to rainfall or other factors.

Interpreted Cross Sections

Figure 2 shows the locations of three interpretive cross sections (Cross Sections A-A' through C-C') which are presented on Figures 3 through 5. The subsurface conditions at each location are discussed in the sections that follow.

- **Cross Section A-A' (Figure 3)** traverses the southern portion of the Lower and Upper Level Pads near the former location of the South Swale (Figure 2) and extends down to the valley floor. At this location, we interpret the subsurface conditions to consist of about 20 to 36 feet of fill over siltstone and sandstone bedrock. The fill is highly variable and contains medium dense to very dense sands and gravels and soft to very stiff clays and silts.
- **Cross Section B-B' (Figure 4)** traverses the Lower and Upper Level Pads along an alignment that is about 50 to 75 feet north of Cross Section A-A' (Figure 2). At this location, we interpret the subsurface conditions to consist of about 5 to 30 feet of fill over siltstone and sandstone bedrock. The fill is highly variable and contains medium dense to very dense sands and gravels and stiff to very stiff clay.
- **Cross Section C-C' (Figure 5)** is aligned with the southern wall of the barn and traverses the slope where the new access road is planned (Figure 2). A3GEO Borings B-20 and B-21 were drilled on either side of the proposed access road. Boring B-20 encountered about 31 feet of predominantly moderately stiff clayey soil overlying rock. Boring B-21 encountered about 23 feet of predominantly moderately stiff clayey soil overlying rock. Based on our site reconnaissance and our review of historic aerial photography, we interpret that some fill is likely to be present beneath the road and the adjacent slope, although the configuration of the fill is uncertain. Figure 5 depicts one possible interpretation of fill depths/thicknesses along the Cross Section C-C' alignment. Based on observations made during our site reconnaissance, we consider it possible that some or all of the 12- to 17-foot-thick deposit labeled as “Fat Clay” on Figure 5 may consist of landslide debris.

4.00 EVALUATIONS AND CONCLUSIONS

Based on the results of our investigation, we conclude that the envisioned project is generally feasible from a geotechnical standpoint. Principal geotechnical considerations for the project are discussed in the sections that follow.

4.01 Seismic Design

The subject site is located in the highly seismic San Francisco Bay Region, and the site is likely to experience one or more episodes of strong ground shaking during the life of the project. The California Building Code (CBC) has adopted provisions for incorporation of strong ground shaking into the design of all structures. Our recommendations for geotechnical parameters to be used in the seismic design of the bridge and abutments are presented in Section 5.01, Building Code Seismic Design Parameters.

4.02 Creek Daylighting

New creek banks will be inclined at 3:1 (horizontal to vertical) or flatter except where space limitations require steeper slopes. As currently planned, the right and left channel banks will be inclined at 1:1 along an approximately 250-foot-long reach from about Station 0+75 to Station 2+50. 2:1 (horizontal to vertical) slopes are planned at various other locations along the lower and middle valley floor. Conceptual sections and/or grading plans for the upper valley floor (Loop Area) were not available at the time that this report was prepared.

The existing culverts that are to be removed are buried in fill and most of our borings encountered fill that extended a significant distance below the culvert bottom. It is possible that bedrock could be encountered at various locations within the daylighted channel; however, the vast majority of the excavation will likely be in fill. The fill materials within planned depths of excavation are highly variable and include soils classified by A3GEO (per the USCS) as clayey sand (SC), clayey gravel (GC), lean clay (CL), fat clay (CH) and various combinations, thereof. Previous logging by CalTrans generally includes materials with lesser clay contents such as poorly-graded gravel (GP), well-graded gravel (GW) and silt (ML). However, unlike the A3GEO logs, the CalTrans logs do not include laboratory test data by which soil classifications could be checked.

In our opinion, the principal design considerations associated with creek daylighting involve: 1) the stability of creek banks at the planned inclinations; and 2) the erodibility of soils within the lower creek banks and the channel bottom.

- **Slope Stability** - We judge the planned 3:1 cuts in old fill to be generally reasonable; however, it should be anticipated that some remedial earthwork (e.g., overexcavation, keying, benching and filling) may be needed in areas where the in-situ fill soils are weaker. Steeper cuts in old fill are likely to be more challenging (i.e., less stable) and it should be anticipated that: 1) a substantial amount of remedial earthwork may be needed to create stable 2:1 and 1:1 slopes; and 2) planned 1:1 slopes may require overexcavation and reconstruction using closely-spaced horizontal georeinforcing elements (geogrids).
- **Erosion Resistance** – In general, coarse-grained soils (sands and gravels) resist erosion by the weight of individual particles with larger/heavier particles having greater erosion resistance; whereas fine-grained soils resist erosion as a mass held together by cohesion with higher plasticity soils having greater erosion resistance (USDA, 1984). Soil types with the greatest resistance to erosion include large gravels (GW, GP) and Clayey Gravel (GC). Soil types with the least resistance to erosion include low-plasticity silts (ML) and silty sands (SM). As previously noted, the fill soils shown on the logs of borings in Appendix A are highly variable and include a broad range of soil types. It should therefore be anticipated that aggressiveness of erosion protection measures will necessarily need to vary based on the soils that are exposed in creek daylighting excavation cuts.

Please note that it is our understanding that the primary objective is to create slopes at the planned inclinations that are stable under “normal” conditions, and that localized slope instabilities under adverse conditions (e.g. earthquake or flood) can be tolerated. We further note that soils of low plasticity, in addition to being susceptible

to erosion, may also be susceptible to earthquake-induced liquefaction. If new roads in the vicinity of daylighted creek need to always be passible based on emergency access considerations, we should be consulted to provide supplemental recommendations on a location-specific basis.

4.03 Bottomless Arch Culverts

The planned vehicular crossings at Crossing 1 and 4 will consist of arch culverts with a natural creek bottom. Bottomless arch culverts typically transfer overlying earth and vehicle loads to spread footings at the bottom edges of the arch. The vertical and lateral loads that the foundations need to resist are influenced by a variety of factors, including the shape and size of the arch, the depth of soil backfill above the arch, and the anticipated vehicle loadings. Arch culverts and their foundations typically lie within the stream bed in which the potential for aggradation and degradation (scour) needs to be considered as part of the overall creek crossing design. Temporary dewatering and /or re-routing of stream flows are also considerations during spread footing construction.

Figure 6 presents interpretive cross sections (Cross Sections D-D', E-E' and F-F') which illustrate the subsurface conditions at each crossing location. As shown on Figure 6, the soil conditions at each location are highly variable and contain materials that are erodible and weak. In order to minimize settlement and scour, we recommend that the culvert foundations consist of either: 1) spread strip footings supported on a uniform bearing pad of at least 18 inches thick or 2) deep foundations such as drilled piers. In addition, we recommend protecting the foundations with riprap.

Geotechnical recommendations for spread footings, drilled piers and scour protection are presented in the Recommendations section of this report.

Please note that this report focuses on the design and construction of new foundations for the arch culverts and does not include a detailed assessment of scour potential or recommendations for scour mitigation. We further note that low plasticity soils, where present below groundwater, may also be susceptible to earthquake-induced liquefaction. If new roads crossing the daylighted creek need to always be passible based on emergency access considerations, we should be consulted to provide supplemental recommendations on a location-specific basis.

4.04 Fill Placement on Upper and Lower Pads

As currently envisioned, the soil excavated during creek daylighting and associated enhancements will be placed as engineered fill at several locations within the Project Area, including the Upper and Lower Level Pads. The cross sections on Figures 3 and 4 illustrate interpreted subsurface conditions below the pads. A general discussion of geotechnical considerations affecting the fill placement follows:

- **Slope Inclinations and Fill Setback Distance** – The outboard (southwest-facing) slopes of the Upper and Lower Level Pads have inclinations between about 1:5 to 1 and 2:1 (horizontal to vertical). These existing fill slopes are “undocumented “ in that there are no available records documenting that the fill materials were placed and compacted under engineering controls. In our opinion, new fill should not be placed directly adjacent to the tops of the existing fill slopes in order to account for variations in fill properties and the possibility of surficial slope instability. In this report, we recommend horizontal setback distances for placing fill adjacent to the top of an existing slope. Recommendations are presented in Section 5.03.6, Fill Placement on Upper and Lower Pads.
- **Maximum Fill Thickness** - The maximum acceptable height (thickness) of new engineered fill will be limited due to the variable and uncertain material properties of the undocumented fill and natural soils that will underlie it. In this study, we used slope stability analysis software and estimated material properties to calculate static “factors of safety” for several fill placement scenarios. The idealized subsurface profile that we analyzed is based on Cross Section A'A' (Figure 3). Based on our static (non-earthquake) analyses, up to 10 feet of new fill can be placed on the Upper and Lower Pads provided that 1) the minimum setback distances from existing top of slope are implemented and 2) the

existing buried infrastructure (including pipes and tanks) can withstand the added load. Our recommendations are based on a maintaining a minimum static factor of safety (FS) of 1.5. The results from our slope stability analyses are included in Appendix C.

4.05 Fire Access Roads

We understand that the envisioned project will create fire access roads with an all-weather gravel surface and satisfactory grades and turning radii for emergency vehicles. For the most part, the new fire access roads are planned to follow the alignment of the existing gravel roads with the exception of a new alignment planned upslope (east of) the barn at the location shown on Figure 2.

A detailed evaluation of the stability of the proposed fire-access roads was beyond the scope of our work; however, our preliminary calculations indicate that the slope east (upslope) of the barn and the slope west (downslope) of the existing road leading to the Upper Pad are likely not capable of withstanding fire truck loading in their current condition. We performed preliminary slope stability analyses with AASHTO HS20 fire truck loading applied and calculated $FS < 1.0$.

A general discussion of geotechnical considerations affecting the design of the fire access roads follows:

- **Valley Floor Access Roads** – We anticipate that the grading of access roads within the valley floor will occur in conjunction with the construction of stable creek banks and the planned vehicular overcrossings. If emergency access under extreme conditions (e.g. earthquake or high creek flows) is a requirement, the vehicular crossings and creek banks should be appropriately engineered to provide the appropriate level of performance.
- **Hillside Fire Access Roads** – Boring B-20 and B-21 drilled along the cross section of the new fire access road alignment (Cross Section C-C', Figure 5) encountered soils that have previously moved downslope by gravity and may include landslide deposits. We note that the realigned access road joins the existing access road near the location of the north swale where weak soils and wet conditions were noted farther upslope. Additional instabilities and evidence of movement were also observed along the Upper Access Road leading down towards Boring B-15. The existing road leading to the Upper Level Pad is underlain by fill material with variable stiffness.

In order for us to provide conclusive recommendations for the proposed fire-access roads, we would need the following information:

- Fire truck loading from the local fire department,
- The exact locations of planned fire roads, and
- The expected level of performance of the roads (including during a large seismic event and/or a heavy rainfall event)

Based on what we currently know, our recommendations would likely incorporate some or all of the following:

- A minimum setback distance from the top of existing fill slopes
- Partial reconstruction of slopes receiving fire truck loading

Additional analyses and consultation with the design team will be required in order to provide final recommendations for the fire truck access roads. Depending on the expected level of performance, supplemental investigation may be required.

4.06 Construction Considerations

Excavation and Shoring

Equipment selection for demolition and removal of existing structures will be the responsibility of the contractor. We anticipate that the onsite fill materials and the Orinda formation (sandstone and siltstone) bedrock can be excavated with heavy earth-moving equipment such as dozers, backhoes, and excavators; however, it is possible that rubble, buried obstructions or very dense gravel could be encountered in the fill that could require jack-hammering or hoe-ramming to excavate. Excavations in Moraga formation volcanic rock and/or removing existing concrete materials at the site may also require jack-hammering or hoe-ramming.

If drilled piers are selected for foundations, the contractor will be responsible for selecting equipment with sufficient capacity to drill into the rock and very dense gravelly fill. Drilling for piers will extend below groundwater and soil having little or no cohesion (sands and gravels). The drilled pier contractor should therefore anticipate having to: 1) remove saturated cohesionless and/or soft materials from the hole; 2) break up and remove oversize material, if necessary; 3) drill with slurry and/or case pier holes; and/or 4) use tremie methods to displace groundwater while pouring concrete, as appropriate.

Excavations deeper than 4 feet that will be entered by workers should be shored or sloped for safety in accordance with the California Occupational Safety and Health Administration (Cal-OSHA) standards. In general, the stability of site shoring and all temporary construction slopes as well as the protection of nearby site improvements during construction are responsibilities of the contractor.

Temporary Cut Slopes

Temporary cut slopes in the undocumented fill may expose materials that are prone to sliding, sloughing or caving. All temporary cut slopes associated with site excavations should be adequately inclined to prevent sloughing and collapse. For the various soil layers that will likely be exposed in onsite cuts, we tentatively recommend the following maximum temporary cut slope inclinations; however, appropriate inclinations will ultimately depend on the actual soil and groundwater conditions exposed during the earthwork operations.

Soil Type	Maximum Temporary Cut Inclination (Horizontal:Vertical)
Loose Sand and Gravel	2:1
Medium Dense to Dense Sand and Gravel	1.5:1
Medium Stiff to Very Stiff Clay	1:1
In-place Bedrock	0.75:1

Dewatering

Site excavations will extend below groundwater. The control of groundwater during construction is the responsibility of the contractor. Possible groundwater control methods include diversion, temporary collection ponds, pumping from sumps at low points within excavations, horizontal drains and/or dewatering wells. The design, permitting, installation, monitoring, and abandonment of site dewatering and discharge systems are the contractor's responsibility. These responsibilities also include any special regulatory or health and safety requirements that may be associated with the disposal and/or discharge of construction water.

Material Re-use

The onsite soils may include materials that are wet of optimum, from an earthwork compaction standpoint. Deeper excavations at the site will likely encounter soils that are saturated. The contractor should anticipate that soils obtained from site excavations will include clayey soil and clayey rock materials that will need to be processed (e.g., by air drying) prior to being placed as engineered fill.

Wet Weather Construction

Although it is possible for construction to proceed during or immediately following the wet winter months, a number of geotechnical problems may occur which may increase costs and cause project delays. Winter earthwork should be minimized or avoided when possible. Erosion control and dewatering requirements will potentially increase due to rainfall, surface runoff, seepage and rises in groundwater level. The stability of temporary slopes will decrease, potentially increasing the lateral extent of excavation required. If excavations are exposed during winter rains, caving and erosion may occur. In general, we note that it has also been our experience that increased clean-up costs may be incurred, and greater safety hazards may exist, if the work proceeds during the wet winter months.

Because of the limited exposure, installation of the drilled pier foundations can be performed during intermittent periods of rainfall. However, costs for clean-up, control of water, etc. will be greater, as mentioned above.

5.00 **RECOMMENDATIONS**

5.01 **Building Code Seismic Design Parameters**

The following parameters are appropriate for seismic design using the 2013 California Building Code (CBC) and project site coordinates of: Latitude = 37.8431°; Longitude = -122.1807°.

- Site Class = D
- Mapped Spectral Acceleration for Short Period, (S_S , Site Class B) = 2.025g
- Mapped Spectral Acceleration for 1-Second Period, (S_1 , Site Class B) = 0.826g
- Maximum Considered Earthquake (MCE) Spectral Response Acceleration for Short Period, (S_{MS} , Site Class D) = 2.025g
- MCE Spectral Response Acceleration for 1-Second Period (S_{M1} , Site Class D) = 1.239 g
- Design Spectral Response Acceleration for Short Period (S_{DS} , Site Class D) = 1.350g
- Design Spectral Response Acceleration for 1-Second Period (S_{D1} , Site Class D) = 0.826g

5.02 **Site Preparation**

We recommend that the project plans clearly identify the “site” to include all areas that will be affected by planned demolition, excavation, grading, remedial earthwork, fill placement and construction activities. Prior to the start of work, the contractor should locate and mark all active subsurface utilities in the general vicinity of the site. The contractor should protect all utilities that are to remain in and surrounding the site during onsite excavation and construction activities.

Within the site limits, existing structures that are not designated “to remain” should be demolished and site should be cleared and grubbed of surface and subsurface deleterious matter including vegetation, aggregate road-base material, concrete and abandoned utilities. These materials should be removed from the site or stockpiled for reuse if approved by the owner in consultation with our firm. Depressions resulting from the removal of underground obstructions (including tree stumps and root balls) that extend below the proposed finished grades should be cleared and the depressions backfilled with suitable material compacted to the requirements given in Section 5.03, Earthwork.

5.03 **Earthwork**

5.03.1 Permanent Slopes

All permanent cut and fill slopes should be adequately inclined to minimize long-term raveling, sloughing and erosion. We generally recommend that no slopes be steeper than 2:1 (horizontal to vertical) without additional reinforcement. For all soil types, the use of flatter slopes (such as 3:1) would further reduce long-term erosion and facilitate revegetation.

When constructing permanent fill slopes, we recommend excavating a series of horizontal benches in competent soil approved by A3GEO as filling proceeds. The final slopes should be constructed as terraced fills upon a stable subgrade. Upon completion of the fill construction, the outboard face of the fill should be cut back to provide a firm, uniform slope.

Permanent slopes steeper than 2:1 should be evaluated on a case by case basis, and we should be contacted to provide additional recommendations based on site specific conditions.

5.03.2 Excavation

Due to the highly variable onsite fill materials, it is essential that the excavations be observed by a representative of A3GEO to: 1) check for loose undocumented fill and/or unstable materials, and 2) to provide supplemental geotechnical recommendations, where appropriate, based on the conditions exposed. It should

be anticipated that the excavated side cuts and/or bottom may include weak, unstable or erodible materials that will require removal and replacement with an appropriately engineered material.

5.03.3 Fill Materials

All proposed fill materials should be approved by A3GEO prior to use. The materials cleared or excavated from the site may be suitable for re-use as fill, from a geotechnical standpoint, if they meet or can be processed (i.e., by crushing and/or blending) to meet the requirements presented in this section. Material that cannot be mixed or processed to meet specification requirements should be disposed of offsite or stockpiled for other uses at the discretion of the owner.

General Fill – On-site soil can be used as General Fill, provided it conforms to the requirements presented below:

- Has an organic content of less than 3 percent by volume,
- Does not contain rocks or lumps larger than 4 inches in greatest dimension, and
- Has no more than 15 percent of material larger than 2.5 inches.

General Fill can be used as engineered fill/backfill except where Bearing Pad Fill or Erosion Resistant Fill are recommended.

Erosion Resistant Fill – On-site soil can be used as Erosion Resistant Fill, provided it conforms to the requirements presented below:

- Meets the requirements for General Fill,
- Contains at least 50 percent passing the #200 sieve (by weight), and
- Has a Plasticity Index (PI) between 12 and 35.

Erosion resistant fill is recommended for arch culvert footing backfill and reconstructed creek banks. Ideally, the material would also contain a substantial amount of gravel and/or cobbles to reduce erosion potential.

Bearing Pad Fill – Should consist of Caltrans Standard Specifications for Class 2 Aggregate Base, Controlled Density Fill (CDF) or Lean Mix Concrete (LMC). Bearing Pad Fill should be used under arch culvert and wing wall footings.

Offsite fill material (if used) should comply with the requirements appropriate for its intended use and be evaluated and approved by A3GEO prior to its importation to the site.

5.03.4 Fill Placement

All fill should be spread in lifts not exceeding 8 inches in uncompacted thickness on surfaces that are approximately level, moisture conditioned, as appropriate, and compacted by mechanical means to the required levels of compaction. It is possible that fill and/or subgrade soils may be excessively wet or dry depending on the moisture content at the time of construction. If the fill soils are too wet, they may be dried by aeration or by mixing with drier materials. If the fill soils are too dry, water will need to be added.

In general, the requirements for fill placement and compaction are presented below (per ASTM D-1557 Test Methods):

- Materials that are predominantly cohesive (>15 percent passing #200 sieve) should be moisture conditioned, as necessary, to between 3 and 5 percent over optimum moisture content and compacted to at least 90 relative compaction,

- Materials that are predominantly granular (<15 percent passing #200 sieve) should be moisture conditioned, as necessary, to near optimum moisture content and compacted to at least 95 relative compaction
- The upper one foot of soil below roadways should be moisture conditioned, as necessary, and compacted to 95 percent relative compaction.

A3GEO should observe and test, as appropriate, compaction during fill placement to verify that specified compaction and moisture conditioning requirements are achieved.

5.03.5 Subgrade Preparation

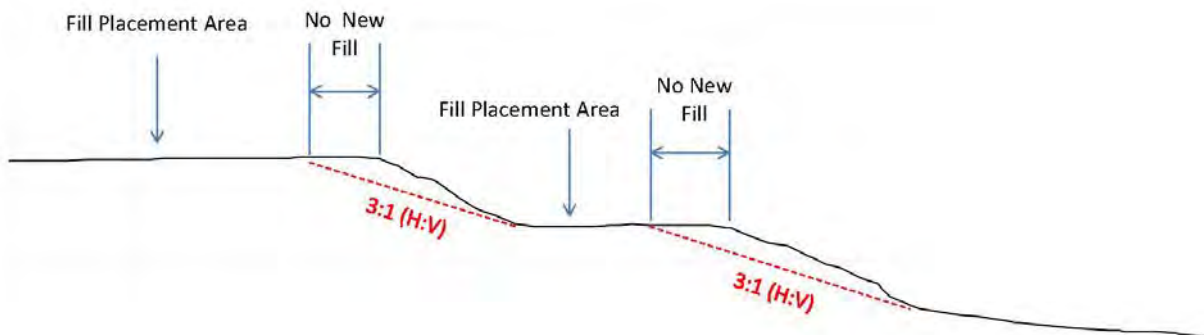
Subgrade surfaces in areas to receive fill should be firm, unyielding, and compacted to the requirements presented in this report. Soft, yielding or otherwise unsuitable subgrade soils should be overexcavated to expose firm non-yielding materials and replaced with appropriately engineered fill. Additional requirements for the preparation of areas to receive fill are presented Section 5.01, Site Preparation.

Immediately prior to fill placement, exposed subgrade soils should be scarified to a depth of 6 inches or the full depth of any existing shrinkage cracks. The scarified subgrade soils should then be moisture conditioned to slightly above optimum water content and compacted to the level specified above based on the ASTM D-1557 test method (latest version). A3GEO should observe and test, as appropriate, during subgrade preparation to check that surfaces to receive fill are properly prepared and verify that specified compaction and moisture conditioning requirements are achieved.

5.03.6 Fill Placement on Upper and Lower Pads

We recommend that fill placement areas be “set back” a minimum distance from the tops of existing soil slopes due to concerns related to onsite undocumented fill. In general, no fill should be placed outside the zone defined by an imaginary line extending up at a 3:1 (horizontal to vertical) inclination from the base of the adjacent slope, as shown in the following illustration.

Minimum Fill Placement Setback on Upper and Lower Level Pads



At the location of Cross Section A-A', this requirement results in a horizontal setback distance of about 20 to 25 feet from the top of the existing slope. Within Fill Placement Areas, the surface of new fill placed and compacted in accordance with the recommendations in this report can be inclined as steep as 2:1 (horizontal to vertical).

5.04 Strip Spread Footings for Bottomless Arch Culverts and Wing Walls

5.04.1 General

This section presents geotechnical recommendations for the design and construction of strip spread footing foundations. Spread footings in the vicinity of the daylighted creek channel should be appropriately protected to avoid loss of lateral resistance and/or undermining by erosion (scour). Please note that the bearing pressures and lateral resistance values presented herein are based on the recommended bearing pad material properties and do not apply degraded materials. Degradation effects should be assessed by others on a location-specific basis after foundation and stream geometry have been preliminarily determined.

5.04.2 Design

In all cases, strip spread footings should be bottomed at least one foot below the elevation of (worst case) contraction scour plus long term degradation (as determined by others) and at least 18 inches below lowest adjacent grade (whichever is deeper). In order to provide adequate and uniform bearing conditions for spread footings, we recommend all footings be constructed on upon an 18-inch thick bearing pad composed of Caltrans Class 2 Aggregate Base (AB) compacted to 95 percent relative compaction per ASTM 1557, controlled density fill (CDF) or lean mix concrete (LMC). The AB should be compacted in at least 2 lifts. We recommend the bearing pad extend horizontally outward in all directions from the edge of each footing by a distance equal the bearing pad thickness. If soft or loose soils are encountered at the base of the bearing pad excavation, such soil should be overexcavated. A maximum overexcavation of 3 feet below the planned 18-inch thick bearing pad is considered adequate to support the allowable bearing pressures described in this report. The overexcavated soils should be replaced with Caltrans Class 2 AB, controlled density fill (CDF) or lean mix concrete (LMC).

We recommend that continuous (strip) footings be at least 18 inches wide. Footings located adjacent to lower-level footings, channels or trenches should have their bearing surfaces situated below an imaginary 2 horizontal to 1 vertical plane projected upward from the bottom of the adjacent footing, trench or channel. Footings supported on a bearing pad as described above can be designed using the maximum allowable bearing values presented in the following table:

Foundation Bearing Pressures for Footings on Caltrans Class 2 AB, CDF or LMC

Load Case	Bearing Pressure (psf)	Factor of Safety
Static (DL+LL)	2,500	2.0
Total (Including Seismic)	3,300	1.5
Ultimate	5,000	1.0

Lateral load resistance may be developed in friction between the footing bottoms and the supporting subsurface materials and by the passive resistance acting on the vertical faces of below-grade structural elements. Friction coefficient of 0.35 can be used for footings bottomed on AB, CDF or LMC. If the foundations are poured neat against the soil or surrounded entirely by engineered fill/backfill placed and compacted in accordance with the recommendations presented in this report, friction and passive resistance may be used in combination. Passive resistance provided by firm soil can be evaluated using a triangular distribution with a uniform increase of 300 psf per foot of depth (i.e. 300 pcf equivalent fluid weight). The above frictional coefficients and passive resistance values can be considered "allowable" values under long-term loading conditions and include factors of safety of at least 1.5 and 2.0, respectively.

5.04.3 Footing Backfill

Footings should be backfilled around the exterior sides after the concrete has cured to provide lateral load resistance. Footing backfill should consist of compacted, erosion resistant materials approved by A3GEO that conform to the specifications for Erosion Resistant Fill outlined in Section 5.03.3.

5.05 Drilled Piers for Bottomless Arch Culverts and Wing Walls

5.05.1 Drilled Pier Design

Drilled piers can be designed to resist axial loads through skin friction in soil and bedrock. Foundation piers should be at least 18 inches in diameter spaced no closer than three pier diameters, center-to-center. Drilled pier groups should be structurally tied together at their tops by grade beams. The axial capacity of drilled piers can be evaluated using the allowable skin friction values presented in the following table:

Drilled Pier Allowable (DL+LL) Skin Friction Values

Supporting Material	Allowable Skin Friction (psf)
Natural Soil and Undocumented Fill	400
In-Place Bedrock	1,000

These skin friction values can be increased by one-third for total compressive loads (including wind or seismic), but should not be increased for uplift loads. We recommend that design assumptions regarding bedrock support be reviewed and checked by A3GEO:(1) once the design locations of drilled piers have been determined; and (2) during pier drilling based on the subsurface conditions encountered. We recommend that any contribution to axial capacity from end bearing in bedrock be ignored due to difficulties associated with obtaining and confirming adequate cleanout at the bottom of pier holes.

Lateral load resistance can be provided by passive pressures acting on below grade structural elements, such as pier caps and the upper portions of drilled piers. An equivalent fluid pressure of 300 pounds per cubic foot (pcf) equivalent fluid pressures can be used to evaluate passive resistance starting at a depth of one foot below the ground surface. For drilled piers, this passive pressure can be applied to the upper portion of the pier to a depth of three pier diameters and can be assumed to act over two pier diameters. The preceding passive resistance values have a factor of safety of at least 2.0 and can be mobilized within a horizontal deflection of about ½ inch.

5.05.2 Drilled Pier Installation

Holes for drilled piers should be drilled straight and plumb (within 1 percent of vertical) and should be cleaned of loose soil and rock fragments. We judge that the holes can likely be drilled using heavy auger drilling equipment; however, zones of relatively hard rock or dense gravel could be encountered. The contractor should be prepared to utilize suitable hard rock drilling techniques, if necessary. The contractor should also anticipate that drilling for piers could encounter subsurface materials that may cave or squeeze (e.g., granular materials, fractured bedrock and/or soft clays) and should be prepared to case pier holes or drill using slurry, as appropriate.

Concrete placement should start as soon as possible after the drilling and cleanout is complete. In all cases, holes for drilled piers should be concreted on the day they are drilled. Following placement of the reinforcing steel, holes should be concreted from the bottom up in a single operation. If water or slurry is present in the hole, tremie methods should be used and the tremie pipe should be constantly maintained at least 5 feet below the surface of the concrete during casting of the pier. As the concrete is placed, any casing used to stabilize the hole should be withdrawn. The bottom of the casing should be maintained not more than 5 feet or less than 1 foot below the surface of the concrete. The tops of the pier holes should be vibrated as concrete placement is completed.

Drilled piers should be installed by a qualified drilling contractor. We recommend that A3GEO observe drilled piers to check that subsurface conditions are as anticipated and that the piers are constructed in accordance with the recommendations presented in this report.

5.06 Scour and Erosion Protection

We recommend adding roughness and scour protection with riprap embedment (or other scour countermeasure) for full width and length of culverts and wing walls. The rock should be angular and interlocked to prevent movement during high flows. Riprap size and depth should be based on scour potential, channel geometry and stream velocities.

5.07 Lateral Pressures on Retaining Walls

Backfilled retaining walls (including culvert wing walls) can be designed to resist the equivalent fluid pressures indicated in the sections below. The appropriate design values should be chosen based on the condition of the wall (restrained or unrestrained); unrestrained lateral pressures should only be considered applicable where elements can laterally deflect at least 2 percent of their height.

5.07.1 Restrained Walls

Restrained retaining walls should be designed to resist lateral earth pressures and any additional lateral loads caused by surcharges on the adjoining ground surface. This section provides recommendations for retaining walls that are restrained and not free to rotate in response to applied loads. The recommended lateral earth pressure distribution for this case is based on at-rest soil pressures and increases uniformly with depth (triangular distribution). Recommended static lateral pressures for the design of restrained retaining walls are presented in the table that follows.

Static Lateral Pressures for Restrained Retaining Walls – Drained Wall Condition

Load Condition	Lateral Pressure
Static At-Rest Earth Pressure	60 (psf per foot of depth)
Surcharge (vehicles)	100 psf (uniform) – applied over the upper 10 feet of the wall height
Surcharge (general)	0.5 times anticipated surcharge load (uniform)

Fire truck loads will need to be verified by the local fire department and appropriately applied.

The recommended equivalent fluid pressures tabulated above are for walls that are fully-drained to prevent the buildup of hydrostatic pressures.

Because the site is in a seismically active area, the design of retaining walls should also be checked for seismic conditions. Under seismic loading conditions, there will be a seismic pressure increment that should be added to the *active* earth pressure; therefore, building retaining walls should also be checked for the following condition:

- Static *active* earth pressure plus a seismic pressure increment

Recommended *active* earth pressures are presented in Section 5.07.2, and recommended seismic pressure increments are presented in Section 5.07.3.

5.07.2 Unrestrained (Free-to-Rotate) Retaining Walls

Retaining walls that are free-to-rotate should be designed to resist: (1) active lateral earth pressures; (2) any additional lateral loads caused by surcharges on the adjoining ground surface; and (3) increases in lateral loads caused by earthquake shaking. The surcharge loads presented in the previous section can be used to evaluate increases in lateral pressures caused by surcharge loads on the adjoining ground surface. Lateral load increases caused by earthquake shaking presented in the following section can be used to estimate the earthquake surcharge pressures.

The recommended lateral pressure distribution for this case is based on active soil pressures and increases uniformly with depth (i.e., triangular distribution). Walls that are considered free to rotate (i.e., are not restrained at their tops) can be designed using the reduced “active” earth pressure distributions shown in the following table.

Static Active Lateral Earth Pressures – Site Retaining Wall – Drained Wall Condition

Slope Behind Wall	Horizontal Lateral Pressure (psf per foot of depth)	Increase over Level Backslope
Level	45	1.00
3:1	50	1.11
2:1	60	1.33

The recommended equivalent fluid pressures tabulated above are for walls that are fully-drained to prevent the buildup of hydrostatic pressures.

5.07.3 Seismic Lateral Pressures

Lateral load increases caused by earthquake shaking can be estimated using the earthquake surcharge pressures presented below.

Increases in Lateral Wall Pressures Caused by Earthquake Shaking

Slope Behind Wall	Uniform Horizontal Lateral Pressure (psf for wall height, H, in feet)
Level	12H
3:1	14H
2:1	16H

5.07.4 Wall Drainage

Backdrainage should be provided where the buildup of hydrostatic pressure is a potential concern. Backdrainage can be provided by weepholes that allow water to freely drain through the grade beam or wall face, or by a backdrainage system consisting of:

- A drain rock layer at least 12 inches in horizontal thickness; or
- Prefabricated drainage material or drainage mat (Miradrain or an approved alternative).

Drain rock should conform to Caltrans specifications for Class 2 Permeable Material. Alternatively, locally available, clean, ½- to ¾-inch maximum size, open-graded rock could be used, provided it is encapsulated in a non-woven geotextile filter fabric (such as Mirafi 140N or an approved alternative). The Caltrans Class 2 Permeable Material or geotextile-encapsulated open-graded rock should be in direct contact with the retained soil/rock materials behind the wall. Drain rock should drain into a perforated plastic pipe installed (with perforations down) on a 2-inch-thick bed of drain rock. The upslope end of the perforated drain pipe should be extended to near the ground surface with a non-perforated pipe that serves as a cleanout. The pipe/cleanout

should be in an accessible location, capped and fitted with an enclosure (Christy box or similar), where appropriate.

Prefabricated drainage material should be in direct contact with the retained soil/rock materials behind the wall and should be designed to drain into a perforated plastic pipe or other approved prefabricated drainage conduit. If prefabricated drainage material is used, the elements comprising the backdrainage system should be specified and detailed in accordance with the manufacturer's recommendations.

Water from the backdrainage system should be conveyed in non-perforated collector pipes by gravity to a suitable discharge facility. Perforated and non-perforated plastic pipe used in the drainage system should consist of 4-inch-diameter or larger SDR 35 or Schedule 40 PVC. A minimum 1-foot-thick cap of low permeability soil should be provided above backdrainage to limit surface water infiltration into the backdrainage system.

5.08 Future Geotechnical Services

If the final creek crossing designs are modified from what we have presented herein, we should be contacted to provide supplemental recommendations. Depending on the changes, supplemental investigation may be required.

Additional analyses and consultation with the design team will be required in order to provide final recommendations for planned slopes steeper than 2:1 and fire access roads, should they be needed. Depending on the expected level of performance, supplemental investigation may be required.

We recommend our firm review the geotechnical aspects of the final plans and specifications for this project in order to verify that our geotechnical recommendations were properly interpreted and implemented. If our firm is not accorded the privilege of making the recommended review, we can assume no responsibility for misinterpretation of our recommendations.

The analyses and recommendations submitted in this report are based in part upon the data obtained from the soil borings. The nature and extent of variations across the site may not become evident until construction. If variations then become apparent, it will be necessary to re-examine the recommendations of this report.

A3GEO should review all submittals from the contractors that are geotechnical in nature, before geotechnical materials are delivered or equipment is mobilized to the site.

We recommend our firm be retained to provide geotechnical engineering services during the construction of the proposed project. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction. During construction, A3GEO should observe the following:

- Soil conditions exposed by site excavations,
- Foundation excavation and bearing pad construction,
- Slope reconstruction,
- Subgrade preparation, and
- Fill placement and compaction.

6.00 LIMITATIONS

This report has been prepared for the exclusive use of you and your consultants in accordance with generally accepted geotechnical engineering practices for specific application to the construction of the proposed McCosker Stream daylighting project in Contra Costa County, California. No other warranty, either expressed or implied, is made. In the event the nature, design, or location of the improvements differs significantly from what has been noted above, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing.

The findings of this report are valid as of the present date. However, the passing of time will likely change the conditions of the existing property due to natural processes or the works of man. In addition, due to legislation or the broadening of knowledge, changes in applicable or appropriate standards may occur. Accordingly, the findings of this report may be invalidated, wholly or partly, by changes beyond our control. Therefore, this report should not be relied upon after three years without being reviewed by this office.

7.00 REFERENCES

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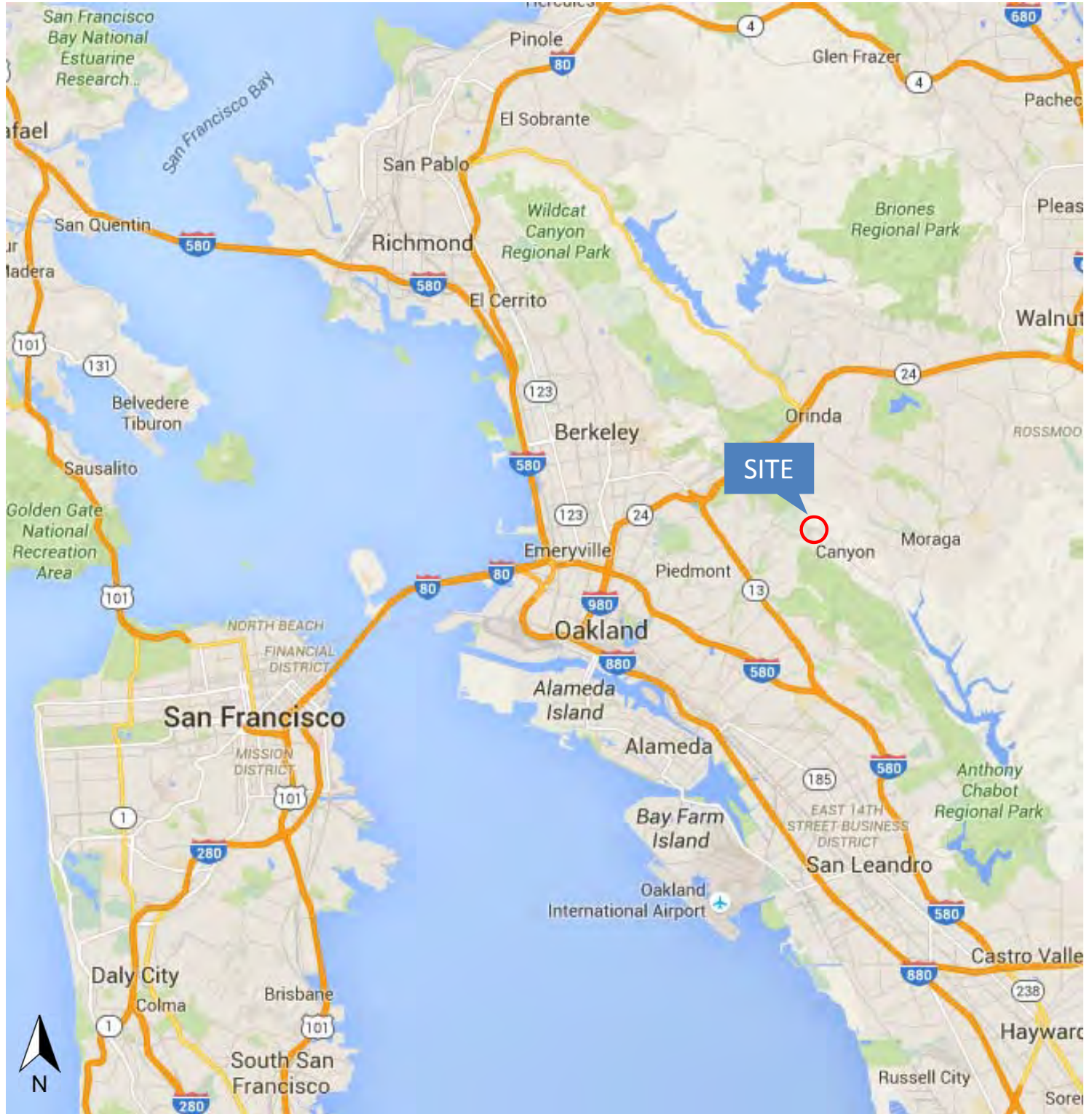
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Stereo-Paired Aerial Photographs

Photograph Date	Approximate Scale	Photo ID Numbers
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7-2-59	1:9600	AV-334-17-28&29
7-2-68	1:12,000	AV-858-04-22&23
4-30-73	1:12,000	AV-1100-10-24&25
7-7-77	1:12,000	AV-1377-09-30&31
6-21-83	1:12,000	AV-2300-10-23&24
8-24-98	1:12,000	AV-6100-113-28&29

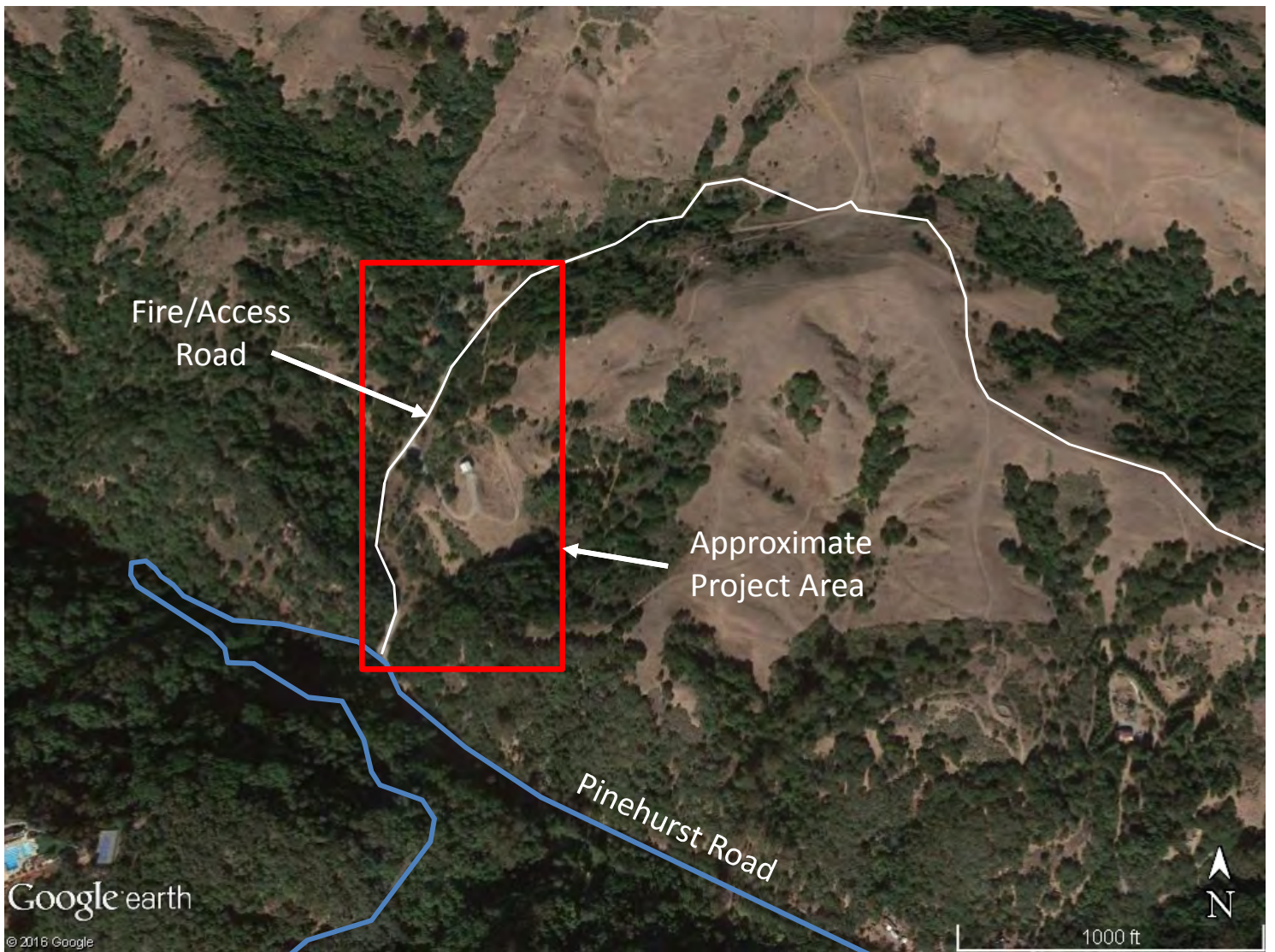
Plates

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California



McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 1
Location Map





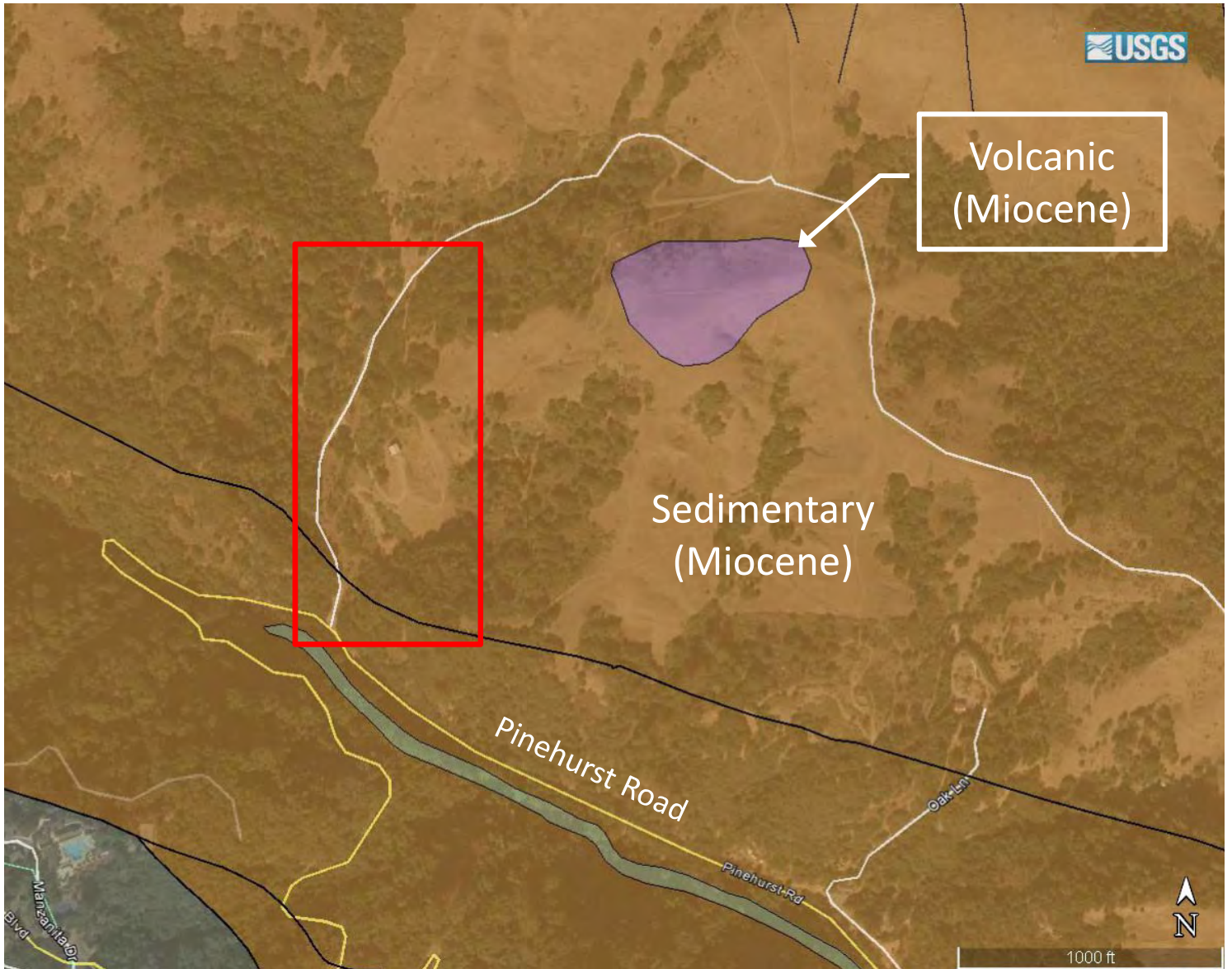
EXPLANATION

— Existing Gravel Roads



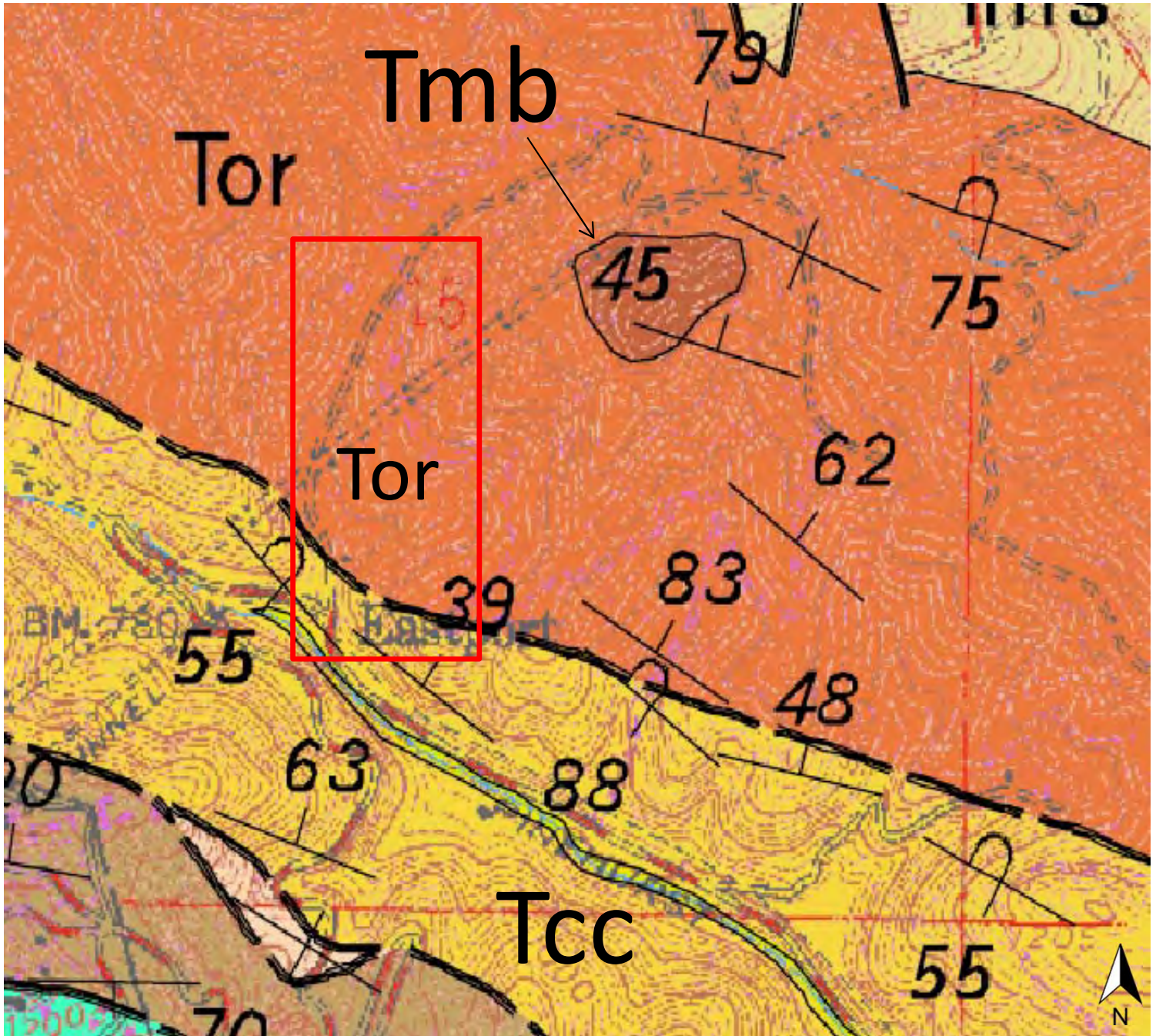
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 3
Site Features Map




EXPLANATION

— Approximate Project Area



EXPLANATION

	Approximate Project Area
Tcc	Claremont Chert
Tor	Orinda Formation

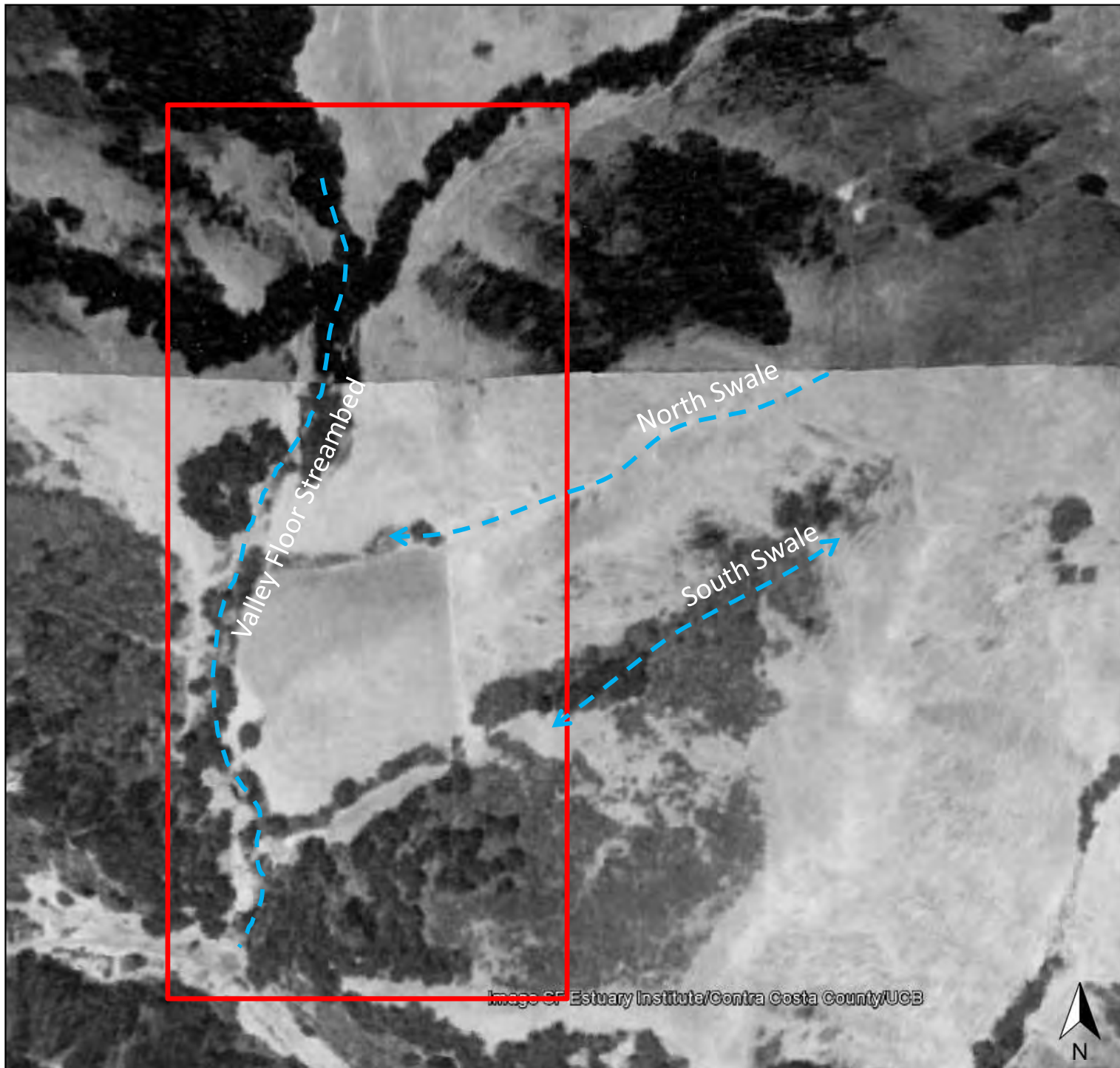
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 5
USGS Geologic Map



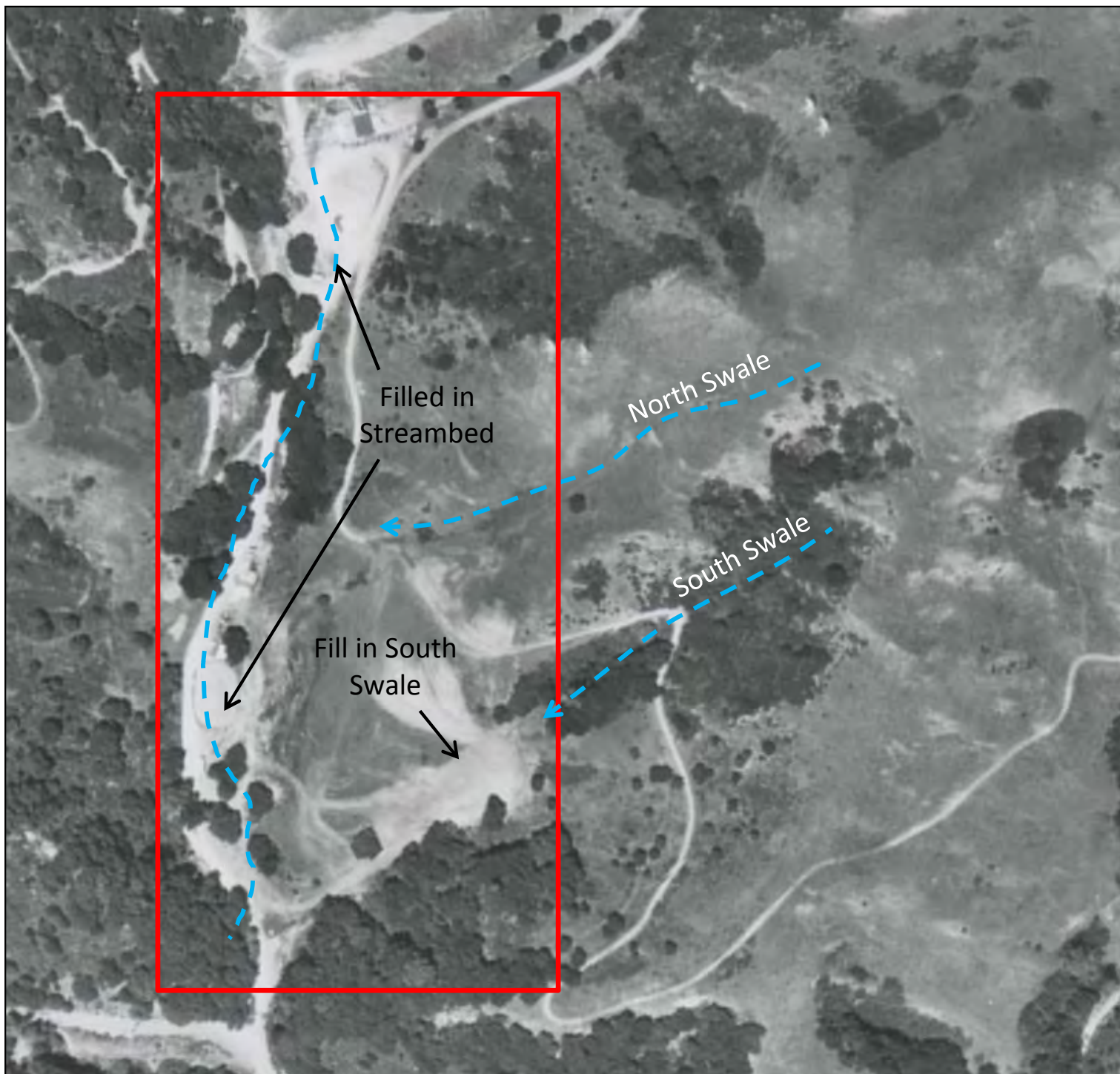
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 6
USGS Fault Map



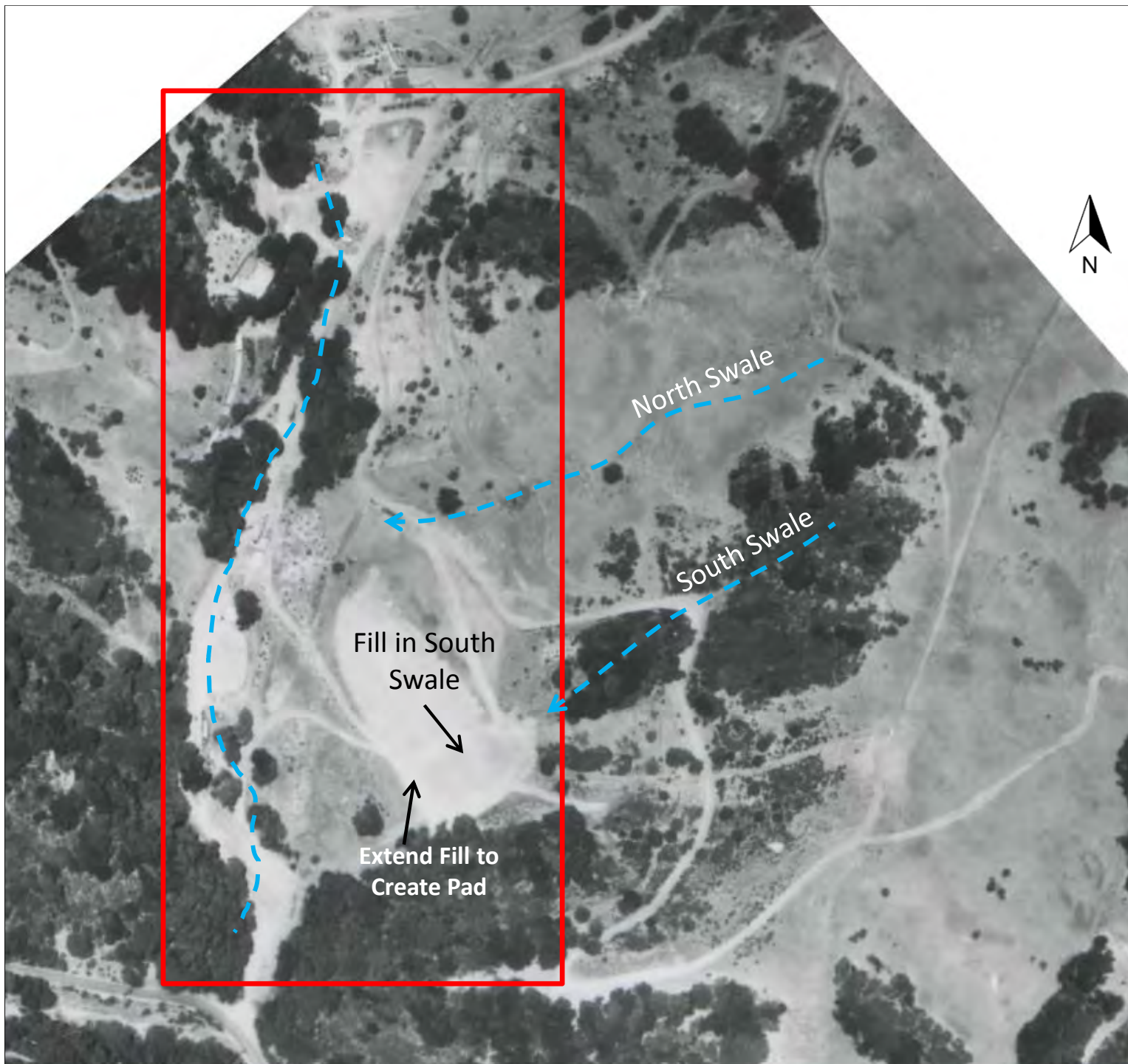
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 7
1939 Aerial Photograph



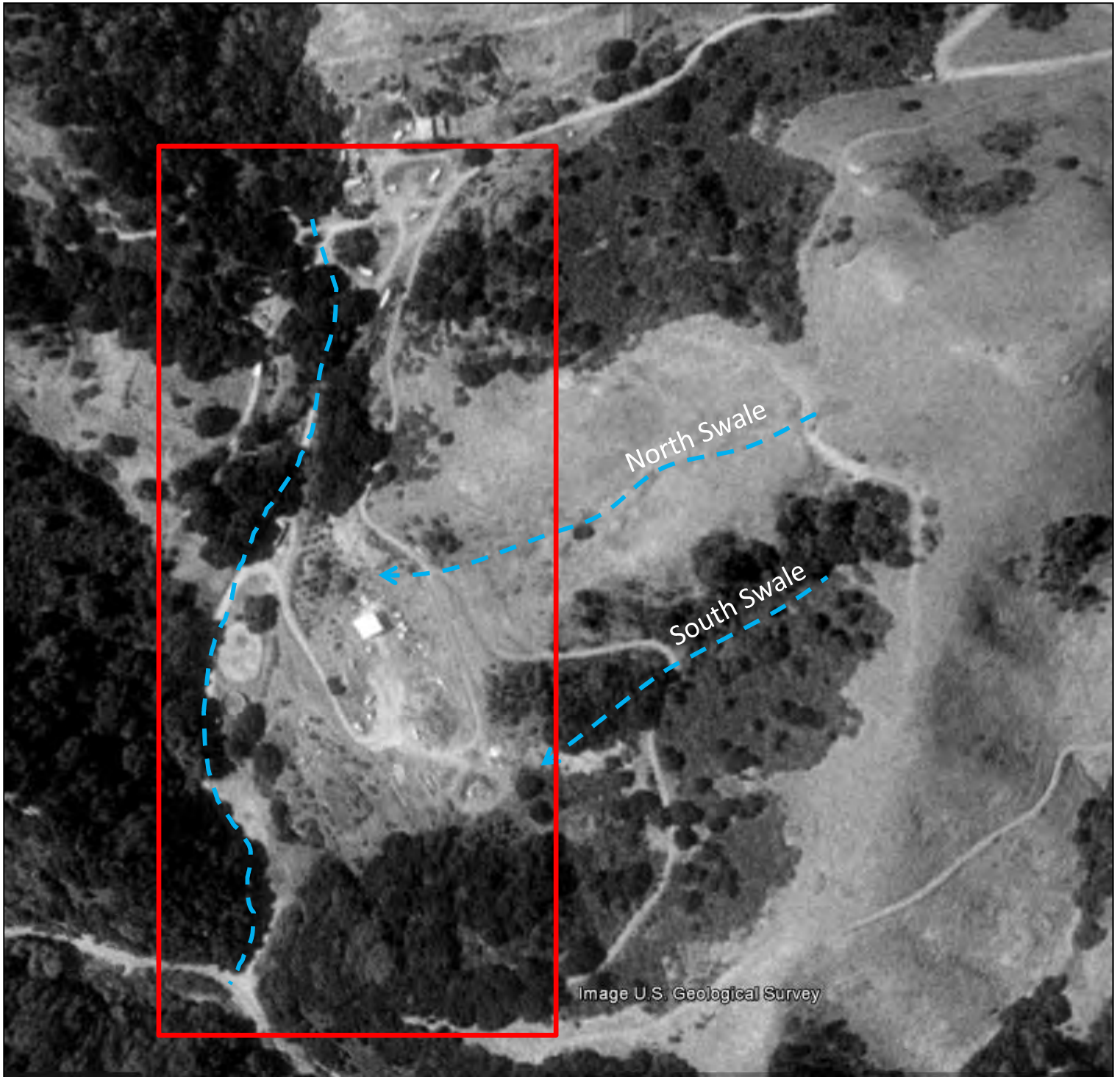
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 8
1973 Aerial Photograph



McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 9
1977 Aerial Photograph



McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 10
1993 Aerial Photograph



McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

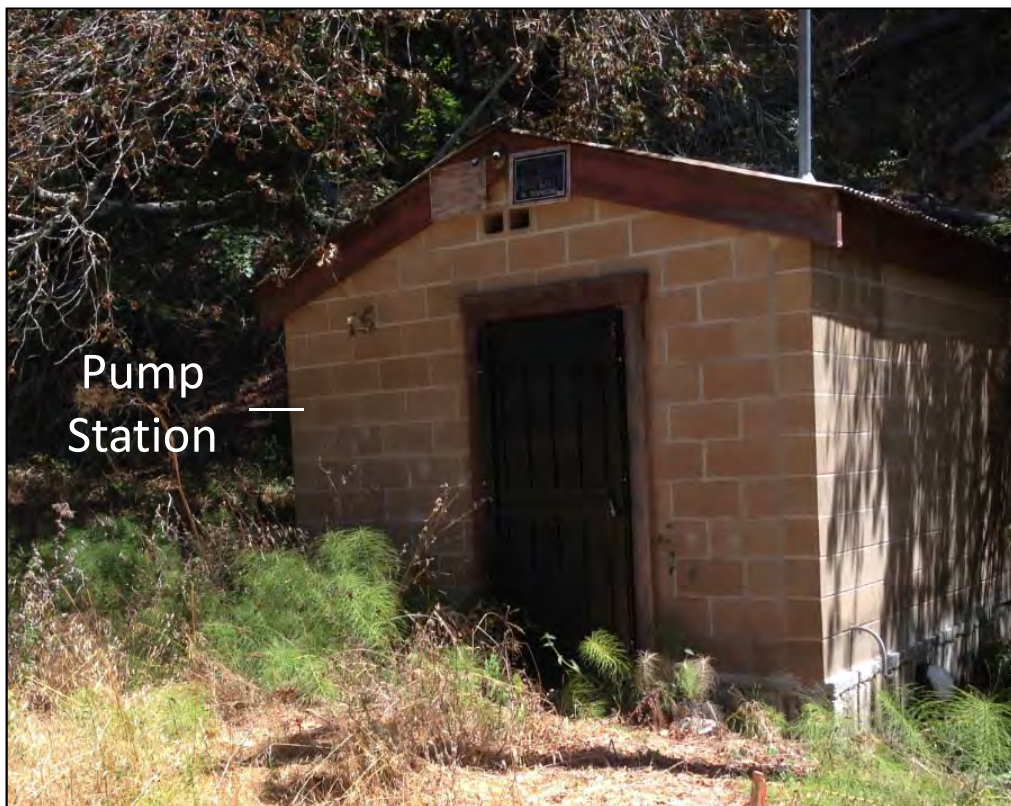
Plate 11
2015 Aerial Photograph



Pinehurst Road
Culvert

Claremont Chert
(bedrock)

Looking East



Pump
Station

Looking East



Looking East

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 13
Lower Valley Floor Sinkhole



Looking East



Looking Northeast

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 14
Middle Valley Floor Sinkholes



Looking East



Looking South



Looking South



Looking North



Looking East

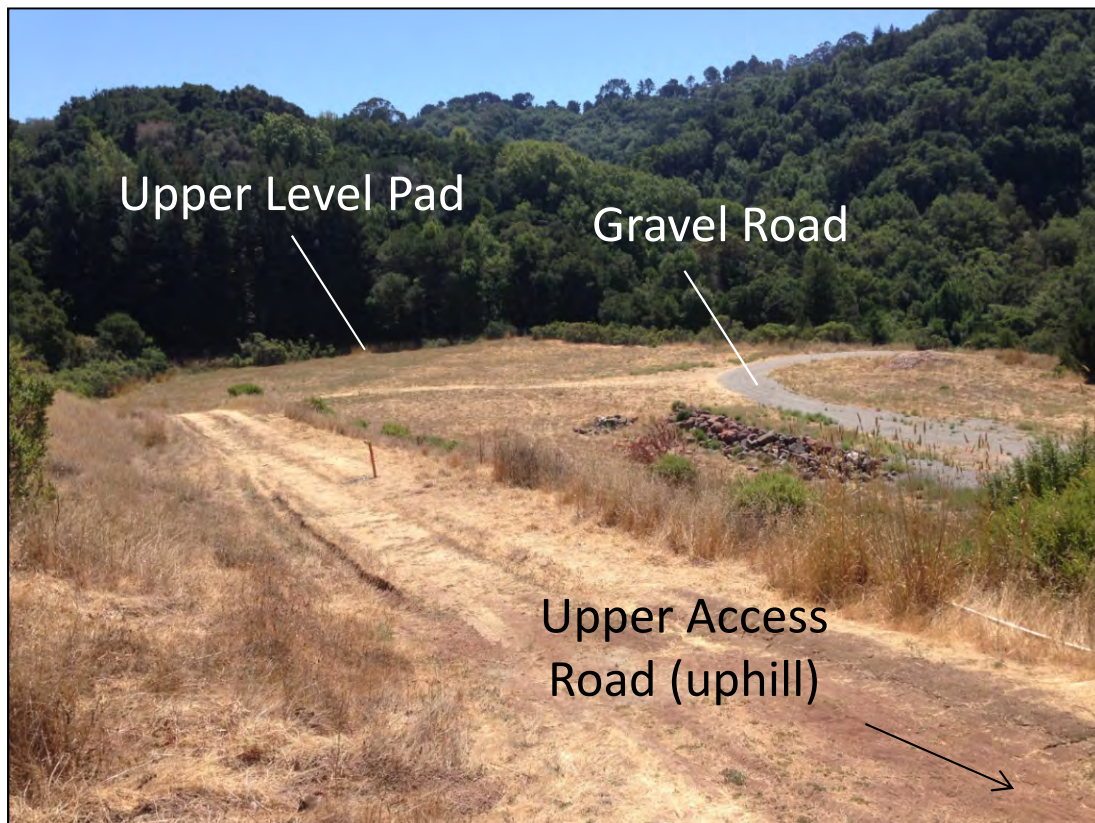
McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 17
Hole within Loop where NW
and NE Tributaries Join

Photographs taken 08/10/2016



Looking Southwest



Looking South

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Plate 18
Upper Level Pad

Photographs taken 08/10/2016



Looking Northeast



Looking Southeast

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

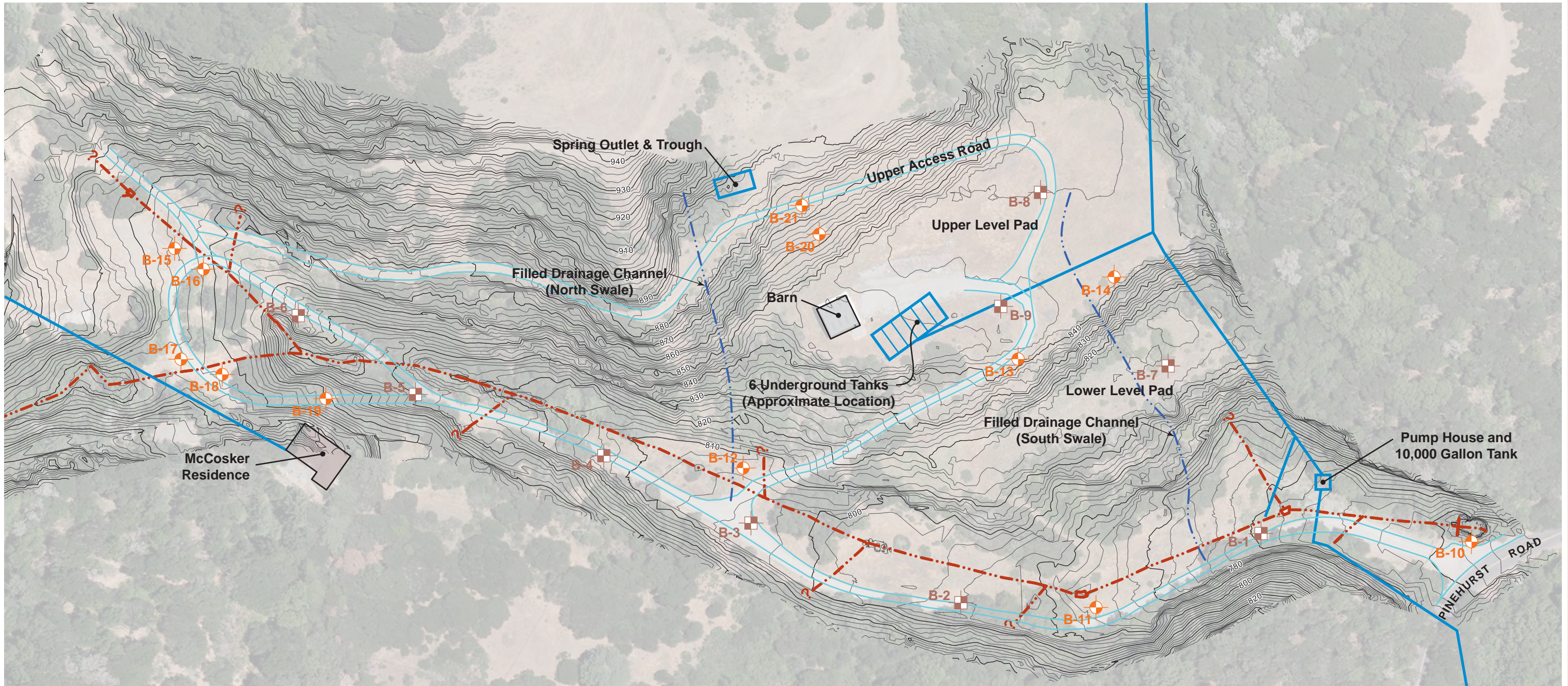
Plate 19
Upslope Wet Conditions



CRACKS




Looking Upslope towards the Northeast



Figures



Topography: Preliminary Topographic Survey by Moran Engineering 6/1/2006; USGS Lidar 2006
 Background Photograph: Google Earth (2016)

LEGEND:

-  B-21 Approximate location of exploratory boring by A3GEO, Inc. (July 2016)
-  B-9 Approximate location of exploratory boring by CalTrans (September 2015)
-  Approximate location of existing underground culvert (from Moran Engineering 2016 survey)

-  Existing gravel road
-  Approximate location of existing water infrastructure (from P/A Design Resources 2008 Water System Map)

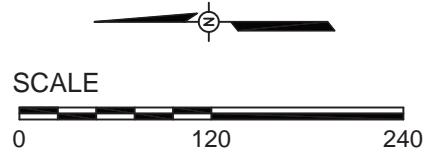
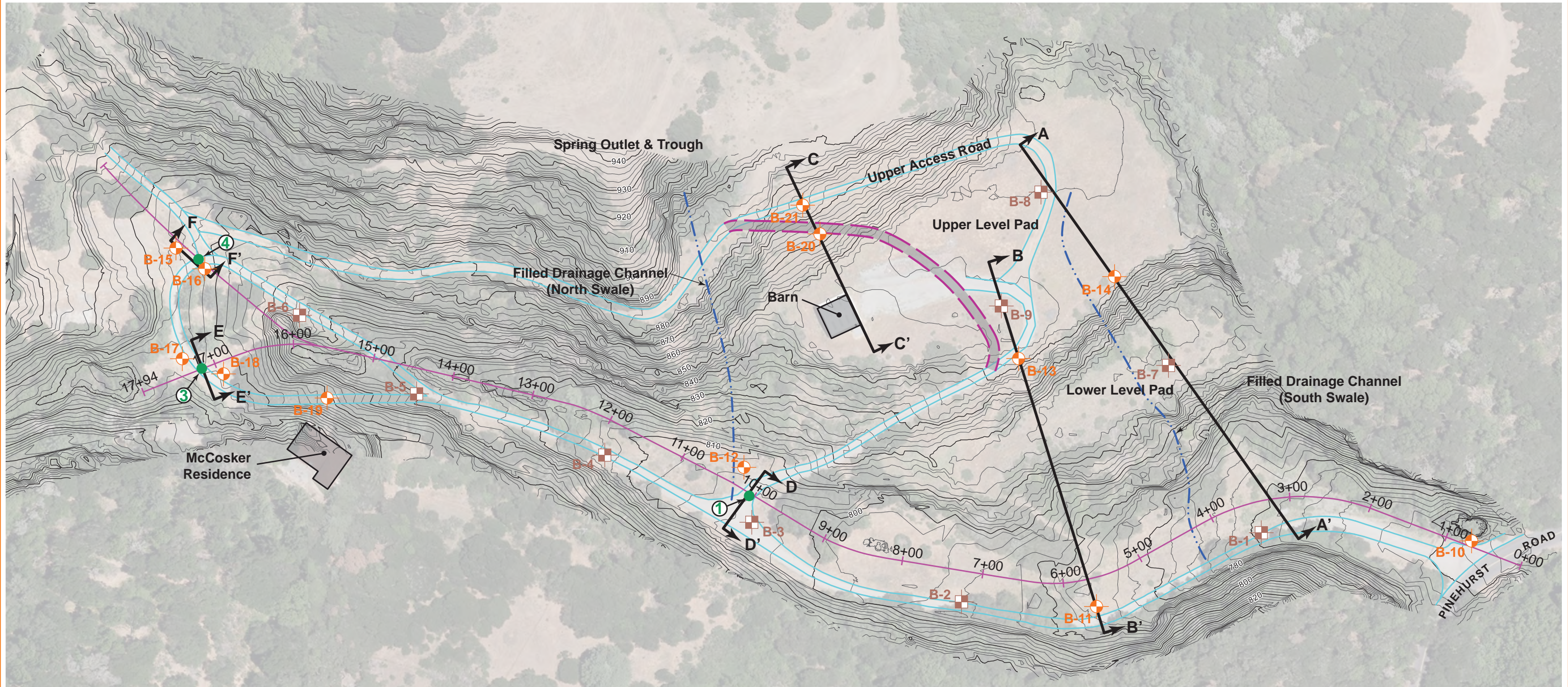



FIGURE 1
EXISTING FEATURES MAP




Topography: Preliminary Topographic Survey by Moran Engineering 6/1/2006; USGS Lidar 2006
 Background Photograph: Google Earth (2016)


LEGEND:

- 

B-21


Approximate location of exploratory boring by A3GEO, Inc. (July 2016)




Existing gravel road
- 


B-9


Approximate location of exploratory boring by CalTrans (September 2015)



Approximate centerline of new creek
- 

Proposed crossing location



Cross section location
- 

Proposed access road

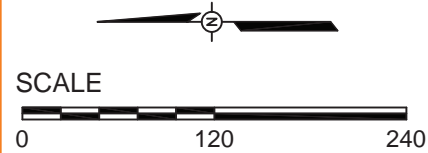
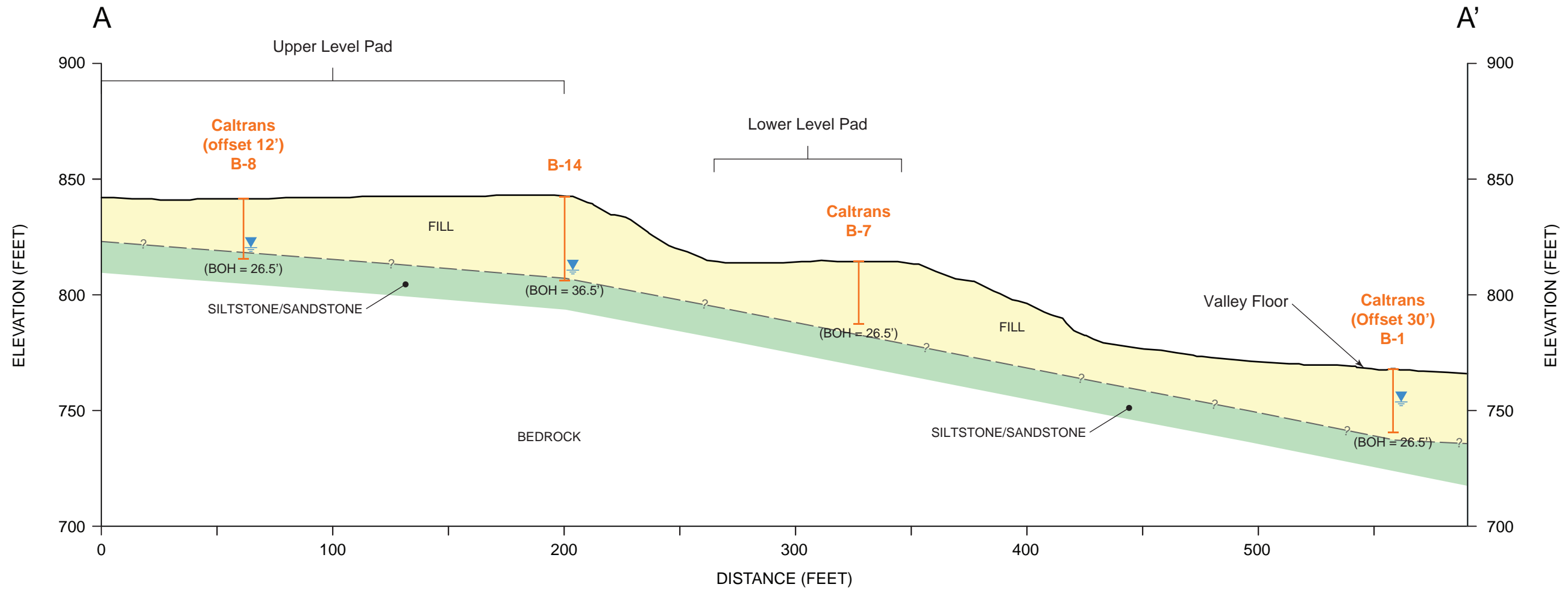


FIGURE 2
SITE PLAN



BOH = Bottom of Hole

Groundwater depth measured during investigation

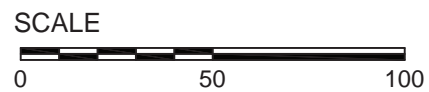
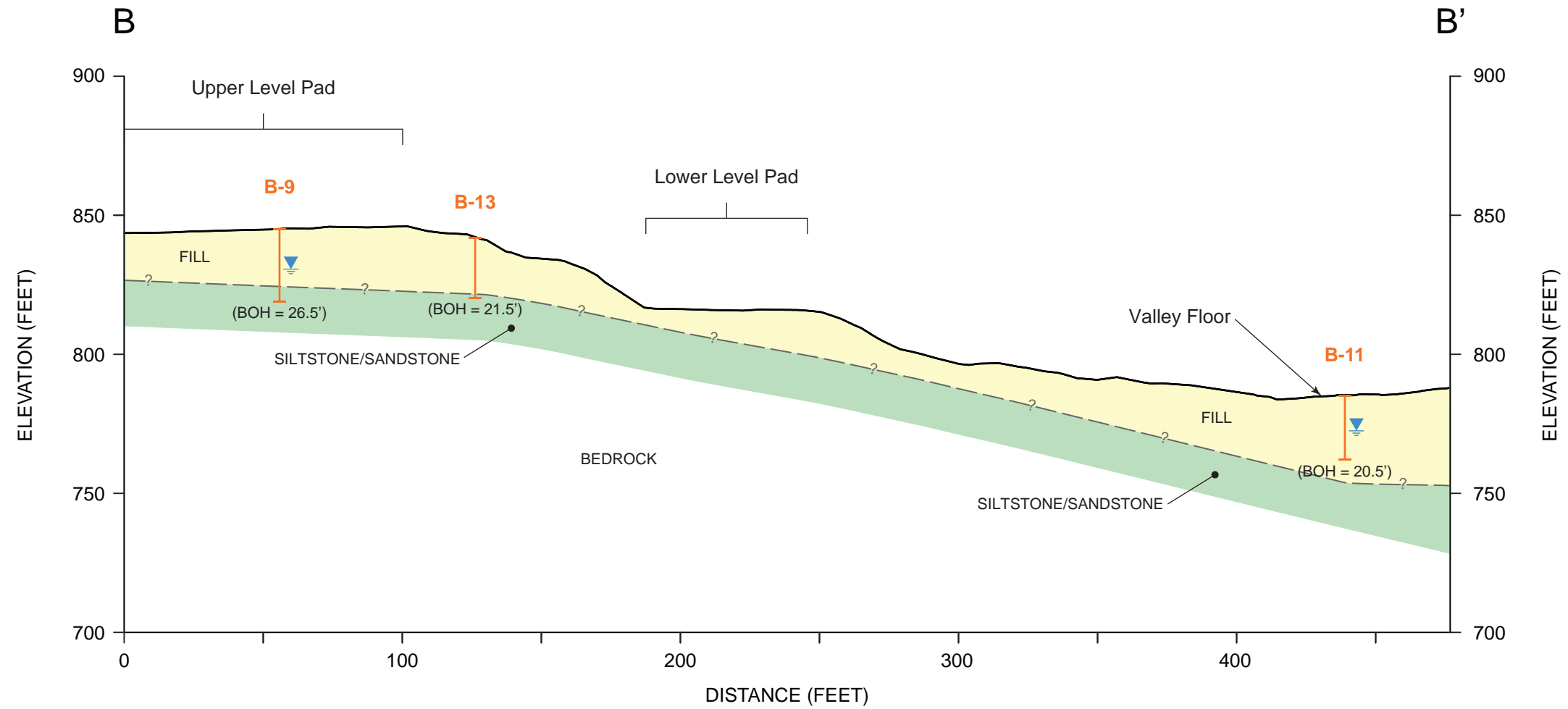


FIGURE 3
CROSS SECTION A-A'



BOH = Bottom of Hole

Groundwater depth measured during investigation

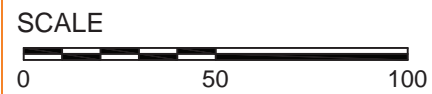
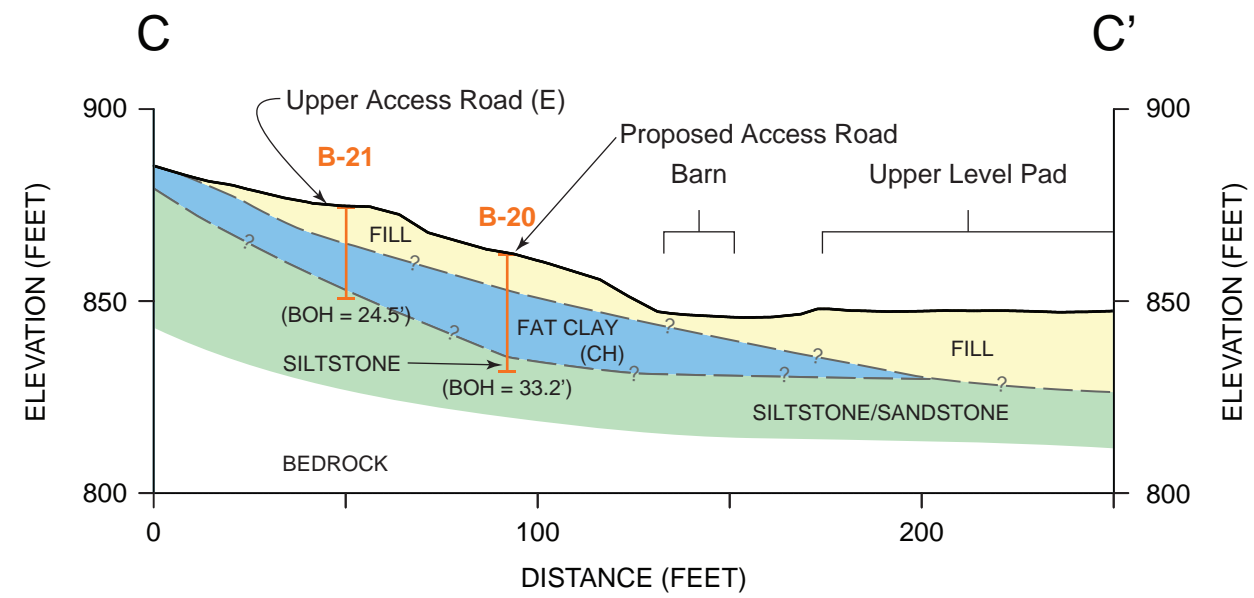


FIGURE 4
CROSS SECTION B-B'



BOH = Bottom of Hole

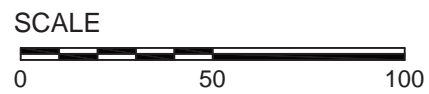
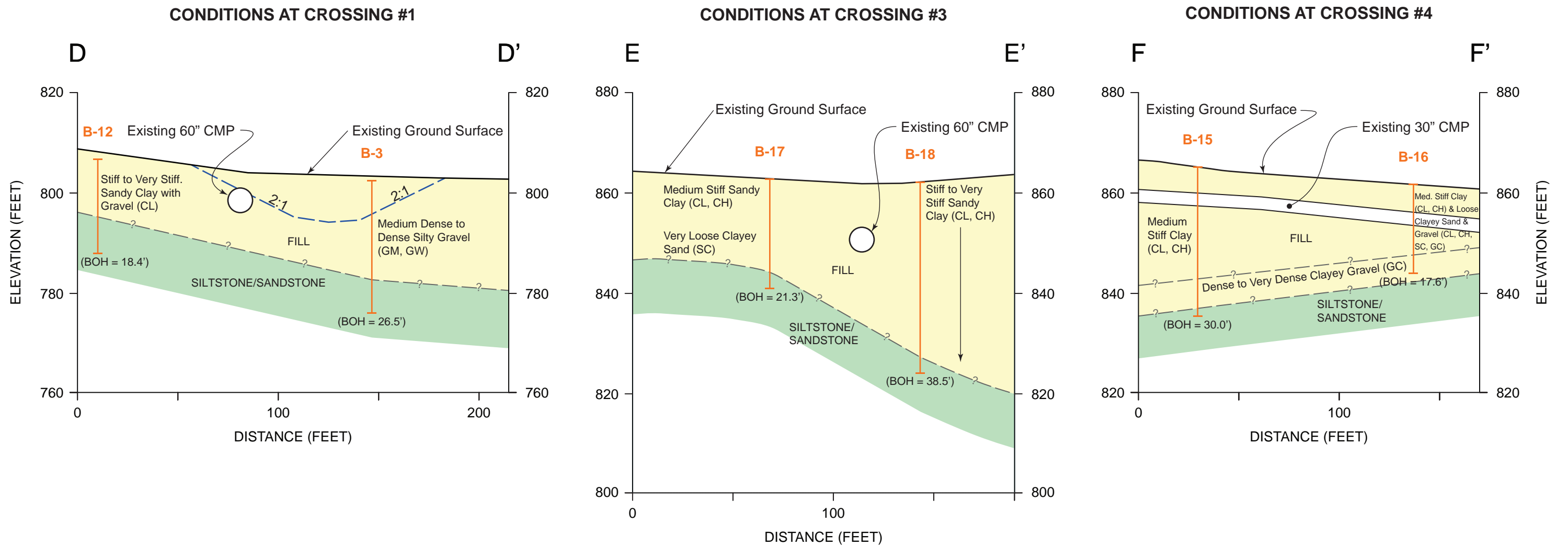


FIGURE 5
CROSS SECTION C-C'



BOH = Bottom of Hole
 - - - Proposed Creek Channel

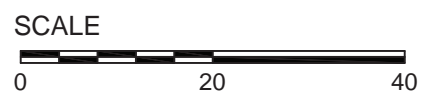


FIGURE 6
CROSS SECTIONS D, E & F

Appendix A

Boring Logs

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

Logs of Borings B-1 through B-9

(CalTrans, 2015)

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

LOGGED BY M. Gaffney	BEGIN DATE 9-14-15	COMPLETION DATE 9-14-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650143.8 ft / 1852033.2 ft	HOLE ID B-1
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 762.9 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) 14.4 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RCQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SILT (ML); brown; dry; few coarse SAND.												
760.90	2		[FILL]												
758.90	4														
756.90	6		Poorly graded GRAVEL (GP); gray; dry.	X	1	6 13 10	23	56							
754.90	8		[FILL]												
752.90	10		Very dense; moist.	X	2	20 44 47	91	78							
750.90	12														
748.90	14														
746.90	16		Very dense; wet.	X	3	21 50/3	50/3	67							
744.90	18		ORGANIC SOIL (OL/OH); dark brown; moist; high plasticity fines.												
742.90	20		[FILL]	X	4	4 2 2	4	0							
740.90	22														
738.90	24														
736.90	26		Stiff; 1.	X	5	2 4 15	19	100							
734.90	28		Bottom of borehole at 26.5 ft bgs												
732.90	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID B-1	
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372	
PROJECT OR BRIDGE NAME EBRP McCosker Valley					
BRIDGE NUMBER		PREPARED BY M Gaffney		DATE 11-9-15	SHEET 1 of 1

LOGGED BY M. Gaffney	BEGIN DATE 9-14-15	COMPLETION DATE 9-14-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650205.7 ft / 1852017.3 ft	HOLE ID B-2
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 787.8 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) Dry	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SANDY SILT (ML); hard; brownish yellow; dry; trace fine GRAVEL ; 4.5.												
785.80	2		[FILL]												
783.80	4														
781.80	6			X	1	10 10 10	20	67							
779.80	8														
777.80	10		SILT (ML); brown; dry; trace fine SAND.												
775.80	12		[FILL]												
773.80	14														
771.80	16			X	3	5 5 7	12	100							
769.80	18														
767.80	20		Poorly graded GRAVEL (GP); gray; dry.												
765.80	22		[FILL]												
763.80	24														
761.80	26		Fat CLAY (CH); very stiff; olive; dry; 3.0. SILTSTONE												
759.80	28		Bottom of borehole at 26.5 ft bgs												
757.80	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE
BORING RECORD

DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D
--------------------	---------------------	--------------------	----------------------

HOLE ID B-2
PROJECT ID 0413000372

PROJECT OR BRIDGE NAME
EBRP McCosker Valley

BRIDGE NUMBER	PREPARED BY M Gaffney
---------------	---------------------------------

DATE 11-9-15	SHEET 1 of 1
------------------------	------------------------

LOGGED BY M. Gaffney	BEGIN DATE 9-9-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650281.3 ft / 1852047.2 ft	HOLE ID B-3
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 796.8 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 14.2 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
794.80	2		Well-graded GRAVEL (GW); medium dense; gray; dry; mostly coarse, angular GRAVEL ; little coarse SAND ; some fines. [FILL]												
790.80	6				1	21 11 5	16	33							
788.80	8		SILT (ML) , dense; brown; dry. SILTY GRAVEL with SAND - (GM) 42.5% Gravel 32.1% Sand 25.4% -200												
784.80	12				2	18 29 20	49	67							
782.80	14		[FILL]												
780.80	16				3	24 28 20	48	67							
778.80	18		Well-graded GRAVEL with SAND (GW); dense; gray; dry; mostly coarse, subangular GRAVEL ; some fine SAND. [FILL]												
776.80	20		SANDSTONE		4	50/6	REF	67							
772.80	24		SEDIMENTARY ROCK (SANDSTONE); medium grained; dark gray; fresh.												
770.80	26				5	50/5	REF	0							
768.80	28		Bottom of borehole at 26.5 ft bgs												
766.80	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID B-3
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372
PROJECT OR BRIDGE NAME EBRP McCosker Valley				
BRIDGE NUMBER	PREPARED BY M Gaffney	DATE 11-9-15	SHEET 1 of 1	

LOGGED BY M. Gaffney	BEGIN DATE 9-9-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650333.6 ft / 1852073.4 ft	HOLE ID B-4
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line)			SURFACE ELEVATION 807.2 ft
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME 85			BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE			HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry	GROUNDWATER READINGS	DURING DRILLING	AFTER DRILLING (DATE) 20.6 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
805.20	1		ORGANIC SOIL (OL/OH). Poorly graded GRAVEL (GP); very loose; gray.												
	2		[FILL]												
803.20	3														
	4														
801.20	5														
	6				1	8 6 5	11	11							
	7														
799.20	8		SILT (ML); very stiff; gray; dry; 3.0.												
	9		Clayey SAND (SC) - angular rock fragments in clayey matrix												
797.20	10		[FILL]												
	11				2	12 9 13	22	33							
795.20	12														
	13														
793.20	14														
	15														
791.20	16				3	8 16 18	34	6							
	17														
789.20	18														
	19														
787.20	20		Clayey SANDSTONE?		4	14 36 27	63	33							
	21														
785.20	22														
	23														
783.20	24														
	25														
781.20	26				5	50/6	REF	0							
	27		Bottom of borehole at 26.5 ft bgs												
779.20	28														
	29														
777.20	30														
	31														

* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

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REPORT TITLE BORING RECORD				HOLE ID B-4
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372
PROJECT OR BRIDGE NAME EBRP McCosker Valley				
BRIDGE NUMBER	PREPARED BY M Gaffney	DATE 11-9-15	SHEET 1 of 1	

LOGGED BY M. Gaffney	BEGIN DATE 9-9-15	COMPLETION DATE 9-14-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650400.7 ft / 1852095.7 ft	HOLE ID B-5
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 822.9 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS	DURING DRILLING
			AFTER DRILLING (DATE) 12.5 ft on 9-14-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SILT with SAND (ML); hard; brownish yellow; dry; low plasticity fines ; 4.0.												
820.90	2		[FILL]												
816.90	6			X	1	11 7 6	13	89							
812.90	10		Very stiff; 2.25.	X	2	9 5 4	9	44							
806.90	16		SEDIMENTARY ROCK (SANDSTONE); fine grained; dark gray; fresh; soft.	X	3	50/6	REF								
802.90	20			X	4	50/2	REF	11							
796.90	26			X	5	50/4	REF	33							
	27		Bottom of borehole at 26.5 ft bgs												
	28		* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.												
	29		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID B-5
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372
PROJECT OR BRIDGE NAME EBRP McCosker Valley				
BRIDGE NUMBER	PREPARED BY M Gaffney	DATE 11-9-15	SHEET 1 of 1	

LOGGED BY M. Gaffney	BEGIN DATE 9-9-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650443.0 ft / 1852125.1 ft	HOLE ID B-6
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 838.7 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) 19.9 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SILT with SAND (ML); hard; brownish yellow; dry; nonplastic fines ; 4.0.												
836.70	2		[FILL]												
834.70	4														
832.70	6			X	1	7 7 8	15	100							
830.70	8														
828.70	10		3.0.	X	2	4 5 7	12	89							
826.70	12														
824.70	14														
822.70	16		Trace coarse GRAVEL ; 3.0.	X	3	4 9 12	21	100							
820.70	18														
818.70	20		Poorly graded SAND with SILT (SP-SM); very dense; gray; dry; fine SAND.	X	4	12 50/5.5	50/6	67							
816.70	22		Clayey SANDSTONE												
814.70	24														
812.70	26		Wet.	X	5	30 30 24	54	100							
810.70	28		Bottom of borehole at 26.5 ft bgs												
808.70	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.

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REPORT TITLE
BORING RECORD

DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D
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HOLE ID
B-6
PROJECT ID
0413000372

PROJECT OR BRIDGE NAME
EBRP McCosker Valley

BRIDGE NUMBER
PREPARED BY
M Gaffney

DATE
11-9-15
SHEET
1 of 1

LOGGED BY M. Gaffney	BEGIN DATE 9-9-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650125.9 ft / 1852109.3 ft	HOLE ID B-7
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 809.2 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) Dry	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
807.20	1		SANDY SILT (ML); very stiff; brownish yellow; dry; trace fine GRAVEL ; some fine SAND ; 4.0.												
	2		[FILL]												
803.20	6			X	1	9 11 11	22	67							
799.20	10			X	2	6 8 9	17	67							
793.20	16		Very stiff; trace fine GRAVEL ; 2.5.	X	3	2 3 4	7	100							
789.20	20		Wood fragments; 3.5.	X	4	3 6 10	16	100							
787.20	22		ORGANIC SOIL (OL/OH); stiff; brown; moist; trace fine SAND ; 2.0.												
	23		[FILL]												
783.20	26		Stiff; 1.5.	X	5	3 5 5	10	100							
	27		Bottom of borehole at 26.5 ft bgs												
779.20	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.

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REPORT TITLE BORING RECORD				HOLE ID B-7
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372
PROJECT OR BRIDGE NAME EBRP McCosker Valley				
BRIDGE NUMBER	PREPARED BY M Gaffney	DATE 11-9-15	SHEET 1 of 1	

LOGGED BY M. Gaffney	BEGIN DATE 9-8-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650169.7 ft / 1852175.6 ft	HOLE ID B-8
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 835.7 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) 20.2 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
833.70	1		Well-graded SAND (SW); medium dense; reddish yellow; dry; trace fine GRAVEL ; fine SAND ; some fines ; Fill.												
829.70	6			X	1	5 9 10	19	100							
825.70	10		Very dense.	X	2	17 25 42	67	100							
819.70	16		Dense.	X	3	17 16 19	35	100							
815.70	20		Very dense.	X	4	50/5.5	REF	31							
813.70	23		SILTSTONE												
809.70	26		Dense; reddish brown.	X	5	11 23 23	46								
	27		Bottom of borehole at 26.5 ft bgs												
	28		* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.												
	29		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
	30														
	31														

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 Geotechnical Services
 Office of Geotechnical Design - West

REPORT TITLE BORING RECORD				HOLE ID B-8	
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372	
PROJECT OR BRIDGE NAME EBRP McCosker Valley					
BRIDGE NUMBER		PREPARED BY M Gaffney		DATE 11-9-15	SHEET 1 of 1

LOGGED BY M. Gaffney	BEGIN DATE 9-8-15	COMPLETION DATE 9-10-15	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 650186.2 ft / 1852131.4 ft	HOLE ID B-9
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION 838.7 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME 85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERI
BOREHOLE BACKFILL AND COMPLETION Bentonite/Cement Slurry			GROUNDWATER READINGS DURING DRILLING AFTER DRILLING (DATE) 14.2 ft on 9-10-15	TOTAL DEPTH OF BORING 26.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
836.70	1		Well-graded SAND with SILT (SW-SM); medium dense; pale brown; dry; trace fine GRAVEL ; fine SAND.												
	2		[FILL]												
834.70	3														
	4														
832.70	5														
	6				1	14 9 7	16	33							
830.70	7														
	8														
828.70	9														
	10														
826.70	11				2	5 5 11	16	67							
	12		SILTY SAND (SM); medium dense; pale brown; dry.												
824.70	13														
	14		Well-graded SAND with SILT (SW-SM); medium dense; pale brown; dry; trace fine GRAVEL.												
822.70	15														
	16		[FILL]												
820.70	17														
	18														
818.70	19														
	20		Very dense; light brownish gray.												
816.70	21		SANDSTONE												
	22				4	25 35 47	82	100							
814.70	23		SILTY SAND (SM); very dense; greenish gray; dry; fine SAND.												
	24		SILTSTONE												
812.70	25														
	26				5	20 41 50/4	91/10								
	27		Bottom of borehole at 26.5 ft bgs												
810.70	28														
	29														
808.70	30														
	31														

* Notes in red are A3GEO edits based on visual examination of samples and/or laboratory tests performed.

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

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Department of Transportation
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design - West

REPORT TITLE BORING RECORD				HOLE ID B-9	
DIST. 04	COUNTY CC	ROUTE NA	POSTMILE D	PROJECT ID 0413000372	
PROJECT OR BRIDGE NAME EBRP McCosker Valley					
BRIDGE NUMBER		PREPARED BY M Gaffney		DATE 11-9-15	SHEET 1 of 1

Logs of Borings B-10 through B-21

(A3GEO, 2016)

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYM	TYPICAL NAMES
COARSE GRAINED SOILS: more than 50% retained on No. 200 sieve	COARSE GRAINED SOILS: 50% or more of coarse fraction on No. 4 sieve	CLEAN GRAVELS	GW	Well graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH SAND	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		CLEAN SANDS	GM	Silty gravels and gravel-sand-silt mixtures
		SANDS WITH FINES	GC	Clayey gravels and gravel-sand-clay mixtures
	SANDS: more than 50% passing on No. 4 sieve	CLEAN SANDS	SW	Well graded sands and gravelly sand, little or no fines
		SANDS WITH FINES	SP	Poorly graded sands and gravelly sand, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
		SANDS WITH FINES	SC	Clayey sands, sand-clay mixtures
		SANDS WITH FINES	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
FINE GRAINED SOILS: 50% or more passing No. 200 sieve	SILTS AND CLAY: Liquid Limit 50% or less	SANDS WITH FINES	CL	Inorganic clays or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		SANDS WITH FINES	OL	Organic silts and organic silty clays of low plasticity
		SANDS WITH FINES	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic clays
	SILTS AND CLAY: Liquid Limit 50% or greater	SANDS WITH FINES	CH	Inorganic clays of high plasticity, fat clays
		SANDS WITH FINES	OH	Organic clays of medium to high plasticity
		SANDS WITH FINES	PT	Peat, muck, and other highly organic soils
HIGHLY ORGANIC SOILS				

BOUNDARY CLASSIFICATION AND GRAIN SIZES

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
U.S. Standard No. 200	No. 40	No. 10	No. 4	3/4"	3"	12"	
Sieve Sizes 0.075 mm	0.425 mm	2 mm	3/16"				

SYMBOLS

Modified California (MC) Sampler (3" O.D.)	Thin-walled tube using Pitcher Barrel	Disturbed Sample
Standard Penetration Test: SPT (2" O.D.)	Shelby Tube, pushed or used Osterberg Sampler	<u>Water Levels</u> At time of drilling At end of drilling After drilling

ABBREVIATIONS

NOTES

Item	Meaning	NOTES
LL	Liquid Limit (%) (ASTM D 4318)	1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
PI	Plasticity Index (%) (ASTM D 4318)	
-200	Passing No. 200 (%) (ASTM D 1140)	
TXCU	Laboratory consolidated undrained triaxial test of undrained shear strength (psf) (D 4767)	2. Modified California (MC) blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
TXUU	Laboratory unconsolidated, undrained triaxial test of undrained shear strength (psf) (ASTM D 2850)	
psf/tsf	pounds per square foot / tons per square foot	3. Recorded blow counts have not been adjusted for hammer energy.
psi	pounds per square inch	
OD	Outside Diameter	
ID	Inside Diameter	



BEDDING OF SEDIMENTARY ROCK

SPLITTING PROPERTY	THICKNESS	STRATIFICATION
Massive	Greater than 4.0 feet	Very Thick-Bedded
Blocky	2.0 to 4.0 feet	Thick-Bedded
Slabby	0.2 to 2.0 feet	Thin-Bedded
Flaggy	0.05 to 0.2 feet	Very Thin-Bedded
Shaly or Platy	0.01 to 0.05 feet	Laminated
Papery	Less than 0.01 feet	Thinly Laminated

FRACTURING

INTENSITY	SIZE OF PIECES IN FEET
Very Little Fractured	Greater than 4.0 feet
Occasionally Fractured	1.0 to 4.0 feet
Moderately Fractured	0.5 to 1.0 feet
Closely Fractured	0.1 to 0.5 feet
Intensely Fractured	0.05 to 0.1 feet
Crushed	Less than 0.05 feet

HARDNESS

Soft	Reserved for plastic material alone
Low Hardness	Can be gouged deeply or carved easily by a knife blade
Moderately Hard	Can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away
Hard	Can be scratched by a knife blade with difficulty; scratch produces little powder and is often faintly visible
Very Hard	Cannot be scratched by a knife blade; leaves a metallic streak



STRENGTH

Plastic	Very low strength
Friable	Crumbles easily by rubbing with fingers
Weak	An unfractured specimen of such material will crumble under light hammer blows
Moderately Strong	Specimen will withstand a few heavy hammer blows before breaking
Strong	Specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments
Very Strong	Specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

WEATHERING:

<i>— the physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing</i>	
Deep	Moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
Moderate	Slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
Little	No megascopic decomposition of minerals; little or no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
Fresh	Unaffected by weathering agents. No discoloration or disintegration. Fractures usually less numerous than joints.



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BORING NUMBER B-10

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/21/16 COMPLETED 7/21/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY DKM CHECKED BY DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 758 ft HOLE SIZE 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING 9.80 ft / Elev 748.20 ft

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0		CLAYEY GRAVEL (GC): brown, grey, black, and reddish brown, dense, angular rock fragments in lean sandy clay matrix [FILL]							
		at 2': chunks of asphalt between 2.5'-4': loose-medium dense	MC	50/4"					
			SPT	10				67%	
5		LEAN SANDY CLAY (CL): brown, medium stiff to stiff, moderate plasticity, coarse angular sand, fine angular rock fragments [FILL]							
		CLAYEY SAND (SC): brown, loose, fine to medium grained sand, some fine gravel, moist [FILL]	MC	8		105	15	67%	Gravel: 8% Sand: 62% -200: 30%
10		CLAYEY GRAVEL (GC): black angular rock fragments up to 1" size with some white fine gravels in brown sandy clay matrix, loose, low plasticity fines, moist [FILL]	SPT	6				56%	
		LEAN SANDY CLAY (CL): reddish brown, medium stiff, moderate to high plasticity, fine to medium-grained [FILL]							
		CLAYEY GRAVEL WITH SAND (GC): grey to bluish grey with fine to coarse angular rock fragments, well graded sand, loose, wet [FILL]	MC	9		112	18	83%	Gravel: 42% Sand: 41% -200: 17%
15		FAT SANDY CLAY (CH): gray to bluish gray, soft, medium grained sand, organic, wood chips, wet [FILL]							
		CLAYEY GRAVEL WITH SAND (GC): grey to bluish grey with fine to coarse angular rock fragments, wet, medium sand [FILL]	SPT	50/5"				73%	

- Bottom of borehole at 18.9 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. Groundwater level was measured at a depth of 9.8 feet immediately before grouting.



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BORING NUMBER B-11

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/18/16 **COMPLETED** 7/18/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 782.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
 ▽ **AT TIME OF DRILLING** 13.00 ft / Elev 769.50 ft
 ▽ **AT END OF DRILLING** ---
 ▽ **AFTER DRILLING** 12.50 ft / Elev 770.00 ft

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
0 - 5		LEAN SANDY CLAY WITH GRAVEL (CL): brown, stiff, gray angular rock fragments, some sand, dry [FILL]	SPT	19				78%	
5 - 7.5		FAT SANDY CLAY (CH): dark olive brown, medium stiff to stiff, with gravel and sand, wet [FILL]							
7.5		at 7.5': large wood chunk	MC	9		94	24	56%	
10 - 11		between 10'-11': medium stiff	MC	7	0.75	96	25	56%	
11 - 15		CLAYEY GRAVEL WITH SAND (GC): greyish brown, dense, subround-subangular gravels up to 1" size in clayey sand matrix, some iron staining, wet [FILL]	MC	31				61%	
15 - 20		angular volcanic rock and sandstone fragments	SPT	82				100%	

- Bottom of borehole at 20.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. Groundwater level was measured at a depth of 12.5 feet immediately before grouting.



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BORING NUMBER B-12

CLIENT ESA
 PROJECT NUMBER 1110-10A
 DATE STARTED 7/21/16 COMPLETED 7/21/16
 DRILLING CONTRACTOR Northstar Drilling, Inc.
 DRILLING METHOD Solid Stem Auger
 LOGGED BY DKM CHECKED BY DKM
 NOTES _____

PROJECT NAME McCosker Stream Renovation
 PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 GROUND ELEVATION 807 ft HOLE SIZE 4.5"
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING ---

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
5		LEAN SANDY CLAY WITH GRAVEL (CL): reddish brown, stiff to very stiff, low plasticity, medium grained sand, random angular fragments of volcanic rock, consolidated and weathered sandstone clasts, moist [FILL]	MC	20	>4.5	108	16	89%	
10		pockets of fat clay, with fine grained sand, trace medium to coarse grained sand, some fine gravel below 8'	MC	15	1.75 2.0	105	22	100%	Gravel: 8% Sand: 24% -200: 68%
15		SANDY SILTSTONE: bluish grey, uniform color and consistency, friable to weak, little weathering, low hardness, no bedding, fine sand, moist [BEDROCK]	SPT	88/11"				94%	
			SPT	88/11"				36%	

- Bottom of borehole at 18.4 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. No groundwater was observed in the borehole.



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BORING NUMBER B-13

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/18/16 **COMPLETED** 7/18/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 841.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
0 - 4'		FAT SANDY CLAY (CH): brown, stiff to very stiff, moderate to high plasticity, with fine sand, some medium grained sand, trace coarse sand, trace fine gravel, some iron staining, moist [FILL]	GB						
4' - 7'		Dark brwn staining between 4' and 7'	MC	11	>4.5		16	78%	LL: 56 PI: 37 Gravel: 2% Sand: 31% -200: 67%
7' - 10'		LEAN SANDY CLAY (CL): brown, very stiff, moderate plasticity, some iron staining, moist [FILL]	MC	20	4.5	103	20	86%	
10' - 15'		- very stiff, with fine-medium sand, low-moderate plasticity, moist	MC	17	4.0			83%	
15' - 20'		- brown mottled with grey, very stiff, moderate plasticity, moist	MC	19				81%	
20' - 21.5'		SILTSTONE: mottled grey and pale green, plastic-friable, soft-low hardness, deeply weathered, moist [BEDROCK]	MC	26				100%	

- Bottom of borehole at 21.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. No groundwater was observed in the borehole.



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BORING NUMBER B-14

CLIENT ESA
 PROJECT NUMBER 1110-10A
 DATE STARTED 7/18/16 COMPLETED 7/18/16
 DRILLING CONTRACTOR Northstar Drilling, Inc.
 DRILLING METHOD Solid Stem Auger
 LOGGED BY RES CHECKED BY DKM
 NOTES _____

PROJECT NAME McCosker Stream Renovation
 PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 GROUND ELEVATION 842.5 ft HOLE SIZE 4.5"
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING 32.50 ft / Elev 810.00 ft

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		SANDY LEAN CLAY (CL): light brown, very stiff, moderate plasticity, some gravel, moist [FILL]	GB						
		LEAN CLAY WITH SAND (CL): dark brown, very stiff, moderate plasticity, some organics, moist [FILL]	MC	10	>4.5	107	15	89%	
5		- some well-graded sand, stiff, some organics, moist	MC	11	3.5	107	19	100%	LL: 47 PI: 30 Gravel: 1% Sand: 27% -200: 72%
10		LEAN CLAY WITH SAND (CL): mottled brown, reddish brown, and grey, stiff, with silt, moderate plasticity, moist [FILL]	MC	8	2.0	103	20	100%	LL: 42 PI: 23 Gravel: 1% Sand: 24% -200: 75%
15			MC	9	1.0			61%	
20			MC	9	1.75			75%	
25									

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BORING NUMBER B-14

CLIENT ESA PROJECT NAME McCosker Stream Renovation
 PROJECT NUMBER 1110-10A PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 DATE STARTED 7/18/16 COMPLETED 7/18/16 GROUND ELEVATION 842.5 ft HOLE SIZE 4.5"
 DRILLING CONTRACTOR Northstar Drilling, Inc. GROUND WATER LEVELS:
 DRILLING METHOD Solid Stem Auger AT TIME OF DRILLING ---
 LOGGED BY RES CHECKED BY DKM AT END OF DRILLING ---
 NOTES ▼ AFTER DRILLING 32.50 ft / Elev 810.00 ft

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
25									
		LEAN CLAY WITH SAND (CL): mottled brown, reddish brown, and grey, stiff, with silt, moderate plasticity, moist [FILL](continued)	MC	8				89%	
30		FAT CLAY WITH SILT (CH): dark grey mottled with reddish brown, stiff, high plasticity, moist [FILL?]	MC	12				83%	
35			MC	30				89%	
		SANDSTONE: grey, friable, low hardness, moist [BEDROCK]							

- Bottom of borehole at 36.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. Groundwater level was measured at a depth of 32.5 feet immediately before grouting.



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BORING NUMBER B-15

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/26/16 **COMPLETED** 7/26/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 862.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
▼ AFTER DRILLING 7.90 ft / Elev 854.60 ft

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		LEAN SANDY CLAY (CL): brown with grey spotting, medium stiff to stiff, moderate to high plasticity, fine to medium grained sand, trace coarse sand and gravel, moist [FILL?]	MC	8	2.75	103	191	67%	Gravel: 3% Sand: 30% -200: 67%
5		between 5'-9': brown, moist at 6.5': large volcanic rock (2.5" size) in shoe of sampler	MC	6	1.5	98	21	50%	Shear Strength: 618 psf
10		FAT CLAY (CH): dark brownish grey, medium stiff, high plasticity, some silt and fine sand, moist [FILL?]	MC	6	1.0	91	28	89%	Shear Strength: 759 psf
		at 12.5': very thin layer of hard gravelly material							
15		between 14'-16.5': dark brownish grey with red spotting, with sand and gravel, fine-medium sand, fine subangular-angular gravel, wet	MC	8	1.0			50%	
		FAT CLAY (CH): grey mottled with reddish brown, stiff, high plasticity, trace fine-coarse sand, moist [FILL?]	MC	9	2.0			78%	
		between 18'-19': with gravel							
20		between 19'-22.5': no sand, no gravel, wet	MC	13	2.0			78%	
25		CLAYEY GRAVEL WITH SAND (GC): grey and black, dense, 2" to 3" subangular volcanic rock fragments in clayey sandy matrix, plastic fines, fine to coarse sand [FILL?]							

(Continued Next Page)



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BORING NUMBER B-15

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/26/16 **COMPLETED** 7/26/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 862.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
▼ AFTER DRILLING 7.90 ft / Elev 854.60 ft

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
25		CLAYEY GRAVEL WITH SAND (GC): grey and black, dense, 2" to 3" subangular volcanic rock fragments in clayey sandy matrix, plastic fines, fine to coarse sand [FILL?](continued)	MC	25				50%	
30		SILTSTONE: grey, plastic-friable, deeply weathered, soft-low hardness, wet	SPT	26				67%	

- Bottom of borehole at 30.0 feet.
- Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 - MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 - Ground surface elevation estimated from Topographic Survey by Moran (2016).
 - Groundwater level was measured at a depth of 7.9 feet immediately before grouting.



A3GEO, Inc.
1331 7th Street; Unit E
Berkeley, CA 94710
Telephone: 510-705-1664

BORING NUMBER B-16

PAGE 1 OF 1

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/21/16 **COMPLETED** 7/21/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 861 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
▼ AFTER DRILLING 13.80 ft / Elev 847.20 ft

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		CLAYEY GRAVEL WITH SAND (GC): brown, medium dense, moderately plastic fines, some silt, fine to coarse sand, fine to coarse gravel, moist [FILL]							
		between 2.25'-3': very hard drilling, sandstone and basalt rock fragments	MC	15/2"				0%	
		between 3.5'-6': coarse sand, angular volcanic gravels up to 1.5" size	MC	10	4.5	110	13	83%	Gravel: 35% Sand: 18% -200: 47%
5		SANDY LEAN CLAY WITH GRAVEL (CL): brown, stiff, moderate plasticity, some silt, fine to coarse sand, fine gravel, moist [FILL]	MC	9	2.25		17	100%	Gravel: 15% Sand: 30% -200: 55%
		at 8.5': trace small plant roots							
10		FAT CLAY (CH): mottled brown and dark brown, medium stiff, moderate-high plasticity, trace coarse sand, moist [FILL]	MC	6				94%	
		CLAYEY SAND (SC): dark brownish grey, loose, well-graded, low plast fines, some subrounded-angular volcanic gravels up to 1.5" size, some iron staining [FILL]							
		▼							
15		CLAYEY GRAVEL WITH SAND (GC): grey and black, very dense, 2" to 3" subangular volcanic rock fragments in clayey sandy matrix, plastic fines, fine to coarse sand [FILL?]	MC	77/11"				71%	
			SPT	34/1"				0%	

Bottom of borehole at 17.6 feet.

1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
4. Groundwater level was measured at a depth of 13.8 feet immediately before grouting.



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1331 7th Street; Unit E
Berkeley, CA 94710
Telephone: 510-705-1664

BORING NUMBER B-17

PAGE 1 OF 1

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 861.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
▼ AFTER DRILLING 16.20 ft / Elev 845.30 ft

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A:\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		SANDY LEAN CLAY (CL): light brown, very stiff, low plasticity, well-graded sand, moist [FILL]							
		SANDY LEAN CLAY WITH GRAVEL (CL): dark brown, stiff, moderate plasticity, well-graded sand, fine to coarse subangular to subrounded gravel, moist [FILL]	MC	11	>4.5	118	15	56%	Gravel: 15% Sand: 28% -200: 57%
5		SANDY FAT CLAY (CH): brown, medium stiff, high plasticity, some fine to medium sand, trace coarse sand, trace fine angular gravel, moist [FILL]	MC	6		94	19	72%	Gravel: 4% Sand: 26% -200: 70%
		FAT CLAY (CH): brown with black and reddish brown mottling, medium stiff, high plasticity, some fine to medium sand, trace coarse sand, some fine gravel, moist [FILL?] between 9.75'-12.5': dark brownish grey, trace fine sand, trace fine angular gravel, moist	MC	5	0.5 1.0			100%	
10		CLAYEY SAND WITH GRAVEL (SC): dark brownish grey and reddish brown, very loose, moderate plasticity, well-graded sand, fine to coarse gravel, moist [FILL?]	MC	3	0.5			58%	Gravel: 15% Sand: 43% -200: 42%
15						93	28		
20		SANDSTONE: grey and light brown, cemented sand with 1/8" subrounded pebbles, conglomerate, friable, deeply weathered, low hardness, wet [BEDROCK]	MC	67/10.5"			100%		
			SPT	50/4"			100%		

- Bottom of borehole at 21.3 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. Groundwater level was measured at a depth of 16.2 feet immediately before grouting.



A3GEO, Inc.
 1331 7th Street; Unit E
 Berkeley, CA 94710
 Telephone: 510-705-1664

BORING NUMBER B-18

CLIENT ESA
 PROJECT NUMBER 1110-10A
 DATE STARTED 7/26/16 COMPLETED 7/26/16
 DRILLING CONTRACTOR Northstar Drilling, Inc.
 DRILLING METHOD Solid Stem Auger
 LOGGED BY RES CHECKED BY DKM
 NOTES _____

PROJECT NAME McCosker Stream Renovation
 PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 GROUND ELEVATION 861 ft HOLE SIZE 4.5"
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING 32.25 ft / Elev 828.75 ft

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
0 - 5		LEAN TO FAT CLAY WITH SAND (CL-CH): mottled brown and grey, medium stiff to very stiff, moderate to high plasticity, fine to medium grained sand, with silt, some iron staining, moist [FILL]	GB MC	11	>4.5	104	16	100%	
5 - 10		SANDY FAT CLAY (CH): mottled dark brown and brown, very stiff, high plasticity, some sand, some rounded-subrounded gravel up to 1" size, moist [FILL]	MC	13	4.0	104	21	100%	
10 - 15		FAT CLAY WITH SAND (CH): mottled dark brown and brown, stiff, high plasticity, fine to medium grained sand, trace coarse subrounded sand, trace fine angular gravel, moist [FILL?]	MC	9	3.0 1.75	103	20	100%	Gravel: 5% Sand: 21% -200: 74%
15 - 20		between 15'-20': brown, stiff to very stiff, less sand and no gravel, only trace medium sand	MC	14	3.0			100%	
20 - 25		FAT CLAY WITH SAND (CH): dark yellowish brown, stiff, high plasticity, coarse subangular-angular sand, trace fine angular gravel, some weathered gravel inclusions, some iron staining, moist [FILL?]	MC	13	3.0			89%	

(Continued Next Page)



A3GEO, Inc.
 1331 7th Street; Unit E
 Berkeley, CA 94710
 Telephone: 510-705-1664

BORING NUMBER B-18

CLIENT ESA **PROJECT NAME** McCosker Stream Renovation

PROJECT NUMBER 1110-10A **PROJECT LOCATION** 920 Pinehurst Rd, Canyon, CA

DATE STARTED 7/26/16 **COMPLETED** 7/26/16 **GROUND ELEVATION** 861 ft **HOLE SIZE** 4.5"

DRILLING CONTRACTOR Northstar Drilling, Inc. **GROUND WATER LEVELS:**

DRILLING METHOD Solid Stem Auger **AT TIME OF DRILLING** ---

LOGGED BY RES **CHECKED BY** DKM **AT END OF DRILLING** ---

NOTES ▼ AFTER DRILLING 32.25 ft / Elev 828.75 ft

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE: GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
25									
		FAT CLAY (CH): brown with some black and reddish brown spots, very stiff, high plasticity, coarse subangular-angular sand, trace fine angular gravel, moist [FILL?]	MC	16	3.5			89%	
		SILTY GRAVEL WITH SAND (GM): black and brown, dense, assortment of poorly graded angular gravels and rock fragments up to 1" size, moist [FILL?]	SPT	30				89%	
30		FAT CLAY (CH): brown, stiff, high plasticity, some sand, moist [FILL?]							
35		SILTSTONE: grey friable, deeply weathered, low hardness, intensely fractured, platy, wet [BEDROCK]	SPT	62/9"				100%	

- Bottom of borehole at 38.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. Groundwater level was measured at a depth of 32.25 feet immediately before grouting.



A3GEO, Inc.
 1331 7th Street; Unit E
 Berkeley, CA 94710
 Telephone: 510-705-1664

BORING NUMBER B-19

CLIENT ESA PROJECT NAME McCosker Stream Renovation
 PROJECT NUMBER 1110-10A PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 DATE STARTED 7/26/16 COMPLETED 7/26/16 GROUND ELEVATION 850 ft HOLE SIZE 4.5"
 DRILLING CONTRACTOR Northstar Drilling, Inc. GROUND WATER LEVELS:
 DRILLING METHOD Solid Stem Auger AT TIME OF DRILLING ---
 LOGGED BY RES CHECKED BY DKM AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A:\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0		ASPHALT (1")							
		AGGREGATE BASE (6")							
		LEAN CLAY WITH SAND (CL): yellowish brown, low plasticity, with silt, fine to medium grained sand, moist [FILL]	GB						
		SANDY LEAN CLAY (CL): yellowish and reddish brown, very stiff, moderate plasticity, fine to medium grained sand, trace coarse sand, moist decreasing clay content with depth	MC	26	>4.5		15	92%	LL: 42 PI: 24 Gravel: 2% Sand: 30% -200: 68%
5		SANDSTONE: olive brown with reddish brown streaks and spots, friable-weak, deeply-moderately weathered, low hardness, wet [BEDROCK]	MC	87/11"	>4.5			100%	
			MC	50/3"				100%	
			SPT	34/3"				33%	

- Bottom of borehole at 9.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. No groundwater was observed in the borehole.



A3GEO, Inc.
 1331 7th Street; Unit E
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 Telephone: 510-705-1664

BORING NUMBER B-20

CLIENT ESA
 PROJECT NUMBER 1110-10A
 DATE STARTED 7/25/16 COMPLETED 7/25/16
 DRILLING CONTRACTOR Northstar Drilling, Inc.
 DRILLING METHOD Solid Stem Auger
 LOGGED BY RES CHECKED BY DKM
 NOTES _____

PROJECT NAME McCosker Stream Renovation
 PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 GROUND ELEVATION 861.5 ft HOLE SIZE 4.5"
 GROUND WATER LEVELS:
 AT TIME OF DRILLING ---
 AT END OF DRILLING ---
 AFTER DRILLING ---

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A:\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		LEAN CLAY WITH SAND (CL): brown, stiff, moderate to high plasticity, fine to medium grained sand, trace coarse sand, trace fine gravel, moist [FILL]	MC	11	4.0	93	20	72%	Gravel: 4% Sand: 24% -200: 72%
5		between 6'-10': medium stiff to stiff, trace rounded coarse sand, some iron staining	MC	8	2.5 1.75	98	25	94%	LL: 48 PI: 30
10		SANDY FAT CLAY (CH): brown, medium stiff, fine to medium grained sand, high plasticity, trace yellowish brown deeply weathered rock fragment inclusions, trace black angular coarse sand, moist [FILL?]	MC	6	1.0	99	25	100%	LL: 54 PI: 35
15		FAT CLAY (CH): brownish grey with some brown mottling, stiff, high plasticity, trace fine-coarse sand, trace subrounded-subangular fine gravel, trace deeply weathered inclusions, moist	MC	11	2.25			56%	
20		between 20'-23.5': no sand, moist	MC	10	2.0 2.5			100%	
25									

(Continued Next Page)



A3GEO, Inc.
 1331 7th Street; Unit E
 Berkeley, CA 94710
 Telephone: 510-705-1664

BORING NUMBER B-20

CLIENT ESA PROJECT NAME McCosker Stream Renovation
 PROJECT NUMBER 1110-10A PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
 DATE STARTED 7/25/16 COMPLETED 7/25/16 GROUND ELEVATION 861.5 ft HOLE SIZE 4.5"
 DRILLING CONTRACTOR Northstar Drilling, Inc. GROUND WATER LEVELS:
 DRILLING METHOD Solid Stem Auger AT TIME OF DRILLING ---
 LOGGED BY RES CHECKED BY DKM AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
25									
		FAT CLAY (CH): brown with yellowish brown and reddish brown spotting, stiff, high plasticity, trace fine to coarse rounded sand, trace subrounded fine gravel, deeply weathered rock fragment inclusions, moist(continued)	MC	11	2.5 2.0			100%	
30		SILTSTONE: mottled grey and reddish brown, weak, deeply-moderately weathered, low hardness, moist [BEDROCK]	MC	90/9"				100%	

- Bottom of borehole at 33.2 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. No groundwater was observed in the borehole.



A3GEO, Inc.
 1331 7th Street; Unit E
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 Telephone: 510-705-1664

BORING NUMBER B-21

CLIENT ESA
PROJECT NUMBER 1110-10A
DATE STARTED 7/25/16 **COMPLETED** 7/25/16
DRILLING CONTRACTOR Northstar Drilling, Inc.
DRILLING METHOD Solid Stem Auger
LOGGED BY RES **CHECKED BY** DKM
NOTES _____

PROJECT NAME McCosker Stream Renovation
PROJECT LOCATION 920 Pinehurst Rd, Canyon, CA
GROUND ELEVATION 872.5 ft **HOLE SIZE** 4.5"
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMN TERM NOTE LEFT ALIGNED - A3GEO DATA TEMPLATE.GDT - 9/8/16 19:42 - A\A3GEO PROJECTS\1110 - ESA-PWA\1110-10A MCCOSKER STREAM RENOVATION\BORELOGS\1110-10A BORELOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	ADJUSTED BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	% RECOVERED	OTHER LAB TESTS / NOTES
0									
		FAT CLAY WITH SAND (CH): brown, stiff, high plasticity, fine sand, trace medium to coarse grained sand, trace gravel, some iron staining, moist [FILL]	MC	9	4.5	95	19	78%	LL: 58 PI: 38 Gravel: 3% Sand: 18% -200: 79%
5		between 5' and 7.5': some fine angular gravel, some weathered rock fragment inclusions [FILL]	MC	9	4.0	103	22	72%	LL: 53 PI: 34 Gravel: 6% Sand: 23% -200: 71%
		FAT CLAY WITH GRAVEL (CH): brown, stiff, high plasticity, black angular gravel [FILL]	MC	12	2.5			100%	
10		FAT CLAY (CH): yellowish brown, stiff, high plasticity, some silt and fine sand, moist							
		FAT CLAY (CH): brown with some black mottling, stiff, high plasticity, some angular coarse sand, trace medium sand, trace angular fine gravel, moist	MC	10	1.75 2.5			100%	
15		FAT CLAY (CH): dark greyish brown, stiff, high plasticity, some angular medium-coarse sand, no gravel, trace iron staining, moist	MC	9	2.25 1.75			100%	
20									
		SILTSTONE: grey with some red streaking, friable, deeply weathered, low hardness, platy, moist [BEDROCK]	MC	48				83%	

- Bottom of borehole at 24.5 feet.
1. Stratification lines represent the approximate boundaries between material types and the transitions may be gradual.
 2. MC blow counts were adjusted by multiplying field blow counts by a factor of 0.63.
 3. Ground surface elevation estimated from Topographic Survey by Moran (2016).
 4. No groundwater was observed in the borehole.

Appendix B

Laboratory Test Data

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

B. HILLEBRANDT SOILS TESTING, INC.

29 Sugarloaf Terrace, Alamo, CA 94507 - Tel: (510) 409-2916 - Fax: (925) 891-9267 - Email: soiltesting@aol.com

LAB RESULTS SUMMARY FORM

Project Number: 1110-10A
Requested By:

Project Name: McCosker Stream
Request Date: 8/8/2016

Results Due By:
Throw Samples Out On:

Boring #	Sample Depth (feet)	Dry Density (pcf)	Moisture Content (%)	Unconfined Shear Strength (ps)	Atterberg			-200			Compaction		Pocket Penetrometer (tsf)	Torvane (tsf)	Remarks
					Liquid Limit	Plastic Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #40 sieve (%)	Passing #200 sieve (%)	Maximum Dry Density (pcf)	Optimum Moisture (%)			
B-3	10.0							58	34	25					
B-10	8.0	105	14.6					92	60	30					
B-10	13.5	112	17.9					58	27	17					
B-11	8.0	94	24.4												
B-11	11.0	96	24.8												
B-12	4.0	108	16.4												
B-12	8.5	105	21.7					92	83	68					
B-13	4.0		16.1		56	19	37	98	86	67					
B-13	8.0	103	19.8												
B-14	3.5	107	14.7												
B-14	8.0	107	19.4		47	17	30	99	90	72					
B-14	11.0	103	20.1		42	19	23	99	90	75					
B-15	3.0	103	19.3					97	86	67					
B-15	6.0	98	21.1	618											
B-15	10.0	91	27.9	759											
B-16	4.5	110	12.7					65	57	47					
B-16	7.0		17.2					85	72	55					
B-17	3.0	118	14.7					85	72	57					
B-17	6.0	94	18.7					96	85	70					
B-17	15.0	93	28.1					85	57	42					
B-18	4.0	104	16.1												
B-18	8.0	104	20.8												
B-18	11.0	103	19.5					95	86	74					
B-19	3.0		14.8		42	18	24	98	85	68					
B-20	3.0	93	20.3					96	83	72					
B-20	7.0	98	25.0		48	18	30								
B-20	11.0	99	24.8		54	19	35								
B-21	2.5	95	19.4		58	20	38	97	90	79					
B-21	6.0	103	21.8		53	19	34	94	85	71					

B. HILLEBRANDT SOILS TESTING, INC.

29 Sugarloaf Terrace, Alamo, CA 94507 - Tel: (510) 409-2916 - Fax: (925) 891-9267 - Email: soiltesting@aol.com

MOISTURE CONTENT/DRY DENSITY

Job #: 1110-10A
 Job Name: McCosker Stream
 Date: 8/8/2016
 Tested by: Brad Hillebrandt

Additional Tests:	FS	FS				FS
Boring #:	B-10	B-10	B11	B-11	B-12	B-12
Depth:	8.0	13.5	8.0	11.0	4.0	8.5
Sample Description:	Brown clayey SAND	Gray clayey GRAVEL with sand	Olive brown sandy CLAY	Olive brown sandy CLAY	Dark yellowish brown sandy CLAY	Dark yellowish brown sandy CLAY
Can #:	370	B-20	336	344	341	305
Wet Sample + can	375.1	722.1	386.2	338.7	308.9	359.4
Dry Sample + can	332.1	653.6	318.0	278.9	270.7	302.0
Weight can	37.7	271.2	38.6	38.2	37.7	38.0
Weight water	43	68.5	68.2	59.8	38.2	57.4
Weight Dry Sample	294.4	382.4	279.4	240.7	233	264
WATER CONTENT (%)	14.6%	17.9%	24.4%	24.8%	16.4%	21.7%
Weight Sample + Liner	791.3	1163.6	976.0	1116.3	1087.5	1166.4
Weight Liner	0	267.6	276.8	256.4	260.5	267.9
Sample Length	5.55	5.75	5.1	6.0	5.6	6.0
Sample Diameter	2.40	2.39	2.39	2.41	2.39	2.39
DRY DENSITY (pcf)	104.8	112.2	93.6	95.9	107.7	104.5

B. HILLEBRANDT SOILS TESTING, INC.

29 Sugarloaf Terrace, Alamo, CA 94507 - Tel: (510) 409-2916 - Fax: (925) 891-9267 - Email: soiltesting@aol.com

MOISTURE CONTENT/DRY DENSITY

Job #: 1110-10A
 Job Name: McCosker Stream
 Date: 8/8/2016
 Tested by: Brad Hillebrandt

Additional Tests:			PI, FS	PI, FS	FS	FS
Boring #:	B-13	B-14	B-14	B-14	B-15	B-16
Depth:	8.0	3.5	8.0	11.0	3.0	4.5
Sample Description:	Olive brown silty CLAY with sand	Brown CLAY with sand	Brown lean CLAY with sand	Brown lean CLAY with sand	Brown sandy CLAY	Olive brown clayey GRAVEL with sand
Can #:	362	343	363	312	342	B-13
Wet Sample + can	347.6	275.2	315.2	338.8	316.7	803.9
Dry Sample + can	295.7	244.7	269.5	288.4	272.0	739.1
Weight can	33.7	37.7	33.4	37.9	40.1	227.3
Weight water	51.9	30.5	45.7	50.4	44.7	64.8
Weight Dry Sample	262	207	236.1	250.5	231.9	511.8
WATER CONTENT (%)	19.8%	14.7%	19.4%	20.1%	19.3%	12.7%
Weight Sample + Liner	1151.6	1125.7	1003.0	998.4	1025.4	1076.4
Weight Liner	277.2	251.8	263.7	253.2	256.8	262.1
Sample Length	6.0	6.0	4.95	5.1	5.25	5.5
Sample Diameter	2.39	2.40	2.38	2.39	2.40	2.41
DRY DENSITY (pcf)	103.3	106.9	107.2	103.3	103.4	109.7

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MOISTURE CONTENT/DRY DENSITY

Job #: 1110-10A
 Job Name: McCosker Stream
 Date: 8/8/2016
 Tested by: Brad Hillebrandt

Additional Tests:		FS	FS			FS
Boring #:	B-17	B-17	B-17	B-18	B-18	B-18
Depth:	3.0	6.0	15.0	4.0	8.0	11.0
Sample Description:	Grayish brown sandy CLAY	Dark brown sandy CLAY	Dark greenish gray clayey SAND with gravel	Brown silty clay with some sand	Brown sandy CLAY	Brown CLAY with sand
Can #:	B-8	301	345	339	302	B-6
Wet Sample + can	780.4	369.2	395.4	277.3	341.4	678.7
Dry Sample + can	715.6	317.0	317.1	244.0	289.1	613.4
Weight can	275.4	38.2	38.0	37.7	37.5	278.5
Weight water	64.8	52.2	78.3	33.3	52.3	65.3
Weight Dry Sample	440.2	278.8	279.1	206.3	251.6	334.9
WATER CONTENT (%)	14.7%	18.7%	28.1%	16.1%	20.8%	19.5%
Weight Sample + Liner	1132.0	903.5	1051.7	1131.5	1025.3	1120.0
Weight Liner	256.0	259.2	253.9	276.8	262.4	252.2
Sample Length	5.5	4.9	5.7	6.0	5.05	6.0
Sample Diameter	2.39	2.39	2.39	2.39	2.41	2.39
DRY DENSITY (pcf)	117.9	94.0	92.8	104.2	104.4	102.8

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MOISTURE CONTENT/DRY DENSITY

Job #: 1110-10A
 Job Name: McCosker Stream
 Date: 8/8/2016
 Tested by: Brad Hillebrandt

Additional Tests:	FS	PI	PI	PI, FS	PI, FS	
Boring #:	B-20	B-20	B-20	B-21	B-21	
Depth:	3.0	7.0	11.0	2.5	6.0	
Sample Description:	Brown CLAY with sand	Brown sandy lean CLAY	Olive bown sandy fat CLAY	Brown fat CLAY with sand	Brown fat CLAY with sand	
Can #:	337	368	331	303	332	
Wet Sample + can	314.8	341.2	341.6	310.6	315.1	
Dry Sample + can	268.1	280.1	281.1	266.2	265.5	
Weight can	37.8	35.3	37.4	37.2	37.8	
Weight water	46.7	61.1	60.5	44.4	49.6	
Weight Dry Sample	230.3	244.8	243.7	229	227.7	
WATER CONTENT (%)	20.3%	25.0%	24.8%	19.4%	21.8%	
Weight Sample + Liner	1059.1	966.1	974.5	890.4	1039.3	
Weight Liner	259.9	203.5	203.7	207.2	243.6	
Sample Length	6.0	5.25	5.3	5.1	5.3	
Sample Diameter	2.40	2.40	2.39	2.39	2.41	
DRY DENSITY (pcf)	93.3	97.9	98.9	95.3	103.0	

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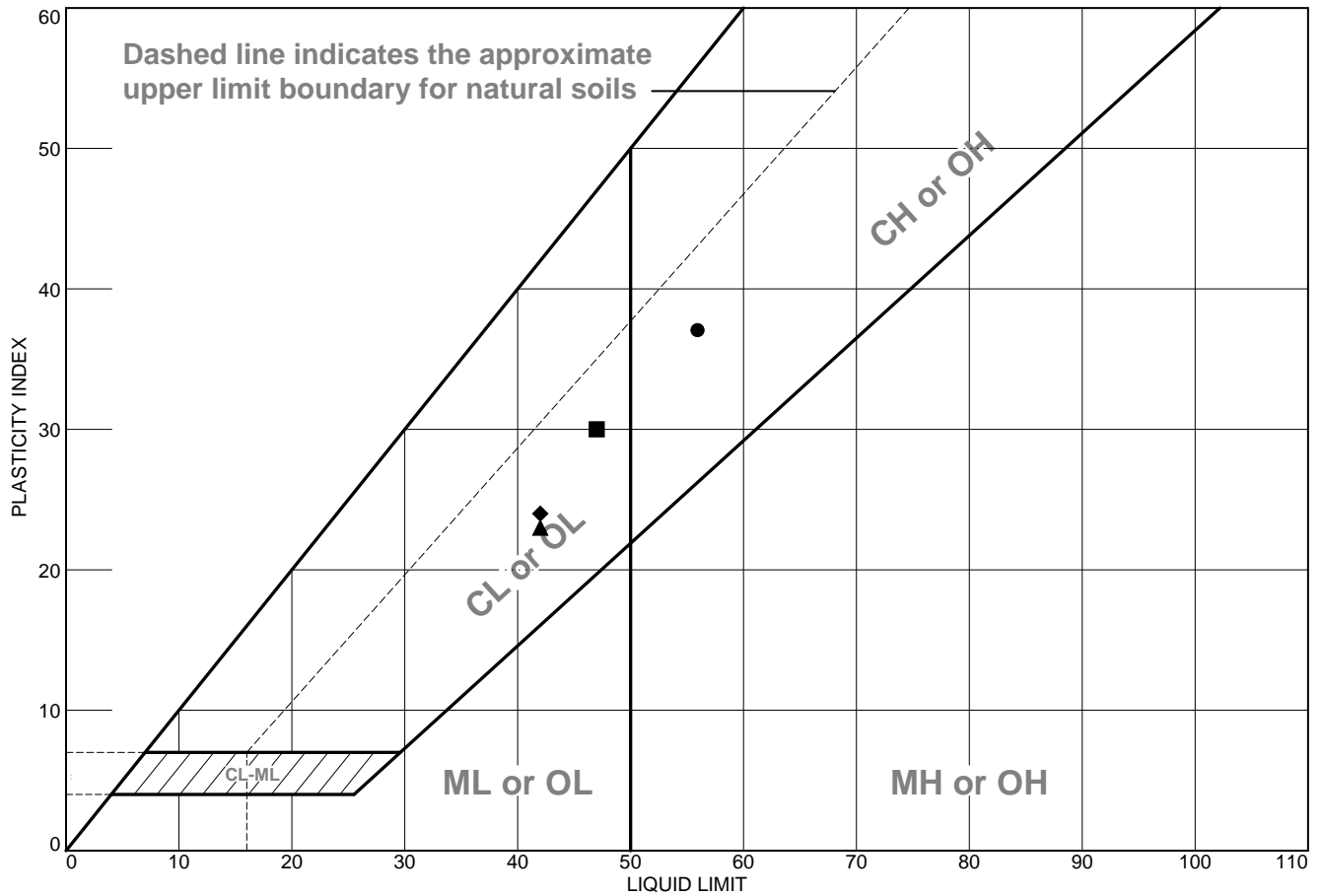
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MOISTURE CONTENT WORKSHEET

Job #: 1110-10A
 Job Name: McCosker Stream
 Date: 8/8/2016
 Tested by: B. Hillebrandt

Additional Tests:	PI, FS	FS	PI, FS						
Boring #:	B-13	B-16	B-19						
Depth:	4.0	7.0	3.0						
Sample Description:	Dark brown sandy fat CLAY	Brown sandy CLAY with gravel	Brown sandy lean CLAY						
Can #:	304	354	347						
Wet Sample + can	312.6	342.0	328.7						
Dry Sample + can	274.5	296.7	291.3						
Weight can	38.2	33.4	37.9						
Weight water	38.1	45.3	37.4						
Weight Dry Sample	236.3	263.3	253.4						
WATER CONTENT (%)	16.1%	17.2%	14.8%						

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark brown sandy fat CLAY	56	19	37	85.5	67.4	CH
■	Brown lean CLAY with sand	47	17	30	89.8	71.7	CL
▲	Brown lean CLAY with sand	42	19	23	89.8	75.1	CL
◆	Brown sandy lean CLAY	42	18	24	85.0	67.5	CL

Project No. 1110-10A **Client:** A3Geo
Project: McCosker Stream

● Source of Sample: B-13 **Depth:** 4.0'
■ Source of Sample: B-14 **Depth:** 8.0'
▲ Source of Sample: B-14 **Depth:** 11.0'
◆ Source of Sample: B-19

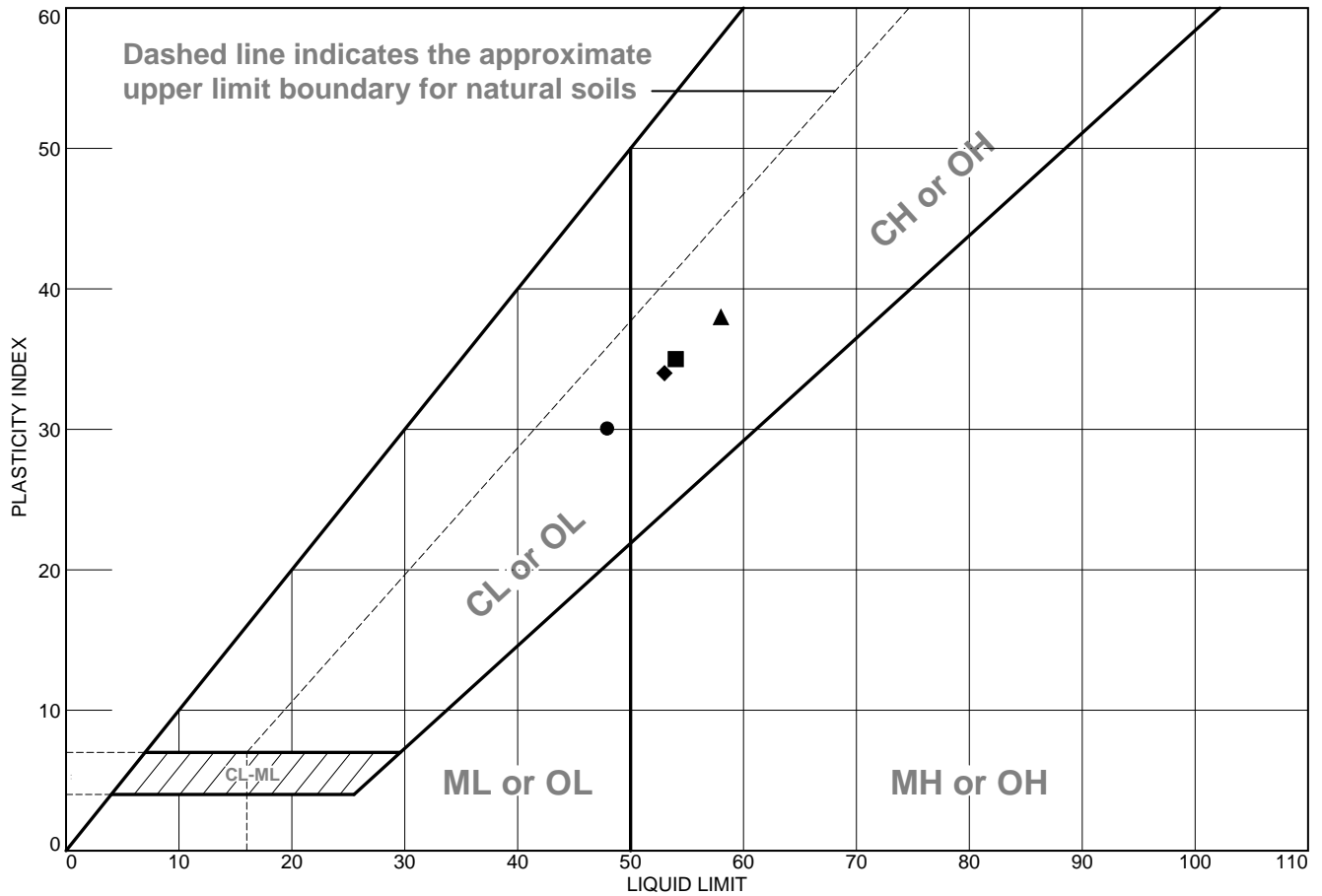
Remarks:

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Figure

Tested By: BH _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive brown sandy lean CLAY	48	18	30			
■	Olive brown sandy fat CLAY	54	19	35			
▲	Brown fat CLAY with sand	58	20	38	89.9	79.0	CH
◆	Brown fat CLAY with sand	53	19	34	84.8	71.1	CH

Project No. 1110-10A **Client:** A3Geo
Project: McCosker Stream

● Source of Sample: B-20 **Depth:** 7.0'
■ Source of Sample: B-20 **Depth:** 11.0'
▲ Source of Sample: B-21 **Depth:** 2.5'
◆ Source of Sample: B-21 **Depth:** 6.0'

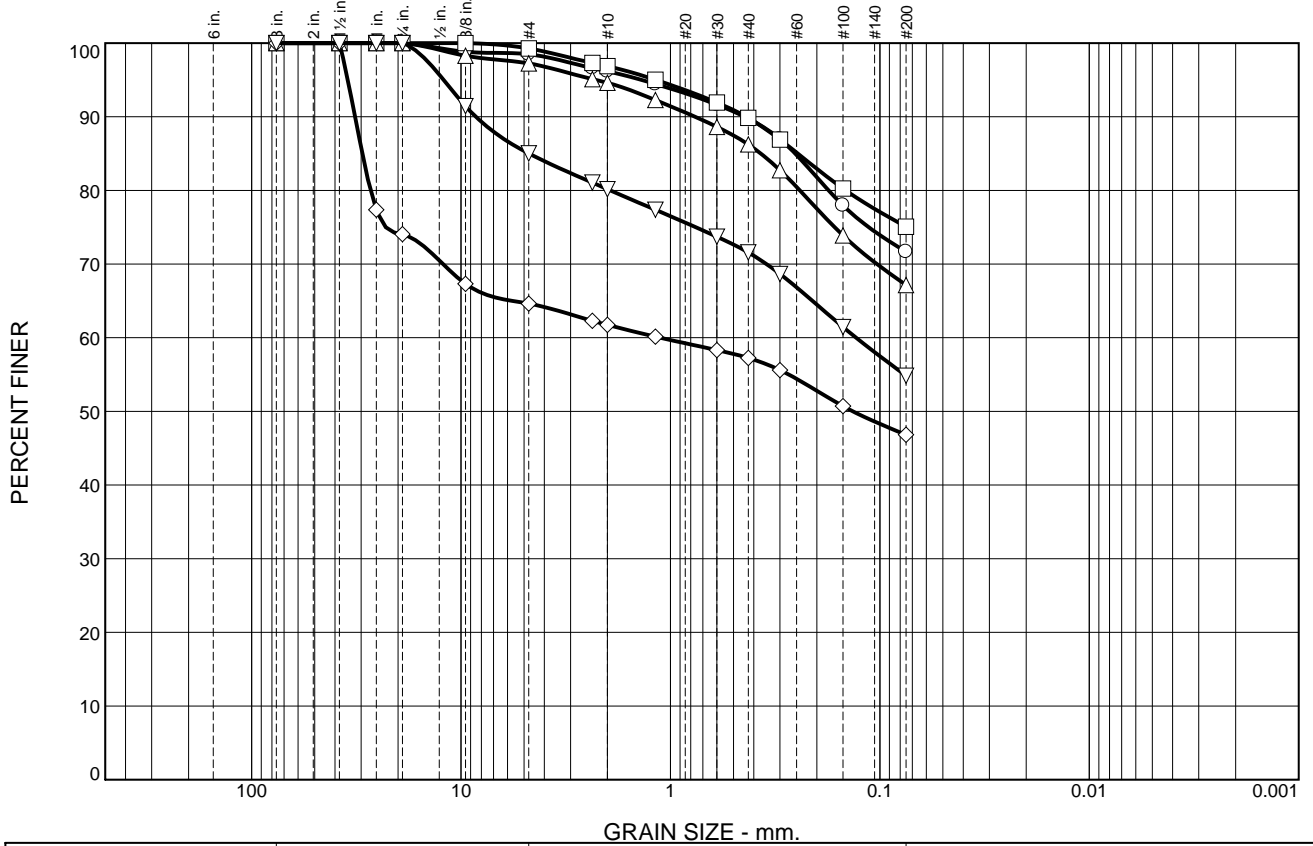
Remarks:

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Figure

Tested By: BH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-14		8.0'	Brown lean CLAY with sand	CL
□	B-14		11.0'	Brown lean CLAY with sand	CL
△	B-15		3.0'	Brown sandy CLAY	
◇	B-16		4.5'	Olive brown clayey GRAVEL with sand	
▽	B-16		7.0'	Brown sandy CLAY with some gravel	

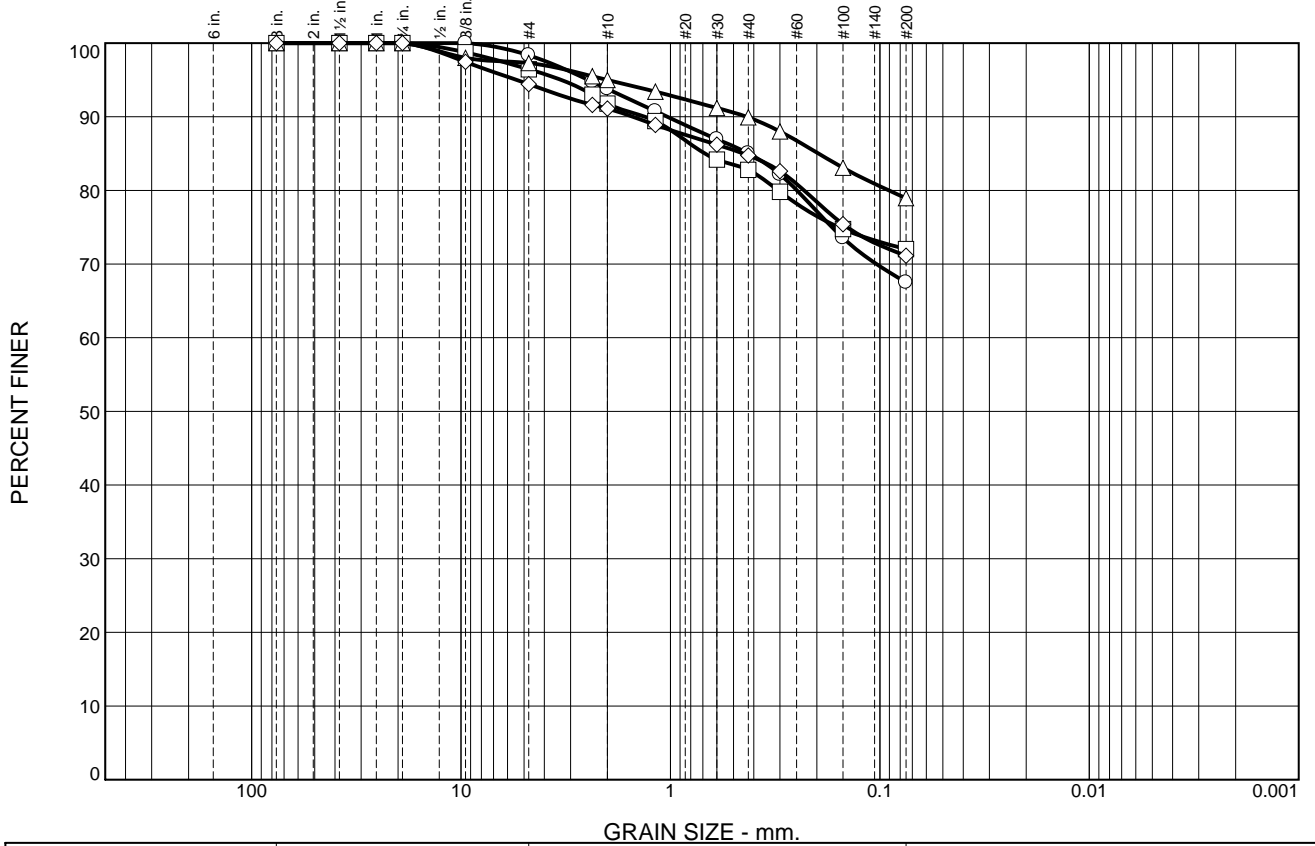
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Client: A3Geo
Project: McCosker Stream
Project No.: 1110-10A

Figure

Tested By: BH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

MATERIAL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-19			Brown sandy lean CLAY	CL
□	B-20		3.0'	Brown CLAY with sand	
△	B-21		2.5'	Brown fat CLAY with sand	CH
◇	B-21		6.0'	Brown fat CLAY with sand	CH

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Client: A3Geo
 Project: McCosker Stream
 Project No.: 1110-10A

Figure

Tested By: BH _____

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo

Project: McCosker Stream

Project Number: 1110-10A

Location: B-3

Depth: 10.0'

Material Description: Brownish gray silty GRAVEL with sand

Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
862.40	230.10	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	25.85	0.00	95.9
		3/4"	74.81	0.00	84.1
		3/8"	97.15	0.00	68.7
		#4	70.89	0.00	57.5
		#8	58.75	0.00	48.2
		#10	10.46	0.00	46.6
		#16	33.65	0.00	41.2
		#30	30.86	0.00	36.4
		#40	12.06	0.00	34.4
		#50	13.36	0.00	32.3
		#100	26.10	0.00	28.2
		#200	18.03	0.00	25.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.9	26.6	42.5	10.9	12.2	9.0	32.1			25.4

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
				0.2064	1.0236	2.7712	5.5429	17.0055	19.4794	21.8234	24.6992

Fineness Modulus
4.03

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
 Project: McCosker Stream
 Project Number: 1110-10A
 Location: B-10
 Depth: 8.0'
 Material Description: Brown clayey SAND
 Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
332.10	37.70	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	13.01	0.00	95.6
		#4	9.51	0.00	92.4
		#8	9.50	0.00	89.1
		#10	3.50	0.00	87.9
		#16	15.78	0.00	82.6
		#30	39.48	0.00	69.2
		#40	26.33	0.00	60.2
		#50	32.86	0.00	49.1
		#100	40.02	0.00	35.5
		#200	15.32	0.00	30.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.6	7.6	4.5	27.7	29.9	62.1			30.3

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
					0.2046	0.3094	0.4219	1.0045	1.4348	2.7282	8.7048

Fineness Modulus
1.87

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-10
Depth: 13.5'
Material Description: Gray clayey GRAVEL with sand
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
653.60	271.20	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	61.43	0.00	83.9
		3/4"	21.29	0.00	78.4
		3/8"	57.87	0.00	63.2
		#4	20.40	0.00	57.9
		#8	36.58	0.00	48.3
		#10	9.22	0.00	45.9
		#16	31.49	0.00	37.7
		#30	30.86	0.00	29.6
		#40	10.75	0.00	26.8
		#50	11.06	0.00	23.9
		#100	16.57	0.00	19.6
		#200	9.67	0.00	17.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	21.6	20.5	42.1	12.0	19.1	9.7	40.8			17.1

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
			0.1635	0.6256	1.3712	2.6336	6.8219	21.1051	26.2492	29.7643	33.3662

Fineness Modulus
4.41

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo

Project: McCosker Stream

Project Number: 1110-10A

Location: B-12

Depth: 8.5'

Material Description: Dark yellowish brown sandy CLAY

Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
302.00	38.00	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	10.14	0.00	96.2
		#4	10.21	0.00	92.3
		#8	8.28	0.00	89.2
		#10	1.80	0.00	88.5
		#16	5.16	0.00	86.5
		#30	5.17	0.00	84.6
		#40	3.17	0.00	83.4
		#50	5.44	0.00	81.3
		#100	20.96	0.00	73.4
		#200	13.76	0.00	68.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.7	7.7	3.8	5.1	15.3	24.2			68.1

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.2622	0.6982	2.8769	7.9318

Fineness Modulus
0.97

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-13
Depth: 4.0'
Material Description: Dark brown sandy fat CLAY
USCS: CH
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
274.50	38.20	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	0.00	0.00	100.0
		#4	5.35	0.00	97.7
		#8	8.08	0.00	94.3
		#10	1.68	0.00	93.6
		#16	5.58	0.00	91.2
		#30	8.36	0.00	87.7
		#40	5.23	0.00	85.5
		#50	8.01	0.00	82.1
		#100	21.19	0.00	73.1
		#200	13.58	0.00	67.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.3	2.3	4.1	8.1	18.1	30.3			67.4

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.2537	0.3999	0.9180	2.7333

Fineness Modulus
0.74

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-14
Depth: 8.0'
Material Description: Brown lean CLAY with sand
USCS: CL
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
269.50	33.40	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	2.81	0.00	98.8
		#4	0.78	0.00	98.5
		#8	4.42	0.00	96.6
		#10	1.02	0.00	96.2
		#16	4.07	0.00	94.5
		#30	6.64	0.00	91.6
		#40	4.43	0.00	89.8
		#50	6.63	0.00	87.0
		#100	21.22	0.00	78.0
		#200	14.86	0.00	71.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	2.3	6.4	18.1	26.8			71.7

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.1757	0.2538	0.4416	1.3743

Fineness Modulus
0.55

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-14
Depth: 11.0'
Material Description: Brown lean CLAY with sand
USCS: CL
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
288.40	37.90	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	0.00	0.00	100.0
		#4	1.82	0.00	99.3
		#8	4.92	0.00	97.3
		#10	1.09	0.00	96.9
		#16	4.65	0.00	95.0
		#30	7.75	0.00	91.9
		#40	5.20	0.00	89.8
		#50	7.38	0.00	86.9
		#100	16.66	0.00	80.3
		#200	12.98	0.00	75.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	2.4	7.1	14.7	24.2			75.1

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.1457	0.2464	0.4342	1.1748

Fineness Modulus
0.49

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
 Project: McCosker Stream
 Project Number: 1110-10A
 Location: B-15
 Depth: 3.0'
 Material Description: Brown sandy CLAY
 Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
272.00	40.10	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	3.98	0.00	98.3
		#4	2.41	0.00	97.2
		#8	4.96	0.00	95.1
		#10	1.15	0.00	94.6
		#16	5.43	0.00	92.3
		#30	8.45	0.00	88.6
		#40	5.52	0.00	86.2
		#50	8.13	0.00	82.7
		#100	20.53	0.00	73.9
		#200	15.61	0.00	67.2

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.8	2.8	2.6	8.4	19.0	30.0			67.2

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.2410	0.3702	0.7633	2.2768

Fineness Modulus
0.72

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo

Project: McCosker Stream

Project Number: 1110-10A

Location: B-16

Depth: 4.5'

Material Description: Olive brown clayey GRAVEL with sand

Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
739.10	227.30	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	115.81	0.00	77.4
		3/4"	16.95	0.00	74.1
		3/8"	34.52	0.00	67.3
		#4	13.71	0.00	64.6
		#8	11.98	0.00	62.3
		#10	2.82	0.00	61.7
		#16	8.17	0.00	60.1
		#30	9.36	0.00	58.3
		#40	5.44	0.00	57.3
		#50	8.46	0.00	55.6
		#100	25.02	0.00	50.7
		#200	19.88	0.00	46.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	25.9	9.5	35.4	2.9	4.4	10.5	17.8			46.8

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
						0.1344	1.1191	27.0501	29.6081	32.0567	34.7249

Fineness Modulus
3.07

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-16
Depth: 7.0'
Material Description: Brown sandy CLAY with some gravel
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
296.70	33.40	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	22.52	0.00	91.4
		#4	16.91	0.00	85.0
		#8	10.44	0.00	81.1
		#10	2.36	0.00	80.2
		#16	7.35	0.00	77.4
		#30	9.63	0.00	73.7
		#40	5.62	0.00	71.6
		#50	7.69	0.00	68.7
		#100	18.97	0.00	61.5
		#200	17.41	0.00	54.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	15.0	15.0	4.8	8.6	16.8	30.2			54.8

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
							0.1298	1.9403	4.7318	8.4975	12.1091

Fineness Modulus
1.61

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
 Project: McCosker Stream
 Project Number: 1110-10A
 Location: B-17
 Depth: 6.0'
 Material Description: Dark brown sandy CLAY
 Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
317.00	38.20	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	2.10	0.00	99.2
		#4	9.35	0.00	95.9
		#8	9.35	0.00	92.5
		#10	1.99	0.00	91.8
		#16	7.07	0.00	89.3
		#30	8.44	0.00	86.3
		#40	4.68	0.00	84.6
		#50	6.82	0.00	82.1
		#100	18.13	0.00	75.6
		#200	14.53	0.00	70.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.1	4.1	4.1	7.2	14.2	25.5			70.4

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.2368	0.4586	1.3654	4.0021

Fineness Modulus
0.79

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo

Project: McCosker Stream

Project Number: 1110-10A

Location: B-17

Depth: 15.0'

Material Description: Dark greenish gray clayey SAND with gravel

Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
317.10	38.00	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	18.57	0.00	93.3
		3/8"	6.30	0.00	91.1
		#4	17.54	0.00	84.8
		#8	28.61	0.00	74.6
		#10	5.98	0.00	72.4
		#16	17.47	0.00	66.2
		#30	17.42	0.00	59.9
		#40	7.62	0.00	57.2
		#50	8.95	0.00	54.0
		#100	19.28	0.00	47.1
		#200	14.62	0.00	41.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.7	8.5	15.2	12.4	15.2	15.4	43.0			41.8

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
						0.2032	0.6068	3.4367	4.8156	7.4136	20.4673

Fineness Modulus
2.29

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
 Project: McCosker Stream
 Project Number: 1110-10A
 Location: B-17
 Depth: 3.0'
 Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
715.60	275.40	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	21.25	0.00	95.2
		3/4"	11.43	0.00	92.6
		3/8"	13.15	0.00	89.6
		#4	18.38	0.00	85.4
		#8	20.39	0.00	80.8
		#10	3.49	0.00	80.0
		#16	12.22	0.00	77.2
		#30	14.32	0.00	74.0
		#40	8.38	0.00	72.1
		#50	11.57	0.00	69.4
		#100	35.47	0.00	61.4
		#200	18.05	0.00	57.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.4	7.2	14.6	5.4	7.9	14.8	28.1			57.3

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
							0.1277	2.0047	4.4836	10.5642	25.0207

Fineness Modulus
1.70

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-18
Depth: 11.0'
Material Description: Brown CLAY with sand
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
613.40	278.50	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	11.12	0.00	96.7
		#4	6.54	0.00	94.7
		#8	8.57	0.00	92.2
		#10	1.47	0.00	91.7
		#16	6.94	0.00	89.7
		#30	8.18	0.00	87.2
		#40	4.56	0.00	85.9
		#50	6.78	0.00	83.8
		#100	19.01	0.00	78.2
		#200	14.78	0.00	73.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	3.0	5.8	12.2	21.0			73.7

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.1878	0.3606	1.2807	5.2482

Fineness Modulus
0.78

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-19
Material Description: Brown sandy lean CLAY
USCS: CL
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
291.30	37.90	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	0.00	0.00	100.0
		#4	4.19	0.00	98.3
		#8	9.14	0.00	94.7
		#10	2.45	0.00	93.8
		#16	7.67	0.00	90.7
		#30	9.61	0.00	87.0
		#40	4.85	0.00	85.0
		#50	7.28	0.00	82.2
		#100	21.84	0.00	73.5
		#200	15.29	0.00	67.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.7	1.7	4.5	8.8	17.5	30.8			67.5

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.2488	0.4224	1.0363	2.4681

Fineness Modulus
0.74

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-20
Depth: 3.0'
Material Description: Brown CLAY with sand
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
268.10	37.80	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	2.89	0.00	98.7
		#4	5.30	0.00	96.4
		#8	7.94	0.00	93.0
		#10	2.77	0.00	91.8
		#16	5.49	0.00	89.4
		#30	12.04	0.00	84.2
		#40	3.20	0.00	82.8
		#50	6.86	0.00	79.8
		#100	11.66	0.00	74.8
		#200	6.27	0.00	72.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.6	3.6	4.6	9.0	10.8	24.4			72.0

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.3060	0.6845	1.3252	3.3217

Fineness Modulus
0.84

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-21
Depth: 2.5'
Material Description: Brown fat CLAY with sand
USCS: CH
Tested by: BH

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
266.20	37.20	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	4.60	0.00	98.0
		#4	1.60	0.00	97.3
		#8	4.12	0.00	95.5
		#10	1.15	0.00	95.0
		#16	3.63	0.00	93.4
		#30	5.07	0.00	91.2
		#40	2.91	0.00	89.9
		#50	4.40	0.00	88.0
		#100	11.27	0.00	83.1
		#200	9.45	0.00	79.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.7	2.7	2.3	5.1	10.9	18.3			79.0

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.0905	0.1963	0.4327	2.0058

Fineness Modulus
0.54

GRAIN SIZE DISTRIBUTION TEST DATA

8/12/2016

Client: A3Geo
Project: McCosker Stream
Project Number: 1110-10A
Location: B-21
Depth: 6.0'
Material Description: Brown fat CLAY with sand
USCS: CH
Tested by: BH

Sieve Test Data

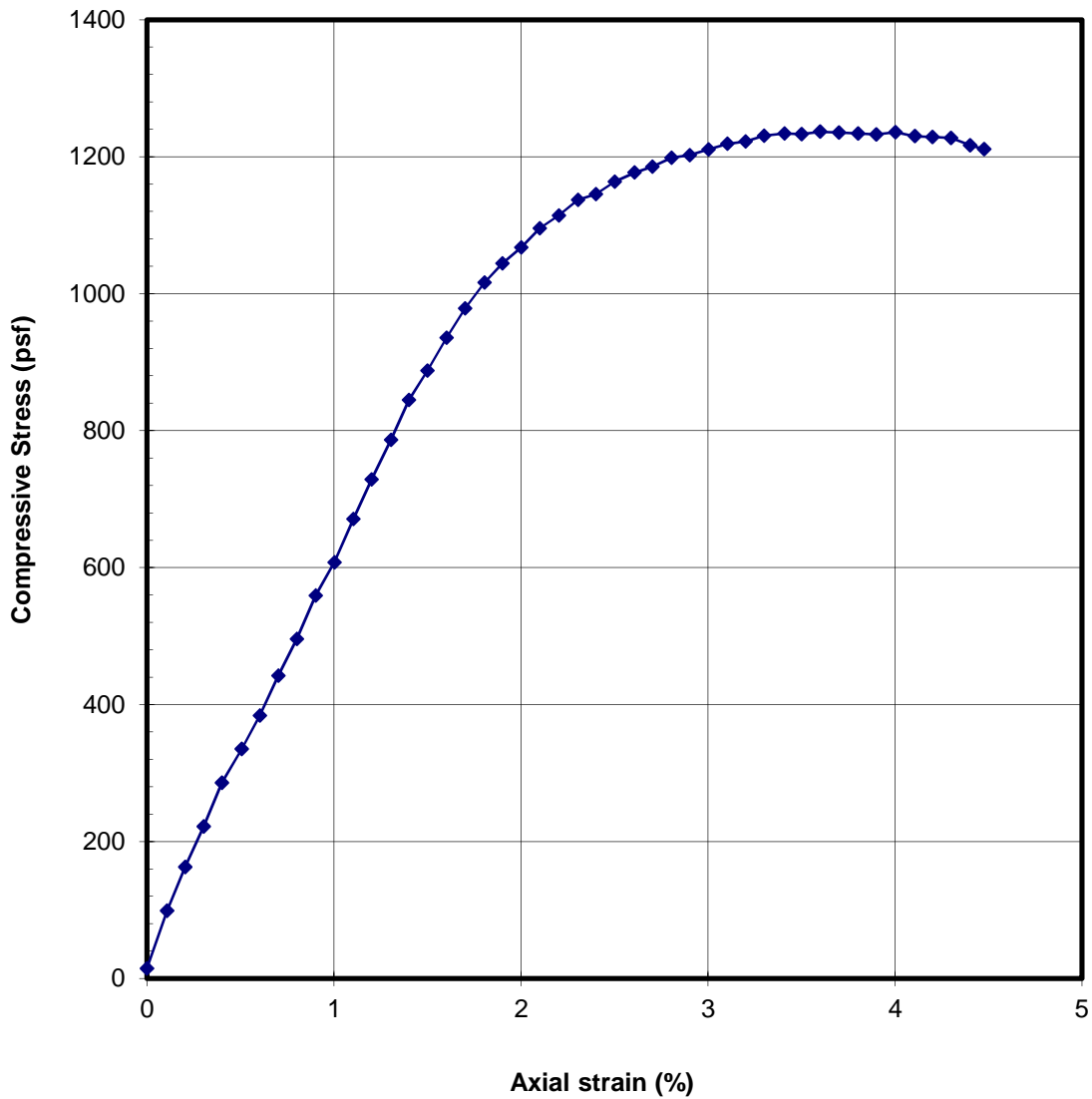
Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
265.50	37.80	3"	0.00	0.00	100.0
		1.5"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		3/8"	5.81	0.00	97.4
		#4	6.88	0.00	94.4
		#8	6.41	0.00	91.6
		#10	1.15	0.00	91.1
		#16	5.05	0.00	88.9
		#30	6.10	0.00	86.2
		#40	3.32	0.00	84.8
		#50	4.87	0.00	82.6
		#100	16.39	0.00	75.4
		#200	9.74	0.00	71.1

Fractional Components

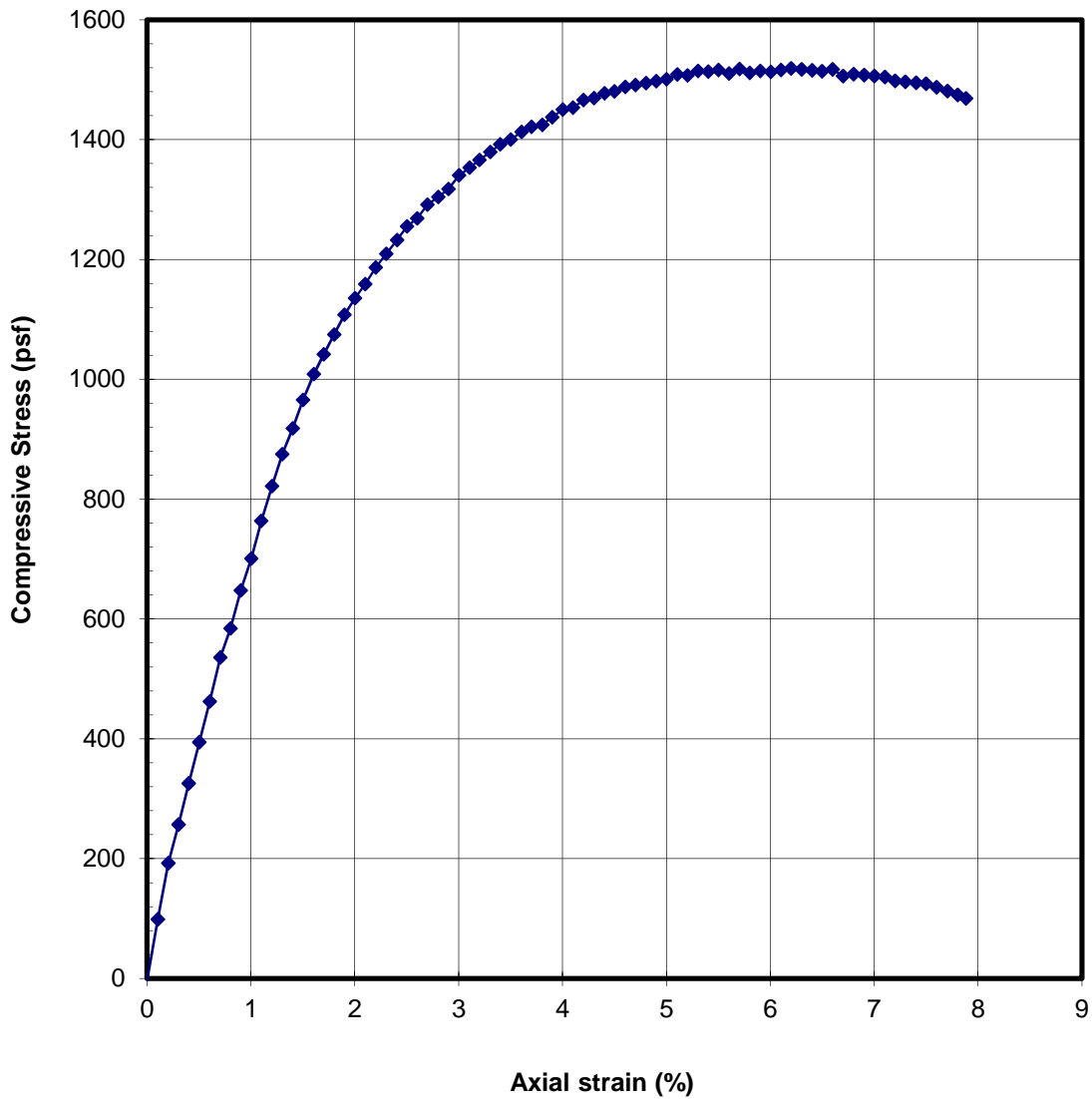
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.6	5.6	3.3	6.3	13.7	23.3			71.1

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.2300	0.4483	1.5122	5.4304

Fineness Modulus
0.83



Sampler Type: Mod Cal		Shear Strength:	618 psf
Diameter (in): 2.39	Height (in): 5.32	Strain at Failure:	3.6%
Moisture Content:	21 %	Confining Pressure:	n/a
Dry Density:	98 pcf	Strain Rate:	1%/min
Source: B-15 at 6.0 feet			
Description: Brown sandy CLAY			
McCosker Stream		UNCONFINED COMPRESSION TEST	
B. HILLEBRANDT SOILS TESTING, INC		Date: 08/10/16	Project #: 1110-10A
		Figure:	

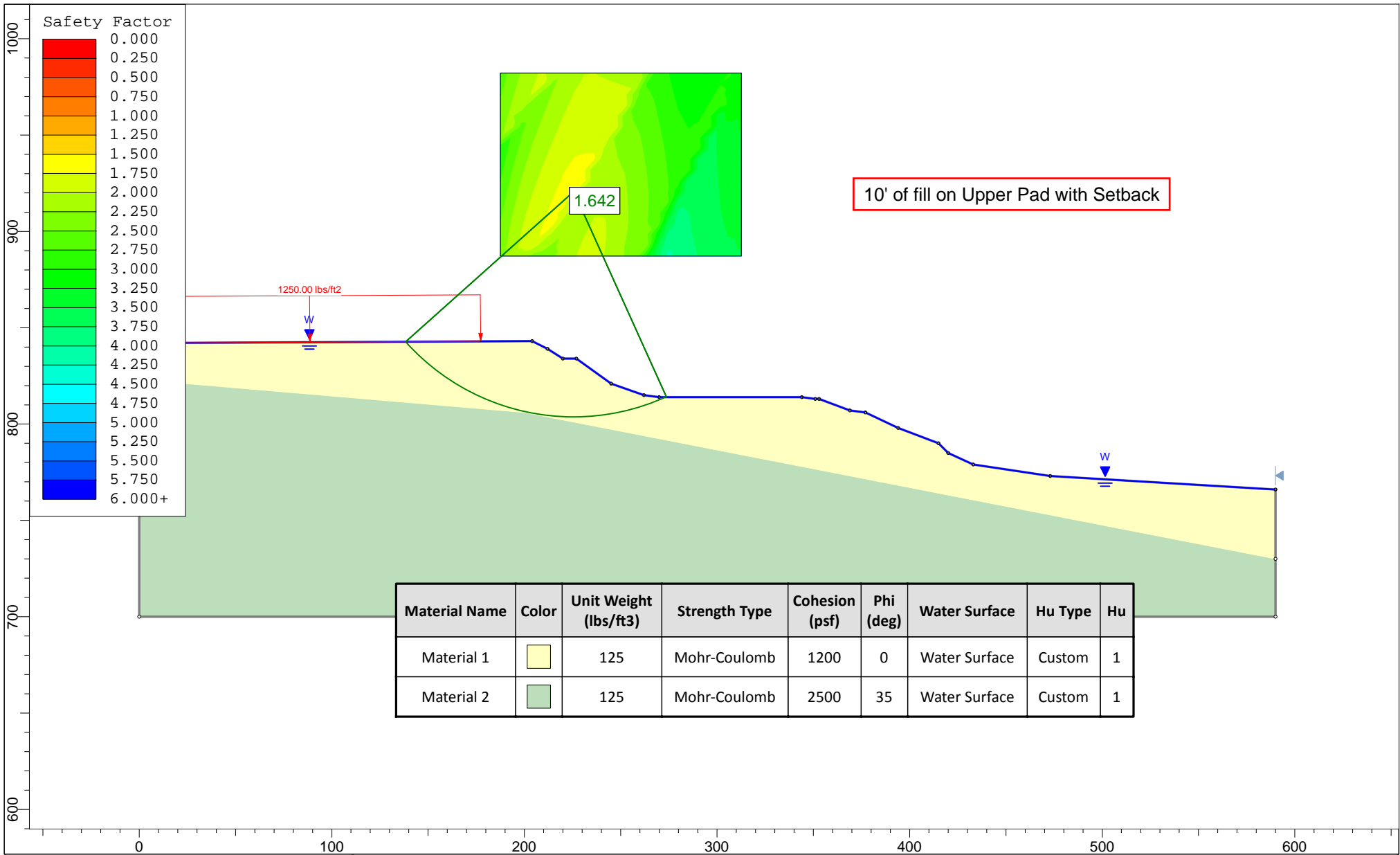




Sampler Type: Mod Cal		Shear Strength: 759 psf	
Diameter (in): 2.39	Height (in): 5.02	Strain at Failure: 6.2%	
Moisture Content: 28 %		Confining Pressure: n/a	
Dry Density: 91 pcf		Strain Rate: 1%/min	
Source: B-15 at 11.0 feet			
Description: Dark brownish gray CLAY with sand			
McCosker Stream		UNCONFINED COMPRESSION TEST	
B. HILLEBRANDT SOILS TESTING, INC		Date: 08/10/16	Project #: 1110-10A
		Figure:	

Appendix C

Slope Stability Analyses

McCosker Stream
Robert Sibley Volcanic Regional Preserve
Contra Costa County, California

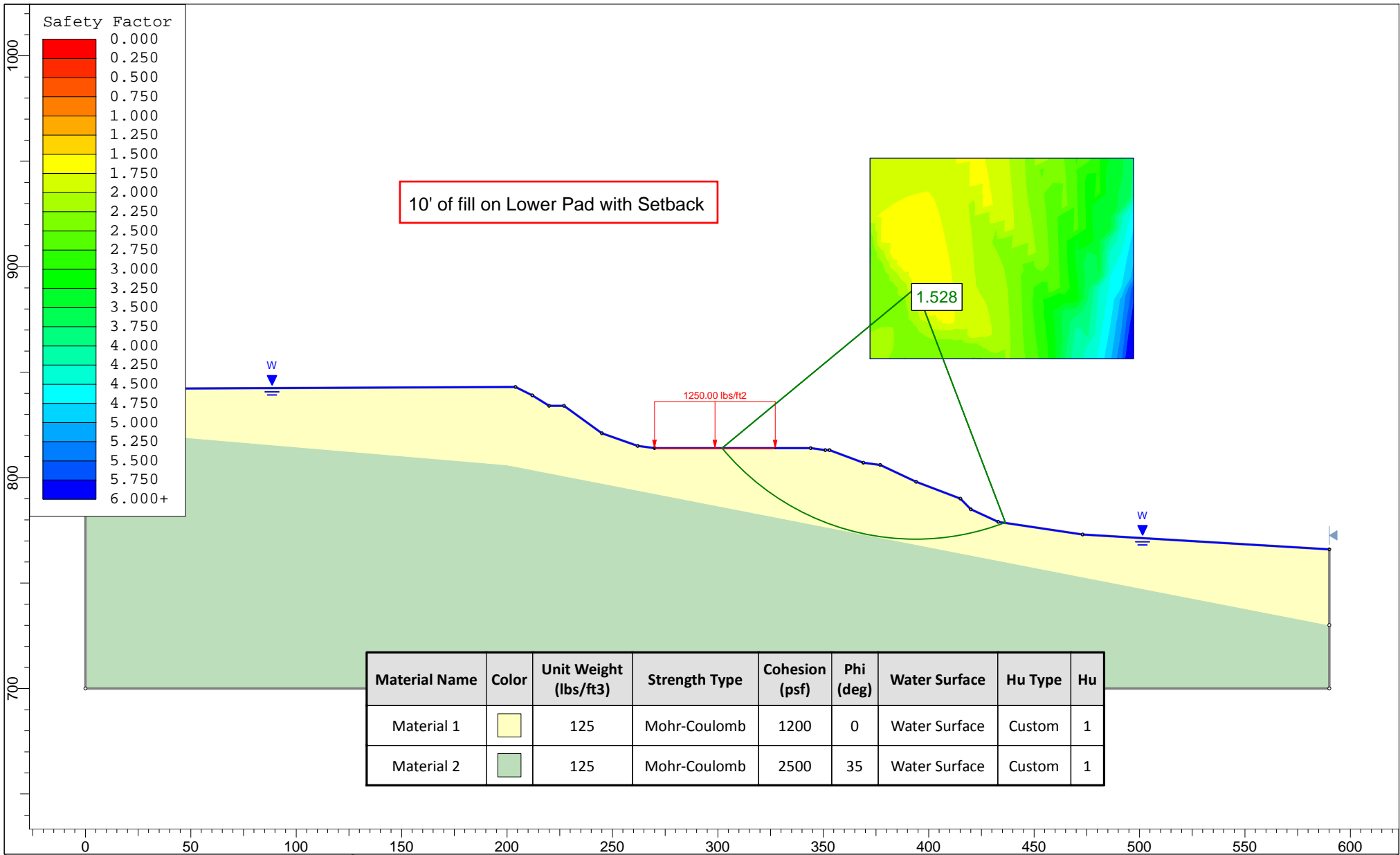


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Material 1		125	Mohr-Coulomb	1200	0	Water Surface	Custom	1
Material 2		125	Mohr-Coulomb	2500	35	Water Surface	Custom	1



SLIDEINTERPRET 6.039

Project			McCosker - Cross Section A-A'		
Analysis Description					
Drawn By		Scale		Company	
		1:828			
Date			File Name		
8/23/2016, 12:49:13 PM			McCosker AA' high GW.slim		



SLIDEINTERPRET 6.039

<i>Project</i>			McCosker - Cross Section A-A'		
<i>Analysis Description</i>					
<i>Drawn By</i>		<i>Scale</i>		<i>Company</i>	
		1:756			
<i>Date</i>			<i>File Name</i>		
8/23/2016, 12:49:13 PM			McCosker AA' high GW.slim		

APPENDIX F

Air Quality Construction Analysis

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	134.00	Space	5.50	53,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase - Assuming approximately 6 months

Grading -

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	230.00	80.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	1/28/2019	1/2/2019
tblConstructionPhase	PhaseEndDate	2/11/2019	1/4/2019
tblConstructionPhase	PhaseEndDate	3/11/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/27/2020	5/3/2019
tblConstructionPhase	PhaseEndDate	2/24/2020	5/31/2019
tblConstructionPhase	PhaseEndDate	3/23/2020	6/7/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	1/3/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	1/5/2019
tblConstructionPhase	PhaseStartDate	3/12/2019	1/12/2019
tblConstructionPhase	PhaseStartDate	1/28/2020	5/4/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	6/1/2019
tblGrading	MaterialImported	0.00	2,660.00
tblLandUse	LotAcreage	1.21	5.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblTripsAndVMT	HaulingTripNumber	333.00	332.00

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.8944	0.8944
2	4-1-2019	6-30-2019	0.4833	0.4833
		Highest	0.8944	0.8944

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6634	2.6634	2.5000e-004	5.0000e-005	2.6848
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.7000e-003	1.0000e-005	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.6658	2.6658	2.6000e-004	5.0000e-005	2.6874

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6634	2.6634	2.5000e-004	5.0000e-005	2.6848
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.7000e-003	1.0000e-005	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.6658	2.6658	2.6000e-004	5.0000e-005	2.6874

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/2/2019	5	2	
2	Site Preparation	Site Preparation	1/3/2019	1/4/2019	5	2	
3	Grading	Grading	1/5/2019	1/11/2019	5	5	
4	Building Construction	Building Construction	1/12/2019	5/3/2019	5	80	
5	Paving	Paving	5/4/2019	5/31/2019	5	20	
6	Architectural Coating	Architectural Coating	6/1/2019	6/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 5.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,216 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	332.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	23.00	9.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0358	0.0221	4.0000e-005		1.7900e-003	1.7900e-003		1.6700e-003	1.6700e-003	0.0000	3.4626	3.4626	9.6000e-004	0.0000	3.4867
Total	3.5100e-003	0.0358	0.0221	4.0000e-005		1.7900e-003	1.7900e-003		1.6700e-003	1.6700e-003	0.0000	3.4626	3.4626	9.6000e-004	0.0000	3.4867

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3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1072	0.1072	0.0000	0.0000	0.1073
Total	5.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1072	0.1072	0.0000	0.0000	0.1073

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0358	0.0221	4.0000e-005		1.7900e-003	1.7900e-003		1.6700e-003	1.6700e-003	0.0000	3.4626	3.4626	9.6000e-004	0.0000	3.4867
Total	3.5100e-003	0.0358	0.0221	4.0000e-005		1.7900e-003	1.7900e-003		1.6700e-003	1.6700e-003	0.0000	3.4626	3.4626	9.6000e-004	0.0000	3.4867

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3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1072	0.1072	0.0000	0.0000	0.1073
Total	5.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1072	0.1072	0.0000	0.0000	0.1073

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.9300e-003	0.0000	9.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3400e-003	0.0456	0.0221	4.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	3.4169	3.4169	1.0800e-003	0.0000	3.4439
Total	4.3400e-003	0.0456	0.0221	4.0000e-005	0.0181	2.3900e-003	0.0205	9.9300e-003	2.2000e-003	0.0121	0.0000	3.4169	3.4169	1.0800e-003	0.0000	3.4439

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3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1287	0.1287	0.0000	0.0000	0.1287
Total	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1287	0.1287	0.0000	0.0000	0.1287

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.9300e-003	0.0000	9.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3400e-003	0.0456	0.0221	4.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	3.4169	3.4169	1.0800e-003	0.0000	3.4439
Total	4.3400e-003	0.0456	0.0221	4.0000e-005	0.0181	2.3900e-003	0.0205	9.9300e-003	2.2000e-003	0.0121	0.0000	3.4169	3.4169	1.0800e-003	0.0000	3.4439

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3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1287	0.1287	0.0000	0.0000	0.1287
Total	7.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1287	0.1287	0.0000	0.0000	0.1287

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0165	0.0000	0.0165	8.4400e-003	0.0000	8.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4500e-003	0.0709	0.0407	7.0000e-005		3.4900e-003	3.4900e-003		3.2100e-003	3.2100e-003	0.0000	6.6606	6.6606	2.1100e-003	0.0000	6.7133
Total	6.4500e-003	0.0709	0.0407	7.0000e-005	0.0165	3.4900e-003	0.0200	8.4400e-003	3.2100e-003	0.0117	0.0000	6.6606	6.6606	2.1100e-003	0.0000	6.7133

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3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.0520	0.0102	1.3000e-004	2.8000e-003	2.0000e-004	3.0000e-003	7.7000e-004	1.9000e-004	9.6000e-004	0.0000	12.8573	12.8573	6.8000e-004	0.0000	12.8743
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0300e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2680	0.2680	1.0000e-005	0.0000	0.2682
Total	1.6600e-003	0.0521	0.0112	1.3000e-004	3.1000e-003	2.0000e-004	3.3000e-003	8.5000e-004	1.9000e-004	1.0400e-003	0.0000	13.1254	13.1254	6.9000e-004	0.0000	13.1425

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0165	0.0000	0.0165	8.4400e-003	0.0000	8.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4500e-003	0.0709	0.0407	7.0000e-005		3.4900e-003	3.4900e-003		3.2100e-003	3.2100e-003	0.0000	6.6606	6.6606	2.1100e-003	0.0000	6.7132
Total	6.4500e-003	0.0709	0.0407	7.0000e-005	0.0165	3.4900e-003	0.0200	8.4400e-003	3.2100e-003	0.0117	0.0000	6.6606	6.6606	2.1100e-003	0.0000	6.7132

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.0520	0.0102	1.3000e-004	2.8000e-003	2.0000e-004	3.0000e-003	7.7000e-004	1.9000e-004	9.6000e-004	0.0000	12.8573	12.8573	6.8000e-004	0.0000	12.8743
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0300e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2680	0.2680	1.0000e-005	0.0000	0.2682
Total	1.6600e-003	0.0521	0.0112	1.3000e-004	3.1000e-003	2.0000e-004	3.3000e-003	8.5000e-004	1.9000e-004	1.0400e-003	0.0000	13.1254	13.1254	6.9000e-004	0.0000	13.1425

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0945	0.8432	0.6866	1.0800e-003		0.0516	0.0516		0.0485	0.0485	0.0000	94.0417	94.0417	0.0229	0.0000	94.6144
Total	0.0945	0.8432	0.6866	1.0800e-003		0.0516	0.0516		0.0485	0.0485	0.0000	94.0417	94.0417	0.0229	0.0000	94.6144

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-003	0.0456	0.0117	1.0000e-004	2.3600e-003	3.1000e-004	2.6700e-003	6.8000e-004	3.0000e-004	9.8000e-004	0.0000	9.4869	9.4869	5.3000e-004	0.0000	9.5000
Worker	3.3400e-003	2.4700e-003	0.0252	7.0000e-005	7.2700e-003	5.0000e-005	7.3200e-003	1.9300e-003	5.0000e-005	1.9800e-003	0.0000	6.5759	6.5759	1.8000e-004	0.0000	6.5803
Total	5.0400e-003	0.0481	0.0369	1.7000e-004	9.6300e-003	3.6000e-004	9.9900e-003	2.6100e-003	3.5000e-004	2.9600e-003	0.0000	16.0628	16.0628	7.1000e-004	0.0000	16.0803

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0945	0.8432	0.6866	1.0800e-003		0.0516	0.0516		0.0485	0.0485	0.0000	94.0416	94.0416	0.0229	0.0000	94.6143
Total	0.0945	0.8432	0.6866	1.0800e-003		0.0516	0.0516		0.0485	0.0485	0.0000	94.0416	94.0416	0.0229	0.0000	94.6143

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-003	0.0456	0.0117	1.0000e-004	2.3600e-003	3.1000e-004	2.6700e-003	6.8000e-004	3.0000e-004	9.8000e-004	0.0000	9.4869	9.4869	5.3000e-004	0.0000	9.5000
Worker	3.3400e-003	2.4700e-003	0.0252	7.0000e-005	7.2700e-003	5.0000e-005	7.3200e-003	1.9300e-003	5.0000e-005	1.9800e-003	0.0000	6.5759	6.5759	1.8000e-004	0.0000	6.5803
Total	5.0400e-003	0.0481	0.0369	1.7000e-004	9.6300e-003	3.6000e-004	9.9900e-003	2.6100e-003	3.5000e-004	2.9600e-003	0.0000	16.0628	16.0628	7.1000e-004	0.0000	16.0803

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0218	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371

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3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371
Paving	7.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0218	0.1524	0.1467	2.3000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	20.4752	20.4752	6.4800e-003	0.0000	20.6371

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3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	0.0119	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397

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3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0894	0.0894	0.0000	0.0000	0.0894
Total	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0894	0.0894	0.0000	0.0000	0.0894

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	0.0119	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397

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3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0894	0.0894	0.0000	0.0000	0.0894
Total	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0894	0.0894	0.0000	0.0000	0.0894

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

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5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	18760	2.6634	2.5000e-004	5.0000e-005	2.6848
Total		2.6634	2.5000e-004	5.0000e-005	2.6848

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	18760	2.6634	2.5000e-004	5.0000e-005	2.6848
Total		2.6634	2.5000e-004	5.0000e-005	2.6848

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003
Unmitigated	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.4600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003
Total	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.4600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003
Total	4.7000e-003	1.0000e-005	1.2400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3900e-003	2.3900e-003	1.0000e-005	0.0000	2.5500e-003

7.0 Water Detail

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7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	134.00	Space	5.50	53,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase - Assuming approximately 6 months

Grading -

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	230.00	80.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	1/28/2019	1/2/2019
tblConstructionPhase	PhaseEndDate	2/11/2019	1/4/2019
tblConstructionPhase	PhaseEndDate	3/11/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/27/2020	5/3/2019
tblConstructionPhase	PhaseEndDate	2/24/2020	5/31/2019
tblConstructionPhase	PhaseEndDate	3/23/2020	6/7/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	1/3/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	1/5/2019
tblConstructionPhase	PhaseStartDate	3/12/2019	1/12/2019
tblConstructionPhase	PhaseStartDate	1/28/2020	5/4/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	6/1/2019
tblGrading	MaterialImported	0.00	2,660.00
tblLandUse	LotAcreage	1.21	5.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblTripsAndVMT	HaulingTripNumber	333.00	332.00

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0264	1.3000e-004	0.0138	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005	0.0000	0.0313

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0264	1.3000e-004	0.0138	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005	0.0000	0.0313

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/2/2019	5	2	
2	Site Preparation	Site Preparation	1/3/2019	1/4/2019	5	2	
3	Grading	Grading	1/5/2019	1/11/2019	5	5	
4	Building Construction	Building Construction	1/12/2019	5/3/2019	5	80	
5	Paving	Paving	5/4/2019	5/31/2019	5	20	
6	Architectural Coating	Architectural Coating	6/1/2019	6/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 5.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,216 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	332.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	23.00	9.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298		3,766.4529	3,766.4529	1.1917		3,796.2445

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366
Total	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366
Total	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6125	0.0000	6.6125	3.3766	0.0000	3.3766			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.6125	1.3974	8.0099	3.3766	1.2856	4.6622		2,936.8068	2,936.8068	0.9292		2,960.0361

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5990	20.3605	3.9255	0.0534	1.1600	0.0785	1.2385	0.3179	0.0751	0.3930		5,708.5274	5,708.5274	0.2920		5,715.8267
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.6560	20.3962	4.3728	0.0547	1.2832	0.0793	1.3625	0.3506	0.0759	0.4264		5,835.6401	5,835.6401	0.2954		5,843.0239

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6125	0.0000	6.6125	3.3766	0.0000	3.3766			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.6125	1.3974	8.0099	3.3766	1.2856	4.6622	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5990	20.3605	3.9255	0.0534	1.1600	0.0785	1.2385	0.3179	0.0751	0.3930		5,708.5274	5,708.5274	0.2920		5,715.8267
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.6560	20.3962	4.3728	0.0547	1.2832	0.0793	1.3625	0.3506	0.0759	0.4264		5,835.6401	5,835.6401	0.2954		5,843.0239

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0417	1.1240	0.2745	2.5000e-003	0.0609	7.7800e-003	0.0687	0.0175	7.4400e-003	0.0250		264.1996	264.1996	0.0140		264.5488
Worker	0.0875	0.0548	0.6858	1.9600e-003	0.1889	1.2500e-003	0.1902	0.0501	1.1500e-003	0.0513		194.9061	194.9061	5.1800e-003		195.0356
Total	0.1292	1.1788	0.9603	4.4600e-003	0.2499	9.0300e-003	0.2589	0.0677	8.5900e-003	0.0763		459.1057	459.1057	0.0192		459.5845

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0417	1.1240	0.2745	2.5000e-003	0.0609	7.7800e-003	0.0687	0.0175	7.4400e-003	0.0250		264.1996	264.1996	0.0140		264.5488
Worker	0.0875	0.0548	0.6858	1.9600e-003	0.1889	1.2500e-003	0.1902	0.0501	1.1500e-003	0.0513		194.9061	194.9061	5.1800e-003		195.0356
Total	0.1292	1.1788	0.9603	4.4600e-003	0.2499	9.0300e-003	0.2589	0.0677	8.5900e-003	0.0763		459.1057	459.1057	0.0192		459.5845

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1749	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1749	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.4719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	4.7383	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0190	0.0119	0.1491	4.3000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		42.3709	42.3709	1.1300e-003		42.3991
Total	0.0190	0.0119	0.1491	4.3000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		42.3709	42.3709	1.1300e-003		42.3991

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.4719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	4.7383	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0190	0.0119	0.1491	4.3000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		42.3709	42.3709	1.1300e-003		42.3991
Total	0.0190	0.0119	0.1491	4.3000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		42.3709	42.3709	1.1300e-003		42.3991

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Unmitigated	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Total	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Total	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

7.0 Water Detail

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	134.00	Space	5.50	53,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase - Assuming approximately 6 months

Grading -

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	230.00	80.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	1/28/2019	1/2/2019
tblConstructionPhase	PhaseEndDate	2/11/2019	1/4/2019
tblConstructionPhase	PhaseEndDate	3/11/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/27/2020	5/3/2019
tblConstructionPhase	PhaseEndDate	2/24/2020	5/31/2019
tblConstructionPhase	PhaseEndDate	3/23/2020	6/7/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	1/3/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	1/5/2019
tblConstructionPhase	PhaseStartDate	3/12/2019	1/12/2019
tblConstructionPhase	PhaseStartDate	1/28/2020	5/4/2019
tblConstructionPhase	PhaseStartDate	2/25/2020	6/1/2019
tblGrading	MaterialImported	0.00	2,660.00
tblLandUse	LotAcreage	1.21	5.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblTripsAndVMT	HaulingTripNumber	333.00	332.00

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0264	1.3000e-004	0.0138	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005	0.0000	0.0313

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0264	1.3000e-004	0.0138	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005	0.0000	0.0313

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/2/2019	5	2	
2	Site Preparation	Site Preparation	1/3/2019	1/4/2019	5	2	
3	Grading	Grading	1/5/2019	1/11/2019	5	5	
4	Building Construction	Building Construction	1/12/2019	5/3/2019	5	80	
5	Paving	Paving	5/4/2019	5/31/2019	5	20	
6	Architectural Coating	Architectural Coating	6/1/2019	6/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 5.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,216 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	332.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	23.00	9.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298		3,766.4529	3,766.4529	1.1917		3,796.2445

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092
Total	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

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3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092
Total	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6125	0.0000	6.6125	3.3766	0.0000	3.3766			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.6125	1.3974	8.0099	3.3766	1.2856	4.6622		2,936.8068	2,936.8068	0.9292		2,960.0361

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3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6161	20.8762	4.2510	0.0526	1.1600	0.0801	1.2401	0.3179	0.0767	0.3945		5,614.697 1	5,614.697 1	0.3076		5,622.388 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.6764	20.9203	4.6733	0.0537	1.2832	0.0809	1.3641	0.3506	0.0774	0.4280		5,731.791 9	5,731.791 9	0.3108		5,739.562 4

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6125	0.0000	6.6125	3.3766	0.0000	3.3766			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.806 8	2,936.806 8	0.9292		2,960.036 1
Total	2.5805	28.3480	16.2934	0.0297	6.6125	1.3974	8.0099	3.3766	1.2856	4.6622	0.0000	2,936.806 8	2,936.806 8	0.9292		2,960.036 1

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6161	20.8762	4.2510	0.0526	1.1600	0.0801	1.2401	0.3179	0.0767	0.3945		5,614.697 1	5,614.697 1	0.3076		5,622.388 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.6764	20.9203	4.6733	0.0537	1.2832	0.0809	1.3641	0.3506	0.0774	0.4280		5,731.791 9	5,731.791 9	0.3108		5,739.562 4

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0438	1.1392	0.3133	2.4400e-003	0.0609	7.9000e-003	0.0688	0.0175	7.5600e-003	0.0251		257.6268	257.6268	0.0151		258.0051
Worker	0.0925	0.0677	0.6476	1.8000e-003	0.1889	1.2500e-003	0.1902	0.0501	1.1500e-003	0.0513		179.5453	179.5453	4.8800e-003		179.6672
Total	0.1362	1.2070	0.9609	4.2400e-003	0.2499	9.1500e-003	0.2590	0.0677	8.7100e-003	0.0764		437.1722	437.1722	0.0200		437.6723

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0438	1.1392	0.3133	2.4400e-003	0.0609	7.9000e-003	0.0688	0.0175	7.5600e-003	0.0251		257.6268	257.6268	0.0151		258.0051
Worker	0.0925	0.0677	0.6476	1.8000e-003	0.1889	1.2500e-003	0.1902	0.0501	1.1500e-003	0.0513		179.5453	179.5453	4.8800e-003		179.6672
Total	0.1362	1.2070	0.9609	4.2400e-003	0.2499	9.1500e-003	0.2590	0.0677	8.7100e-003	0.0764		437.1722	437.1722	0.0200		437.6723

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1749	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.7205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1749	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.4719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	4.7383	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0201	0.0147	0.1408	3.9000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		39.0316	39.0316	1.0600e-003		39.0581
Total	0.0201	0.0147	0.1408	3.9000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		39.0316	39.0316	1.0600e-003		39.0581

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.4719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	4.7383	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

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3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0201	0.0147	0.1408	3.9000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		39.0316	39.0316	1.0600e-003		39.0581
Total	0.0201	0.0147	0.1408	3.9000e-004	0.0411	2.7000e-004	0.0414	0.0109	2.5000e-004	0.0112		39.0316	39.0316	1.0600e-003		39.0581

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Construction Analysis - Bay Area AQMD Air District, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Unmitigated	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Total	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.1300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313
Total	0.0264	1.3000e-004	0.0138	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0293	0.0293	8.0000e-005		0.0313

7.0 Water Detail

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7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	5.50	Acre	5.50	239,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase -

Vehicle Trips - Trip generation based on traffic analysis

Land Use Change - The Project would restore, establish, and enhance approximately 3.4 acres of riparian habitat

Sequestration -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUseChange	CO2peracre	4.31	6.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblSequestration	NumberOfNewTrees	0.00	35.00
tblVehicleTrips	ST_TR	22.75	302.55
tblVehicleTrips	SU_TR	16.74	222.63
tblVehicleTrips	WD_TR	1.89	25.14

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.1636	1.1636
2	4-1-2019	6-30-2019	0.9463	0.9463
3	7-1-2019	9-30-2019	0.9567	0.9567
4	10-1-2019	12-31-2019	0.9617	0.9617
5	1-1-2020	3-31-2020	0.4321	0.4321
		Highest	1.1636	1.1636

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2600e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1007	0.4651	1.0960	4.2900e-003	0.4062	3.5100e-003	0.4097	0.1090	3.2700e-003	0.1123	0.0000	394.9472	394.9472	0.0135	0.0000	395.2839
Waste						0.0000	0.0000		0.0000	0.0000	0.0954	0.0000	0.0954	5.6400e-003	0.0000	0.2364
Water						0.0000	0.0000		0.0000	0.0000	0.0000	3.2563	3.2563	3.0000e-004	6.0000e-005	3.2825
Total	0.1029	0.4651	1.0961	4.2900e-003	0.4062	3.5100e-003	0.4097	0.1090	3.2700e-003	0.1123	0.0954	398.2036	398.2990	0.0194	6.0000e-005	398.8028

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2600e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0998	0.4600	1.0762	4.1900e-003	0.3961	3.4300e-003	0.3995	0.1063	3.2000e-003	0.1095	0.0000	385.9347	385.9347	0.0132	0.0000	386.2654
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	3.0577	3.0577	2.8000e-004	6.0000e-005	3.0822
Total	0.1021	0.4600	1.0763	4.1900e-003	0.3961	3.4300e-003	0.3995	0.1063	3.2000e-003	0.1095	0.0000	388.9925	388.9925	0.0135	6.0000e-005	389.3478

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.84	1.10	1.80	2.33	2.49	2.28	2.49	2.50	2.14	2.48	100.00	2.31	2.34	30.40	0.00	2.37

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2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	24.7800
Vegetation Land Change	21.0800
Total	45.8600

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	2/11/2019	5	10	
3	Grading	Grading	2/12/2019	3/11/2019	5	20	
4	Building Construction	Building Construction	3/12/2019	1/27/2020	5	230	
5	Paving	Paving	1/28/2020	2/24/2020	5	20	
6	Architectural Coating	Architectural Coating	2/25/2020	3/23/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

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Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	39.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672

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3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671

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3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	0.0217	0.2279	0.1103	1.9000e-004	0.0903	0.0120	0.1023	0.0497	0.0110	0.0607	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195

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3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6433	0.6433	2.0000e-005	0.0000	0.6437
Total	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6433	0.6433	2.0000e-005	0.0000	0.6437

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	0.0217	0.2279	0.1103	1.9000e-004	0.0903	0.0120	0.1023	0.0497	0.0110	0.0607	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195

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3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6433	0.6433	2.0000e-005	0.0000	0.6437
Total	3.3000e-004	2.4000e-004	2.4600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6433	0.6433	2.0000e-005	0.0000	0.6437

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0258	0.2835	0.1629	3.0000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	26.6423	26.6423	8.4300e-003	0.0000	26.8530
Total	0.0258	0.2835	0.1629	3.0000e-004	0.0655	0.0140	0.0795	0.0337	0.0129	0.0465	0.0000	26.6423	26.6423	8.4300e-003	0.0000	26.8530

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3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0258	0.2835	0.1629	3.0000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	26.6422	26.6422	8.4300e-003	0.0000	26.8530
Total	0.0258	0.2835	0.1629	3.0000e-004	0.0655	0.0140	0.0795	0.0337	0.0129	0.0465	0.0000	26.6422	26.6422	8.4300e-003	0.0000	26.8530

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729
Total	5.4000e-004	4.0000e-004	4.1100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0722	1.0722	3.0000e-005	0.0000	1.0729

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2491	2.2238	1.8108	2.8400e-003		0.1361	0.1361		0.1279	0.1279	0.0000	248.0349	248.0349	0.0604	0.0000	249.5455
Total	0.2491	2.2238	1.8108	2.8400e-003		0.1361	0.1361		0.1279	0.1279	0.0000	248.0349	248.0349	0.0604	0.0000	249.5455

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.5210	0.1337	1.1300e-003	0.0270	3.5800e-003	0.0306	7.8000e-003	3.4200e-003	0.0112	0.0000	108.4272	108.4272	6.0100e-003	0.0000	108.5774
Worker	0.0386	0.0286	0.2918	8.4000e-004	0.0842	5.8000e-004	0.0848	0.0224	5.3000e-004	0.0229	0.0000	76.1624	76.1624	2.0400e-003	0.0000	76.2134
Total	0.0581	0.5497	0.4255	1.9700e-003	0.1112	4.1600e-003	0.1153	0.0302	3.9500e-003	0.0342	0.0000	184.5896	184.5896	8.0500e-003	0.0000	184.7908

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2491	2.2238	1.8108	2.8400e-003		0.1361	0.1361		0.1279	0.1279	0.0000	248.0346	248.0346	0.0604	0.0000	249.5452
Total	0.2491	2.2238	1.8108	2.8400e-003		0.1361	0.1361		0.1279	0.1279	0.0000	248.0346	248.0346	0.0604	0.0000	249.5452

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.5210	0.1337	1.1300e-003	0.0270	3.5800e-003	0.0306	7.8000e-003	3.4200e-003	0.0112	0.0000	108.4272	108.4272	6.0100e-003	0.0000	108.5774
Worker	0.0386	0.0286	0.2918	8.4000e-004	0.0842	5.8000e-004	0.0848	0.0224	5.3000e-004	0.0229	0.0000	76.1624	76.1624	2.0400e-003	0.0000	76.2134
Total	0.0581	0.5497	0.4255	1.9700e-003	0.1112	4.1600e-003	0.1153	0.0302	3.9500e-003	0.0342	0.0000	184.5896	184.5896	8.0500e-003	0.0000	184.7908

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.1823	0.1601	2.6000e-004		0.0106	0.0106		9.9800e-003	9.9800e-003	0.0000	22.0030	22.0030	5.3700e-003	0.0000	22.1372
Total	0.0201	0.1823	0.1601	2.6000e-004		0.0106	0.0106		9.9800e-003	9.9800e-003	0.0000	22.0030	22.0030	5.3700e-003	0.0000	22.1372

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3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4300e-003	0.0428	0.0108	1.0000e-004	2.4300e-003	2.1000e-004	2.6400e-003	7.0000e-004	2.0000e-004	9.0000e-004	0.0000	9.7004	9.7004	5.0000e-004	0.0000	9.7129
Worker	3.1800e-003	2.2800e-003	0.0236	7.0000e-005	7.5800e-003	5.0000e-005	7.6300e-003	2.0200e-003	5.0000e-005	2.0600e-003	0.0000	6.6424	6.6424	1.6000e-004	0.0000	6.6465
Total	4.6100e-003	0.0450	0.0343	1.7000e-004	0.0100	2.6000e-004	0.0103	2.7200e-003	2.5000e-004	2.9600e-003	0.0000	16.3428	16.3428	6.6000e-004	0.0000	16.3594

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.1823	0.1601	2.6000e-004		0.0106	0.0106		9.9800e-003	9.9800e-003	0.0000	22.0029	22.0029	5.3700e-003	0.0000	22.1371
Total	0.0201	0.1823	0.1601	2.6000e-004		0.0106	0.0106		9.9800e-003	9.9800e-003	0.0000	22.0029	22.0029	5.3700e-003	0.0000	22.1371

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4300e-003	0.0428	0.0108	1.0000e-004	2.4300e-003	2.1000e-004	2.6400e-003	7.0000e-004	2.0000e-004	9.0000e-004	0.0000	9.7004	9.7004	5.0000e-004	0.0000	9.7129
Worker	3.1800e-003	2.2800e-003	0.0236	7.0000e-005	7.5800e-003	5.0000e-005	7.6300e-003	2.0200e-003	5.0000e-005	2.0600e-003	0.0000	6.6424	6.6424	1.6000e-004	0.0000	6.6465
Total	4.6100e-003	0.0450	0.0343	1.7000e-004	0.0100	2.6000e-004	0.0103	2.7200e-003	2.5000e-004	2.9600e-003	0.0000	16.3428	16.3428	6.6000e-004	0.0000	16.3594

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902

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3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901

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3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582

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3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.7000e-004	4.9100e-003	2.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3846	1.3846	3.0000e-005	0.0000	1.3854
Total	6.6000e-004	4.7000e-004	4.9100e-003	2.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3846	1.3846	3.0000e-005	0.0000	1.3854

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582

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3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.7000e-004	4.9100e-003	2.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3846	1.3846	3.0000e-005	0.0000	1.3854
Total	6.6000e-004	4.7000e-004	4.9100e-003	2.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3846	1.3846	3.0000e-005	0.0000	1.3854

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement NEV Network

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0998	0.4600	1.0762	4.1900e-003	0.3961	3.4300e-003	0.3995	0.1063	3.2000e-003	0.1095	0.0000	385.9347	385.9347	0.0132	0.0000	386.2654
Unmitigated	0.1007	0.4651	1.0960	4.2900e-003	0.4062	3.5100e-003	0.4097	0.1090	3.2700e-003	0.1123	0.0000	394.9472	394.9472	0.0135	0.0000	395.2839

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	138.27	1,664.03	1224.47	1,091,776	1,064,591
Total	138.27	1,664.03	1,224.47	1,091,776	1,064,591

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581705	0.037849	0.193793	0.109044	0.014574	0.005304	0.018664	0.026966	0.002656	0.002072	0.005755	0.000900	0.000719

5.0 Energy Detail

Historical Energy Use: N

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5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	tons/yr										MT/yr						
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2600e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Unmitigated	2.2600e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	2.2500e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004
Total	2.2500e-003	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.0000e-004

7.0 Water Detail

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7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.0577	2.8000e-004	6.0000e-005	3.0822
Unmitigated	3.2563	3.0000e-004	6.0000e-005	3.2825

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 6.55315	3.2563	3.0000e-004	6.0000e-005	3.2825
Total		3.2563	3.0000e-004	6.0000e-005	3.2825

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 6.15341	3.0577	2.8000e-004	6.0000e-005	3.0822
Total		3.0577	2.8000e-004	6.0000e-005	3.0822

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0954	5.6400e-003	0.0000	0.2364

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.47	0.0954	5.6400e-003	0.0000	0.2364
Total		0.0954	5.6400e-003	0.0000	0.2364

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park		0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	45.8600	0.0000	0.0000	45.8600

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	0 / 3.4	21.0800	0.0000	0.0000	21.0800
Total		21.0800	0.0000	0.0000	21.0800

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11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	35	24.7800	0.0000	0.0000	24.7800
Total		24.7800	0.0000	0.0000	24.7800

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Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	5.50	Acre	5.50	239,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase -

Vehicle Trips - Trip generation based on traffic analysis

Land Use Change - The Project would restore, establish, and enhance approximately 3.4 acres of riparian habitat

Sequestration -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUseChange	CO2peracre	4.31	6.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblSequestration	NumberOfNewTrees	0.00	35.00
tblVehicleTrips	ST_TR	22.75	302.55
tblVehicleTrips	SU_TR	16.74	222.63
tblVehicleTrips	WD_TR	1.89	25.14

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.0819	8.0985	20.3378	0.0811	7.5449	0.0627	7.6076	2.0181	0.0585	2.0766		8,223.1122	8,223.1122	0.2660		8,229.7616
Total	2.0943	8.0985	20.3383	0.0811	7.5449	0.0627	7.6076	2.0181	0.0585	2.0766		8,223.1134	8,223.1134	0.2660	0.0000	8,229.7628

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.0662	8.0129	19.9397	0.0792	7.3570	0.0614	7.4184	1.9679	0.0572	2.0250		8,035.2107	8,035.2107	0.2611		8,041.7379
Total	2.0786	8.0129	19.9403	0.0792	7.3570	0.0614	7.4184	1.9679	0.0572	2.0250		8,035.2119	8,035.2119	0.2611	0.0000	8,041.7391

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.75	1.06	1.96	2.28	2.49	2.15	2.49	2.49	2.16	2.48	0.00	2.29	2.29	1.84	0.00	2.28

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	2/11/2019	5	10	
3	Grading	Grading	2/12/2019	3/11/2019	5	20	
4	Building Construction	Building Construction	3/12/2019	1/27/2020	5	230	
5	Paving	Paving	1/28/2020	2/24/2020	5	20	
6	Architectural Coating	Architectural Coating	2/25/2020	3/23/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	39.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451

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3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451

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3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298		3,766.4529	3,766.4529	1.1917		3,796.2445

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3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366
Total	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

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3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366
Total	0.0685	0.0429	0.5367	1.5300e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		152.5352	152.5352	4.0600e-003		152.6366

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.5523	1.3974	7.9497	3.3675	1.2856	4.6531		2,936.8068	2,936.8068	0.9292		2,960.0361

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3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.5523	1.3974	7.9497	3.3675	1.2856	4.6531	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972
Total	0.0570	0.0357	0.4473	1.2800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		127.1127	127.1127	3.3800e-003		127.1972

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1809	4.8708	1.1894	0.0108	0.2640	0.0337	0.2977	0.0760	0.0322	0.1082		1,144.8648	1,144.8648	0.0605		1,146.3783
Worker	0.3841	0.2406	3.0117	8.5900e-003	0.8297	5.4900e-003	0.8352	0.2201	5.0600e-003	0.2251		855.8920	855.8920	0.0228		856.4609
Total	0.5650	5.1114	4.2010	0.0194	1.0937	0.0392	1.1329	0.2961	0.0373	0.3334		2,000.7568	2,000.7568	0.0833		2,002.8391

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1809	4.8708	1.1894	0.0108	0.2640	0.0337	0.2977	0.0760	0.0322	0.1082		1,144.8648	1,144.8648	0.0605		1,146.3783
Worker	0.3841	0.2406	3.0117	8.5900e-003	0.8297	5.4900e-003	0.8352	0.2201	5.0600e-003	0.2251		855.8920	855.8920	0.0228		856.4609
Total	0.5650	5.1114	4.2010	0.0194	1.0937	0.0392	1.1329	0.2961	0.0373	0.3334		2,000.7568	2,000.7568	0.0833		2,002.8391

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

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3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1479	4.4445	1.0602	0.0107	0.2640	0.0218	0.2858	0.0760	0.0208	0.0968		1,137.6614	1,137.6614	0.0560		1,139.0620
Worker	0.3511	0.2125	2.7099	8.3200e-003	0.8297	5.3700e-003	0.8351	0.2201	4.9500e-003	0.2250		828.9843	828.9843	0.0200		829.4837
Total	0.4989	4.6571	3.7701	0.0191	1.0937	0.0272	1.1208	0.2961	0.0258	0.3219		1,966.6457	1,966.6457	0.0760		1,968.5457

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1479	4.4445	1.0602	0.0107	0.2640	0.0218	0.2858	0.0760	0.0208	0.0968		1,137.6614	1,137.6614	0.0560		1,139.0620
Worker	0.3511	0.2125	2.7099	8.3200e-003	0.8297	5.3700e-003	0.8351	0.2201	4.9500e-003	0.2250		828.9843	828.9843	0.0200		829.4837
Total	0.4989	4.6571	3.7701	0.0191	1.0937	0.0272	1.1208	0.2961	0.0258	0.3219		1,966.6457	1,966.6457	0.0760		1,968.5457

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

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3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

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3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

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3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

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3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542
Total	0.0695	0.0421	0.5366	1.6500e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		164.1553	164.1553	3.9600e-003		164.2542

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement NEV Network

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0662	8.0129	19.9397	0.0792	7.3570	0.0614	7.4184	1.9679	0.0572	2.0250		8,035.2107	8,035.2107	0.2611		8,041.7379
Unmitigated	2.0819	8.0985	20.3378	0.0811	7.5449	0.0627	7.6076	2.0181	0.0585	2.0766		8,223.1122	8,223.1122	0.2660		8,229.7616

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	138.27	1,664.03	1224.47	1,091,776	1,064,591
Total	138.27	1,664.03	1,224.47	1,091,776	1,064,591

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581705	0.037849	0.193793	0.109044	0.014574	0.005304	0.018664	0.026966	0.002656	0.002072	0.005755	0.000900	0.000719

5.0 Energy Detail

Historical Energy Use: N

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Unmitigated	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

7.0 Water Detail

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Summer

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	5.50	Acre	5.50	239,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use - Total new acreage of recreational/staging area units would be approximately 5.5 acres

Construction Phase -

Vehicle Trips - Trip generation based on traffic analysis

Land Use Change - The Project would restore, establish, and enhance approximately 3.4 acres of riparian habitat

Sequestration -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUseChange	CO2peracre	4.31	6.20
tblProjectCharacteristics	CO2IntensityFactor	641.35	313
tblSequestration	NumberOfNewTrees	0.00	35.00
tblVehicleTrips	ST_TR	22.75	302.55
tblVehicleTrips	SU_TR	16.74	222.63
tblVehicleTrips	WD_TR	1.89	25.14

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7776	8.4453	20.5212	0.0760	7.5449	0.0630	7.6079	2.0181	0.0587	2.0768		7,707.1873	7,707.1873	0.2724		7,713.9967
Total	1.7900	8.4453	20.5218	0.0760	7.5449	0.0630	7.6079	2.0181	0.0587	2.0768		7,707.1885	7,707.1885	0.2724	0.0000	7,713.9980

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7621	8.3502	20.1663	0.0743	7.3570	0.0616	7.4187	1.9679	0.0575	2.0253		7,530.6056	7,530.6056	0.2677		7,537.2972
Total	1.7745	8.3502	20.1668	0.0743	7.3570	0.0616	7.4187	1.9679	0.0575	2.0253		7,530.6068	7,530.6068	0.2677	0.0000	7,537.2985

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.87	1.13	1.73	2.30	2.49	2.13	2.49	2.49	2.13	2.48	0.00	2.29	2.29	1.73	0.00	2.29

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	2/11/2019	5	10	
3	Grading	Grading	2/12/2019	3/11/2019	5	20	
4	Building Construction	Building Construction	3/12/2019	1/27/2020	5	230	
5	Paving	Paving	1/28/2020	2/24/2020	5	20	
6	Architectural Coating	Architectural Coating	2/25/2020	3/23/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	39.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298		3,766.4529	3,766.4529	1.1917		3,796.2445

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092
Total	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092
Total	0.0724	0.0530	0.5068	1.4100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		140.5138	140.5138	3.8200e-003		140.6092

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.5523	1.3974	7.9497	3.3675	1.2856	4.6531		2,936.8068	2,936.8068	0.9292		2,960.0361

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	2.5805	28.3480	16.2934	0.0297	6.5523	1.3974	7.9497	3.3675	1.2856	4.6531	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361

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3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743
Total	0.0603	0.0442	0.4223	1.1800e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		117.0948	117.0948	3.1800e-003		117.1743

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1896	4.9367	1.3578	0.0106	0.2640	0.0343	0.2982	0.0760	0.0328	0.1088		1,116.3829	1,116.3829	0.0656		1,118.0221
Worker	0.4061	0.2974	2.8436	7.9200e-003	0.8297	5.4900e-003	0.8352	0.2201	5.0600e-003	0.2251		788.4383	788.4383	0.0214		788.9735
Total	0.5956	5.2341	4.2014	0.0185	1.0937	0.0397	1.1334	0.2961	0.0378	0.3339		1,904.8211	1,904.8211	0.0870		1,906.9956

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.1896	4.9367	1.3578	0.0106	0.2640	0.0343	0.2982	0.0760	0.0328	0.1088		1,116.3829	1,116.3829	0.0656			1,118.0221
Worker	0.4061	0.2974	2.8436	7.9200e-003	0.8297	5.4900e-003	0.8352	0.2201	5.0600e-003	0.2251		788.4383	788.4383	0.0214			788.9735
Total	0.5956	5.2341	4.2014	0.0185	1.0937	0.0397	1.1334	0.2961	0.0378	0.3339		1,904.8211	1,904.8211	0.0870			1,906.9956

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229			2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229			2,568.6345

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3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1556	4.4943	1.2129	0.0105	0.2640	0.0222	0.2861	0.0760	0.0212	0.0972		1,108.876 2	1,108.876 2	0.0606		1,110.391 2
Worker	0.3713	0.2626	2.5451	7.6600e-003	0.8297	5.3700e-003	0.8351	0.2201	4.9500e-003	0.2250		763.6261	763.6261	0.0187		764.0930
Total	0.5269	4.7569	3.7579	0.0181	1.0937	0.0275	1.1212	0.2961	0.0261	0.3222		1,872.502 3	1,872.502 3	0.0793		1,874.484 2

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1556	4.4943	1.2129	0.0105	0.2640	0.0222	0.2861	0.0760	0.0212	0.0972		1,108.876 2	1,108.876 2	0.0606		1,110.391 2
Worker	0.3713	0.2626	2.5451	7.6600e-003	0.8297	5.3700e-003	0.8351	0.2201	4.9500e-003	0.2250		763.6261	763.6261	0.0187		764.0930
Total	0.5269	4.7569	3.7579	0.0181	1.0937	0.0275	1.1212	0.2961	0.0261	0.3222		1,872.502 3	1,872.502 3	0.0793		1,874.484 2

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1

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3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

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3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

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3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

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3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055
Total	0.0735	0.0520	0.5040	1.5200e-003	0.1643	1.0600e-003	0.1654	0.0436	9.8000e-004	0.0446		151.2131	151.2131	3.7000e-003		151.3055

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement NEV Network

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.7621	8.3502	20.1663	0.0743	7.3570	0.0616	7.4187	1.9679	0.0575	2.0253		7,530.6056	7,530.6056	0.2677		7,537.2972
Unmitigated	1.7776	8.4453	20.5212	0.0760	7.5449	0.0630	7.6079	2.0181	0.0587	2.0768		7,707.1873	7,707.1873	0.2724		7,713.9967

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	138.27	1,664.03	1224.47	1,091,776	1,064,591
Total	138.27	1,664.03	1,224.47	1,091,776	1,064,591

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581705	0.037849	0.193793	0.109044	0.014574	0.005304	0.018664	0.026966	0.002656	0.002072	0.005755	0.000900	0.000719

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Unmitigated	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0123					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	0.0124	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

7.0 Water Detail

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Operational Analysis - Bay Area AQMD Air District, Winter

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.62	9,000.00	14

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use -

Construction Phase - Operational run only

Woodstoves - Assuming 5 woodburning fireplaces

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceDayYear	11.14	144.00
tblFireplaces	NumberGas	1.25	0.00
tblFireplaces	NumberNoFireplace	0.40	0.00
tblFireplaces	NumberWood	2.15	5.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	313

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-25-2018	8-24-2018	0.7317	0.7317
2	8-25-2018	11-24-2018	0.6628	0.6628
3	11-25-2018	2-24-2019	0.6280	0.6280
4	2-25-2019	5-24-2019	0.3875	0.3875
		Highest	0.7317	0.7317

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1094	1.3700e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536
Energy	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	16.9593	16.9593	7.4000e-004	3.2000e-004	17.0719
Mobile	0.0137	0.0658	0.1550	5.0000e-004	0.0406	5.5000e-004	0.0412	0.0109	5.2000e-004	0.0114	0.0000	45.5293	45.5293	1.8000e-003	0.0000	45.5742
Waste						0.0000	0.0000		0.0000	0.0000	1.1936	0.0000	1.1936	0.0705	0.0000	2.9571
Water						0.0000	0.0000		0.0000	0.0000	0.1034	0.3523	0.4557	0.0107	2.6000e-004	0.7986
Total	0.1243	0.0770	0.2804	7.1000e-004	0.0406	0.0134	0.0540	0.0109	0.0133	0.0242	2.4353	62.9016	65.3369	0.0850	6.6000e-004	67.6554

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1094	1.3700e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536
Energy	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	16.9593	16.9593	7.4000e-004	3.2000e-004	17.0719
Mobile	0.0137	0.0658	0.1550	5.0000e-004	0.0406	5.5000e-004	0.0412	0.0109	5.2000e-004	0.0114	0.0000	45.5293	45.5293	1.8000e-003	0.0000	45.5742
Waste						0.0000	0.0000		0.0000	0.0000	1.1936	0.0000	1.1936	0.0705	0.0000	2.9571
Water						0.0000	0.0000		0.0000	0.0000	0.1034	0.3523	0.4557	0.0107	2.6000e-004	0.7986
Total	0.1243	0.0770	0.2804	7.1000e-004	0.0406	0.0134	0.0540	0.0109	0.0133	0.0242	2.4353	62.9016	65.3369	0.0850	6.6000e-004	67.6554

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/25/2018	6/21/2018	5	20	
2	Site Preparation	Site Preparation	6/22/2018	6/25/2018	5	2	
3	Grading	Grading	6/26/2018	6/29/2018	5	4	
4	Building Construction	Building Construction	6/30/2018	4/5/2019	5	200	
5	Paving	Paving	4/6/2019	4/19/2019	5	10	
6	Architectural Coating	Architectural Coating	4/20/2019	5/3/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 18,225; Residential Outdoor: 6,075; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297
Total	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	4.0000e-004	4.0200e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9579	0.9579	3.0000e-005	0.0000	0.9587
Total	5.2000e-004	4.0000e-004	4.0200e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9579	0.9579	3.0000e-005	0.0000	0.9587

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297
Total	0.0248	0.2436	0.1511	2.4000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	21.6923	21.6923	5.5000e-003	0.0000	21.8297

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3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	4.0000e-004	4.0200e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9579	0.9579	3.0000e-005	0.0000	0.9587
Total	5.2000e-004	4.0000e-004	4.0200e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9579	0.9579	3.0000e-005	0.0000	0.9587

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0208	8.0800e-003	2.0000e-005		9.5000e-004	9.5000e-004		8.8000e-004	8.8000e-004	0.0000	1.5743	1.5743	4.9000e-004	0.0000	1.5866
Total	1.8100e-003	0.0208	8.0800e-003	2.0000e-005	5.8000e-003	9.5000e-004	6.7500e-003	2.9500e-003	8.8000e-004	3.8300e-003	0.0000	1.5743	1.5743	4.9000e-004	0.0000	1.5866

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3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0590	0.0590	0.0000	0.0000	0.0590
Total	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0590	0.0590	0.0000	0.0000	0.0590

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0208	8.0800e-003	2.0000e-005		9.5000e-004	9.5000e-004		8.8000e-004	8.8000e-004	0.0000	1.5743	1.5743	4.9000e-004	0.0000	1.5866
Total	1.8100e-003	0.0208	8.0800e-003	2.0000e-005	5.8000e-003	9.5000e-004	6.7500e-003	2.9500e-003	8.8000e-004	3.8300e-003	0.0000	1.5743	1.5743	4.9000e-004	0.0000	1.5866

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3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0590	0.0590	0.0000	0.0000	0.0590
Total	3.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0590	0.0590	0.0000	0.0000	0.0590

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9900e-003	0.0341	0.0135	3.0000e-005		1.5900e-003	1.5900e-003		1.4600e-003	1.4600e-003	0.0000	2.5787	2.5787	8.0000e-004	0.0000	2.5988
Total	2.9900e-003	0.0341	0.0135	3.0000e-005	9.8300e-003	1.5900e-003	0.0114	5.0500e-003	1.4600e-003	6.5100e-003	0.0000	2.5787	2.5787	8.0000e-004	0.0000	2.5988

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3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1179	0.1179	0.0000	0.0000	0.1180
Total	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1179	0.1179	0.0000	0.0000	0.1180

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9900e-003	0.0341	0.0135	3.0000e-005		1.5900e-003	1.5900e-003		1.4600e-003	1.4600e-003	0.0000	2.5787	2.5787	8.0000e-004	0.0000	2.5988
Total	2.9900e-003	0.0341	0.0135	3.0000e-005	9.8300e-003	1.5900e-003	0.0114	5.0500e-003	1.4600e-003	6.5100e-003	0.0000	2.5787	2.5787	8.0000e-004	0.0000	2.5988

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3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1179	0.1179	0.0000	0.0000	0.1180
Total	6.0000e-005	5.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1179	0.1179	0.0000	0.0000	0.1180

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1698	1.1415	0.9089	1.4400e-003		0.0693	0.0693		0.0669	0.0669	0.0000	120.6737	120.6737	0.0243	0.0000	121.2810
Total	0.1698	1.1415	0.9089	1.4400e-003		0.0693	0.0693		0.0669	0.0669	0.0000	120.6737	120.6737	0.0243	0.0000	121.2810

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3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	8.7800e-003	2.3300e-003	2.0000e-005	4.3000e-004	7.0000e-005	5.0000e-004	1.2000e-004	6.0000e-005	1.9000e-004	0.0000	1.7378	1.7378	1.0000e-004	0.0000	1.7403
Worker	5.3000e-004	4.0000e-004	4.0500e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.9653	0.9653	3.0000e-005	0.0000	0.9660
Total	8.7000e-004	9.1800e-003	6.3800e-003	3.0000e-005	1.4700e-003	8.0000e-005	1.5400e-003	4.0000e-004	7.0000e-005	4.7000e-004	0.0000	2.7031	2.7031	1.3000e-004	0.0000	2.7063

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1698	1.1415	0.9089	1.4400e-003		0.0693	0.0693		0.0669	0.0669	0.0000	120.6735	120.6735	0.0243	0.0000	121.2808
Total	0.1698	1.1415	0.9089	1.4400e-003		0.0693	0.0693		0.0669	0.0669	0.0000	120.6735	120.6735	0.0243	0.0000	121.2808

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3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	8.7800e-003	2.3300e-003	2.0000e-005	4.3000e-004	7.0000e-005	5.0000e-004	1.2000e-004	6.0000e-005	1.9000e-004	0.0000	1.7378	1.7378	1.0000e-004	0.0000	1.7403
Worker	5.3000e-004	4.0000e-004	4.0500e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.9653	0.9653	3.0000e-005	0.0000	0.9660
Total	8.7000e-004	9.1800e-003	6.3800e-003	3.0000e-005	1.4700e-003	8.0000e-005	1.5400e-003	4.0000e-004	7.0000e-005	4.7000e-004	0.0000	2.7031	2.7031	1.3000e-004	0.0000	2.7063

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	0.5513	0.4653	7.6000e-004		0.0316	0.0316		0.0305	0.0305	0.0000	63.1598	63.1598	0.0121	0.0000	63.4634
Total	0.0784	0.5513	0.4653	7.6000e-004		0.0316	0.0316		0.0305	0.0305	0.0000	63.1598	63.1598	0.0121	0.0000	63.4634

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.3700e-003	1.1200e-003	1.0000e-005	2.3000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.9092	0.9092	5.0000e-005	0.0000	0.9104
Worker	2.5000e-004	1.9000e-004	1.8900e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4932	0.4932	1.0000e-005	0.0000	0.4935
Total	4.1000e-004	4.5600e-003	3.0100e-003	2.0000e-005	7.8000e-004	3.0000e-005	8.1000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	1.4024	1.4024	6.0000e-005	0.0000	1.4039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0784	0.5513	0.4653	7.6000e-004		0.0316	0.0316		0.0305	0.0305	0.0000	63.1597	63.1597	0.0121	0.0000	63.4633
Total	0.0784	0.5513	0.4653	7.6000e-004		0.0316	0.0316		0.0305	0.0305	0.0000	63.1597	63.1597	0.0121	0.0000	63.4633

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.3700e-003	1.1200e-003	1.0000e-005	2.3000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.9092	0.9092	5.0000e-005	0.0000	0.9104
Worker	2.5000e-004	1.9000e-004	1.8900e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4932	0.4932	1.0000e-005	0.0000	0.4935
Total	4.1000e-004	4.5600e-003	3.0100e-003	2.0000e-005	7.8000e-004	3.0000e-005	8.1000e-004	2.2000e-004	3.0000e-005	2.4000e-004	0.0000	1.4024	1.4024	6.0000e-005	0.0000	1.4039

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4646	0.4646	1.0000e-005	0.0000	0.4649
Total	2.4000e-004	1.7000e-004	1.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4646	0.4646	1.0000e-005	0.0000	0.4649

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003	0.0000	6.0105	6.0105	1.8700e-003	0.0000	6.0572

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3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4646	0.4646	1.0000e-005	0.0000	0.4649
Total	2.4000e-004	1.7000e-004	1.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4646	0.4646	1.0000e-005	0.0000	0.4649

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0634					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793
Total	0.0647	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793

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3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0634					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793
Total	0.0647	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	1.2766	1.2766	1.1000e-004	0.0000	1.2793

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3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0137	0.0658	0.1550	5.0000e-004	0.0406	5.5000e-004	0.0412	0.0109	5.2000e-004	0.0114	0.0000	45.5293	45.5293	1.8000e-003	0.0000	45.5742
Unmitigated	0.0137	0.0658	0.1550	5.0000e-004	0.0406	5.5000e-004	0.0412	0.0109	5.2000e-004	0.0114	0.0000	45.5293	45.5293	1.8000e-003	0.0000	45.5742

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	47.60	49.55	43.10	109,096	109,096
Total	47.60	49.55	43.10	109,096	109,096

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.6666	5.6666	5.3000e-004	1.1000e-004	5.7120
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.6666	5.6666	5.3000e-004	1.1000e-004	5.7120
NaturalGas Mitigated	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599
NaturalGas Unmitigated	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	211619	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599
Total		1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	211619	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599
Total		1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2928	11.2928	2.2000e-004	2.1000e-004	11.3599

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	39912.5	5.6666	5.3000e-004	1.1000e-004	5.7120
Total		5.6666	5.3000e-004	1.1000e-004	5.7120

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	39912.5	5.6666	5.3000e-004	1.1000e-004	5.7120
Total		5.6666	5.3000e-004	1.1000e-004	5.7120

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1094	1.3700e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536
Unmitigated	0.1094	1.3700e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.3400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0668	9.3000e-004	0.0840	1.5000e-004		0.0118	0.0118		0.0118	0.0118	1.1384	0.0000	1.1384	1.2000e-003	8.0000e-005	1.1915
Landscaping	1.1300e-003	4.3000e-004	0.0373	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.0606	0.0606	6.0000e-005	0.0000	0.0621
Total	0.1094	1.3600e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.3400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0668	9.3000e-004	0.0840	1.5000e-004		0.0118	0.0118		0.0118	0.0118	1.1384	0.0000	1.1384	1.2000e-003	8.0000e-005	1.1915
Landscaping	1.1300e-003	4.3000e-004	0.0373	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.0606	0.0606	6.0000e-005	0.0000	0.0621
Total	0.1094	1.3600e-003	0.1212	1.5000e-004		0.0120	0.0120		0.0120	0.0120	1.1384	0.0606	1.1990	1.2600e-003	8.0000e-005	1.2536

7.0 Water Detail

7.1 Mitigation Measures Water

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.4557	0.0107	2.6000e-004	0.7986
Unmitigated	0.4557	0.0107	2.6000e-004	0.7986

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.32577 / 0.205377	0.4557	0.0107	2.6000e-004	0.7986
Total		0.4557	0.0107	2.6000e-004	0.7986

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.32577 / 0.205377	0.4557	0.0107	2.6000e-004	0.7986
Total		0.4557	0.0107	2.6000e-004	0.7986

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.1936	0.0705	0.0000	2.9571
Unmitigated	1.1936	0.0705	0.0000	2.9571

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	5.88	1.1936	0.0705	0.0000	2.9571
Total		1.1936	0.0705	0.0000	2.9571

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	5.88	1.1936	0.0705	0.0000	2.9571
Total		1.1936	0.0705	0.0000	2.9571

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.62	9,000.00	14

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use -

Construction Phase - Operational run only

Woodstoves - Assuming 5 woodburning fireplaces

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceDayYear	11.14	144.00
tblFireplaces	NumberGas	1.25	0.00
tblFireplaces	NumberNoFireplace	0.40	0.00
tblFireplaces	NumberWood	2.15	5.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	313

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Energy	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Mobile	0.0904	0.3669	0.9248	3.0300e-003	0.2432	3.1900e-003	0.2464	0.0651	3.0000e-003	0.0681		306.3600	306.3600	0.0115		306.6474
Total	1.3688	0.4536	3.4788	8.6200e-003	0.2432	0.3290	0.5721	0.0651	0.3288	0.3938	40.3287	375.3119	415.6406	0.1389	2.4400e-003	419.8414

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Energy	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Mobile	0.0904	0.3669	0.9248	3.0300e-003	0.2432	3.1900e-003	0.2464	0.0651	3.0000e-003	0.0681		306.3600	306.3600	0.0115		306.6474
Total	1.3688	0.4536	3.4788	8.6200e-003	0.2432	0.3290	0.5721	0.0651	0.3288	0.3938	40.3287	375.3119	415.6406	0.1389	2.4400e-003	419.8414

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/25/2018	6/21/2018	5	20	
2	Site Preparation	Site Preparation	6/22/2018	6/25/2018	5	2	
3	Grading	Grading	6/26/2018	6/29/2018	5	4	
4	Building Construction	Building Construction	6/30/2018	4/5/2019	5	200	
5	Paving	Paving	4/6/2019	4/19/2019	5	10	
6	Architectural Coating	Architectural Coating	4/20/2019	5/3/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 18,225; Residential Outdoor: 6,075; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105

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3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0354	0.4355	1.1400e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		113.5633	113.5633	3.3200e-003		113.6462
Total	0.0548	0.0354	0.4355	1.1400e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		113.5633	113.5633	3.3200e-003		113.6462

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105

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3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0548	0.0354	0.4355	1.1400e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		113.5633	113.5633	3.3200e-003		113.6462
Total	0.0548	0.0354	0.4355	1.1400e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		113.5633	113.5633	3.3200e-003		113.6462

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761		1,735.3630	1,735.3630	0.5402		1,748.8690
Total	1.8061	20.7472	8.0808	0.0172	5.7996	0.9523	6.7518	2.9537	0.8761	3.8298		1,735.3630	1,735.3630	0.5402		1,748.8690

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3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361
Total	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690
Total	1.8061	20.7472	8.0808	0.0172	5.7996	0.9523	6.7518	2.9537	0.8761	3.8298	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690

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3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361
Total	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311		1,421.2605	1,421.2605	0.4425		1,432.3219
Total	1.4972	17.0666	6.7630	0.0141	4.9143	0.7947	5.7090	2.5256	0.7311	3.2568		1,421.2605	1,421.2605	0.4425		1,432.3219

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3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361
Total	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219
Total	1.4972	17.0666	6.7630	0.0141	4.9143	0.7947	5.7090	2.5256	0.7311	3.2568	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361
Total	0.0337	0.0218	0.2680	7.0000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		69.8851	69.8851	2.0400e-003		69.9361

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596
Total	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596

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3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.1600e-003	0.1320	0.0334	2.8000e-004	6.7700e-003	1.0200e-003	7.7900e-003	1.9500e-003	9.8000e-004	2.9300e-003		29.5498	29.5498	1.6200e-003		29.5904
Worker	8.4300e-003	5.4400e-003	0.0670	1.8000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.4713	17.4713	5.1000e-004		17.4840
Total	0.0136	0.1375	0.1004	4.6000e-004	0.0232	1.1300e-003	0.0243	6.3100e-003	1.0800e-003	7.3900e-003		47.0211	47.0211	2.1300e-003		47.0744

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596
Total	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596

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3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.1600e-003	0.1320	0.0334	2.8000e-004	6.7700e-003	1.0200e-003	7.7900e-003	1.9500e-003	9.8000e-004	2.9300e-003		29.5498	29.5498	1.6200e-003		29.5904
Worker	8.4300e-003	5.4400e-003	0.0670	1.8000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.4713	17.4713	5.1000e-004		17.4840
Total	0.0136	0.1375	0.1004	4.6000e-004	0.0232	1.1300e-003	0.0243	6.3100e-003	1.0800e-003	7.3900e-003		47.0211	47.0211	2.1300e-003		47.0744

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.6400e-003	0.1249	0.0305	2.8000e-004	6.7700e-003	8.6000e-004	7.6300e-003	1.9500e-003	8.3000e-004	2.7800e-003		29.3555	29.3555	1.5500e-003		29.3943
Worker	7.6100e-003	4.7600e-003	0.0596	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		16.9484	16.9484	4.5000e-004		16.9596
Total	0.0123	0.1297	0.0901	4.5000e-004	0.0232	9.7000e-004	0.0242	6.3100e-003	9.3000e-004	7.2400e-003		46.3039	46.3039	2.0000e-003		46.3539

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.6400e-003	0.1249	0.0305	2.8000e-004	6.7700e-003	8.6000e-004	7.6300e-003	1.9500e-003	8.3000e-004	2.7800e-003		29.3555	29.3555	1.5500e-003		29.3943
Worker	7.6100e-003	4.7600e-003	0.0596	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		16.9484	16.9484	4.5000e-004		16.9596
Total	0.0123	0.1297	0.0901	4.5000e-004	0.0232	9.7000e-004	0.0242	6.3100e-003	9.3000e-004	7.2400e-003		46.3039	46.3039	2.0000e-003		46.3539

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751

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3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0310	0.3876	1.1100e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		110.1643	110.1643	2.9300e-003		110.2375
Total	0.0494	0.0310	0.3876	1.1100e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		110.1643	110.1643	2.9300e-003		110.2375

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751

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3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0494	0.0310	0.3876	1.1100e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		110.1643	110.1643	2.9300e-003		110.2375
Total	0.0494	0.0310	0.3876	1.1100e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		110.1643	110.1643	2.9300e-003		110.2375

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.6709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	12.9374	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

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3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.6709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	12.9374	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

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3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0904	0.3669	0.9248	3.0300e-003	0.2432	3.1900e-003	0.2464	0.0651	3.0000e-003	0.0681		306.3600	306.3600	0.0115		306.6474
Unmitigated	0.0904	0.3669	0.9248	3.0300e-003	0.2432	3.1900e-003	0.2464	0.0651	3.0000e-003	0.0681		306.3600	306.3600	0.0115		306.6474

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	47.60	49.55	43.10	109,096	109,096
Total	47.60	49.55	43.10	109,096	109,096

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
NaturalGas Unmitigated	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	579.778	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Total		6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

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5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.579778	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Total		6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Unmitigated	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0323	0.0285	2.1174	5.2200e-003		0.3192	0.3192		0.3192	0.3192	40.3287	0.0000	40.3287	0.1254	1.1900e-003	43.8186
Landscaping	0.0126	4.7900e-003	0.4139	2.0000e-005		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003		0.7428	0.7428	7.2000e-004		0.7609
Total	1.2722	0.0333	2.5313	5.2400e-003		0.3215	0.3215		0.3215	0.3215	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0323	0.0285	2.1174	5.2200e-003		0.3192	0.3192		0.3192	0.3192	40.3287	0.0000	40.3287	0.1254	1.1900e-003	43.8186
Landscaping	0.0126	4.7900e-003	0.4139	2.0000e-005		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003		0.7428	0.7428	7.2000e-004		0.7609
Total	1.2722	0.0333	2.5313	5.2400e-003		0.3215	0.3215		0.3215	0.3215	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	5.00	Dwelling Unit	1.62	9,000.00	14

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	5			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	313	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor based on 5-year average (2016-2020) per PG&E, 2015

Land Use -

Construction Phase - Operational run only

Woodstoves - Assuming 5 woodburning fireplaces

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceDayYear	11.14	144.00
tblFireplaces	NumberGas	1.25	0.00
tblFireplaces	NumberNoFireplace	0.40	0.00
tblFireplaces	NumberWood	2.15	5.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	313

2.0 Emissions Summary

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Energy	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Mobile	0.0789	0.3871	0.9387	2.8400e-003	0.2432	3.2200e-003	0.2464	0.0651	3.0200e-003	0.0681		286.6021	286.6021	0.0117		286.8953
Total	1.3573	0.4738	3.4927	8.4300e-003	0.2432	0.3290	0.5722	0.0651	0.3288	0.3939	40.3287	355.5540	395.8826	0.1392	2.4400e-003	400.0893

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Energy	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Mobile	0.0789	0.3871	0.9387	2.8400e-003	0.2432	3.2200e-003	0.2464	0.0651	3.0200e-003	0.0681		286.6021	286.6021	0.0117		286.8953
Total	1.3573	0.4738	3.4927	8.4300e-003	0.2432	0.3290	0.5722	0.0651	0.3288	0.3939	40.3287	355.5540	395.8826	0.1392	2.4400e-003	400.0893

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/25/2018	6/21/2018	5	20	
2	Site Preparation	Site Preparation	6/22/2018	6/25/2018	5	2	
3	Grading	Grading	6/26/2018	6/29/2018	5	4	
4	Building Construction	Building Construction	6/30/2018	4/5/2019	5	200	
5	Paving	Paving	4/6/2019	4/19/2019	5	10	
6	Architectural Coating	Architectural Coating	4/20/2019	5/3/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 18,225; Residential Outdoor: 6,075; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105
Total	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429		2,391.1659	2,391.1659	0.6058		2,406.3105

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0437	0.4139	1.0500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		104.6223	104.6223	3.1400e-003		104.7007
Total	0.0579	0.0437	0.4139	1.0500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		104.6223	104.6223	3.1400e-003		104.7007

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105
Total	2.4838	24.3641	15.1107	0.0241		1.4365	1.4365		1.3429	1.3429	0.0000	2,391.1659	2,391.1659	0.6058		2,406.3105

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3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0437	0.4139	1.0500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		104.6223	104.6223	3.1400e-003		104.7007
Total	0.0579	0.0437	0.4139	1.0500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		104.6223	104.6223	3.1400e-003		104.7007

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761		1,735.3630	1,735.3630	0.5402		1,748.8690
Total	1.8061	20.7472	8.0808	0.0172	5.7996	0.9523	6.7518	2.9537	0.8761	3.8298		1,735.3630	1,735.3630	0.5402		1,748.8690

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3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312
Total	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.8061	20.7472	8.0808	0.0172		0.9523	0.9523		0.8761	0.8761	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690
Total	1.8061	20.7472	8.0808	0.0172	5.7996	0.9523	6.7518	2.9537	0.8761	3.8298	0.0000	1,735.3630	1,735.3630	0.5402		1,748.8690

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3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312
Total	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311		1,421.2605	1,421.2605	0.4425		1,432.3219
Total	1.4972	17.0666	6.7630	0.0141	4.9143	0.7947	5.7090	2.5256	0.7311	3.2568		1,421.2605	1,421.2605	0.4425		1,432.3219

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3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312
Total	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4972	17.0666	6.7630	0.0141		0.7947	0.7947		0.7311	0.7311	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219
Total	1.4972	17.0666	6.7630	0.0141	4.9143	0.7947	5.7090	2.5256	0.7311	3.2568	0.0000	1,421.2605	1,421.2605	0.4425		1,432.3219

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3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312
Total	0.0357	0.0269	0.2547	6.5000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		64.3829	64.3829	1.9300e-003		64.4312

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596
Total	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596

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3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.4100e-003	0.1340	0.0381	2.7000e-004	6.7700e-003	1.0400e-003	7.8100e-003	1.9500e-003	9.9000e-004	2.9400e-003		28.8242	28.8242	1.7600e-003		28.8682
Worker	8.9100e-003	6.7200e-003	0.0637	1.6000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		16.0957	16.0957	4.8000e-004		16.1078
Total	0.0143	0.1407	0.1018	4.3000e-004	0.0232	1.1500e-003	0.0244	6.3100e-003	1.0900e-003	7.4000e-003		44.9199	44.9199	2.2400e-003		44.9760

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596
Total	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596

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3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.4100e-003	0.1340	0.0381	2.7000e-004	6.7700e-003	1.0400e-003	7.8100e-003	1.9500e-003	9.9000e-004	2.9400e-003		28.8242	28.8242	1.7600e-003		28.8682
Worker	8.9100e-003	6.7200e-003	0.0637	1.6000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		16.0957	16.0957	4.8000e-004		16.1078
Total	0.0143	0.1407	0.1018	4.3000e-004	0.0232	1.1500e-003	0.0244	6.3100e-003	1.0900e-003	7.4000e-003		44.9199	44.9199	2.2400e-003		44.9760

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210

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3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8600e-003	0.1266	0.0348	2.7000e-004	6.7700e-003	8.8000e-004	7.6500e-003	1.9500e-003	8.4000e-004	2.7900e-003		28.6252	28.6252	1.6800e-003		28.6672
Worker	8.0400e-003	5.8900e-003	0.0563	1.6000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		15.6126	15.6126	4.2000e-004		15.6232
Total	0.0129	0.1325	0.0911	4.3000e-004	0.0232	9.9000e-004	0.0242	6.3100e-003	9.4000e-004	7.2500e-003		44.2378	44.2378	2.1000e-003		44.2905

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

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3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.8600e-003	0.1266	0.0348	2.7000e-004	6.7700e-003	8.8000e-004	7.6500e-003	1.9500e-003	8.4000e-004	2.7900e-003		28.6252	28.6252	1.6800e-003		28.6672
Worker	8.0400e-003	5.8900e-003	0.0563	1.6000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		15.6126	15.6126	4.2000e-004		15.6232
Total	0.0129	0.1325	0.0911	4.3000e-004	0.0232	9.9000e-004	0.0242	6.3100e-003	9.4000e-004	7.2500e-003		44.2378	44.2378	2.1000e-003		44.2905

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.0953	1,325.0953	0.4112		1,335.3751

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3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0523	0.0383	0.3660	1.0200e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		101.4822	101.4822	2.7600e-003		101.5511
Total	0.0523	0.0383	0.3660	1.0200e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		101.4822	101.4822	2.7600e-003		101.5511

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.0953	1,325.0953	0.4112		1,335.3751

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3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0523	0.0383	0.3660	1.0200e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		101.4822	101.4822	2.7600e-003		101.5511
Total	0.0523	0.0383	0.3660	1.0200e-003	0.1068	7.1000e-004	0.1075	0.0283	6.5000e-004	0.0290		101.4822	101.4822	2.7600e-003		101.5511

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.6709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	12.9374	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423

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3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	12.6709					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	12.9374	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423

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3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0789	0.3871	0.9387	2.8400e-003	0.2432	3.2200e-003	0.2464	0.0651	3.0200e-003	0.0681		286.6021	286.6021	0.0117		286.8953
Unmitigated	0.0789	0.3871	0.9387	2.8400e-003	0.2432	3.2200e-003	0.2464	0.0651	3.0200e-003	0.0681		286.6021	286.6021	0.0117		286.8953

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	47.60	49.55	43.10	109,096	109,096
Total	47.60	49.55	43.10	109,096	109,096

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.573139	0.040894	0.193976	0.114604	0.017740	0.005371	0.017133	0.024527	0.002545	0.002442	0.005942	0.000877	0.000812

5.0 Energy Detail

Historical Energy Use: N

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
NaturalGas Unmitigated	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	579.778	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Total		6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.579778	6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145
Total		6.2500e-003	0.0534	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2091	68.2091	1.3100e-003	1.2500e-003	68.6145

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795
Unmitigated	1.2722	0.0333	2.5313	5.2500e-003		0.3214	0.3214		0.3214	0.3214	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0323	0.0285	2.1174	5.2200e-003		0.3192	0.3192		0.3192	0.3192	40.3287	0.0000	40.3287	0.1254	1.1900e-003	43.8186
Landscaping	0.0126	4.7900e-003	0.4139	2.0000e-005		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003		0.7428	0.7428	7.2000e-004		0.7609
Total	1.2722	0.0333	2.5313	5.2400e-003		0.3215	0.3215		0.3215	0.3215	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.0323	0.0285	2.1174	5.2200e-003		0.3192	0.3192		0.3192	0.3192	40.3287	0.0000	40.3287	0.1254	1.1900e-003	43.8186
Landscaping	0.0126	4.7900e-003	0.4139	2.0000e-005		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003		0.7428	0.7428	7.2000e-004		0.7609
Total	1.2722	0.0333	2.5313	5.2400e-003		0.3215	0.3215		0.3215	0.3215	40.3287	0.7428	41.0714	0.1261	1.1900e-003	44.5795

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Sibley Volcanic Regional Preserve Land Use Plan Amendment - Campfire Analysis - Bay Area AQMD Air District, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

APPENDIX G

Noise Assessment Supporting Data

Appendix G

Noise Measurement Sheets, Assumptions Used in Developing Noise Levels and Model Printouts, and Noise Calculations

Noise Measurement Survey

Project Number: ERB1601

Test Personnel: J.T. Stephens

Project Name: Sibley

Equipment: LD Lxt

Site Number: ST-1 Date: 10/6/17

Time: From 12:42 pm To 12:57 pm

Site Location: East side of existing parking lot near picnic table and water fountain, Sibley site
Approximately 40 feet from roadway centerline

Primary Noise Sources: Traffic on Skyline Drive, birds

Comments: _____

Adjacent Roadways: Skyline Drive – 2 lane road

File:	63
L_{eq}	47.2
L_{max}	61.4
L_{min}	28.5
L_{50}	38.8
L_{90}	31.2

Atmospheric Conditions	
Average Wind Velocity (mph)	1.0
Maximum Wind Velocity (mph)	3.0
Temperature (F)	70
Relative Humidity (%)	

Noise Measurement Survey

Project Number: ERB1601

Test Personnel: J.T. Stephens

Project Name: Sibley

Equipment: Quest Noise Pro NXF100112

Site Number: LT-1 Date: 10/6 – 10/9/17

Time: From 1:00 pm To 2:00 p.m.

Site Location: Across from existing parking area, west of entrance, southbound side of road
Approximately 25 feet from roadway centerline

Primary Noise Sources: Traffic on Skyline Drive, birds, airplanes

Comments: Traffic on Skyline Drive, park users, birds

Adjacent Roadways: Skyline Drive – 2 lane road

Noise Measurement Survey

Project Number: ERB1601

Test Personnel: J.T. Stephens

Project Name: Sibley

Equipment: Quest Noise Pro NXG060144

Site Number: LT-2 Date: 10/6 – 10/9/17

Time: From 1:00 pm To 2:00 p.m.

Site Location: Near future site, in-line with existing gate on Wilder Road

Primary Noise Sources: Nearby construction, birds, airplanes, distant traffic

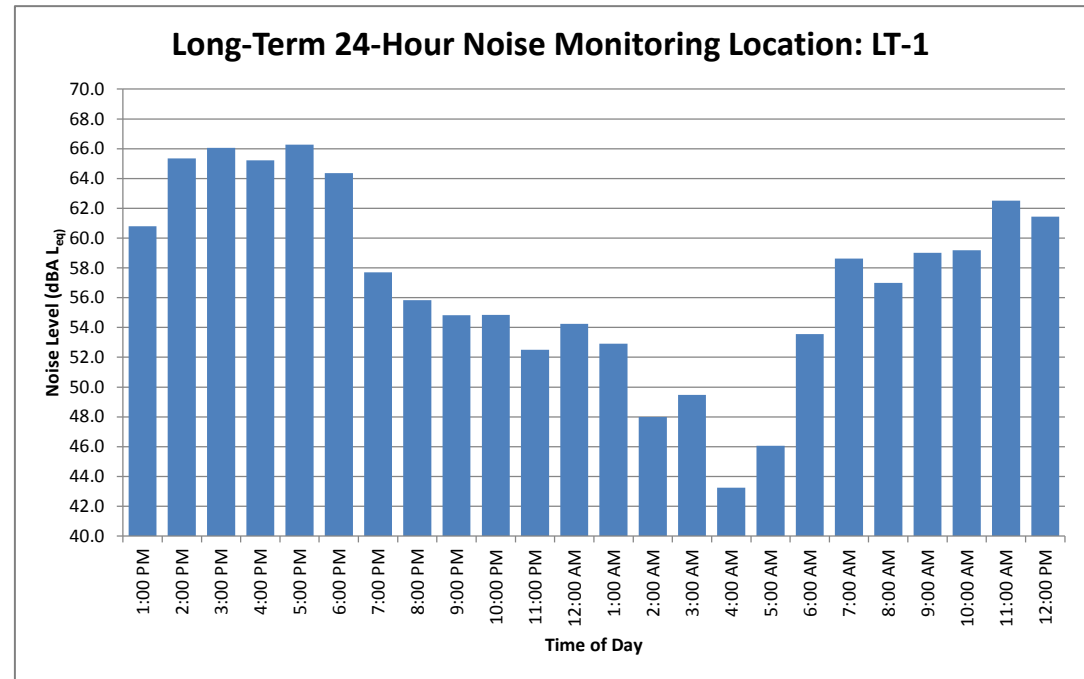
Comments: Future site currently used for dumping

Adjacent Roadways: _____

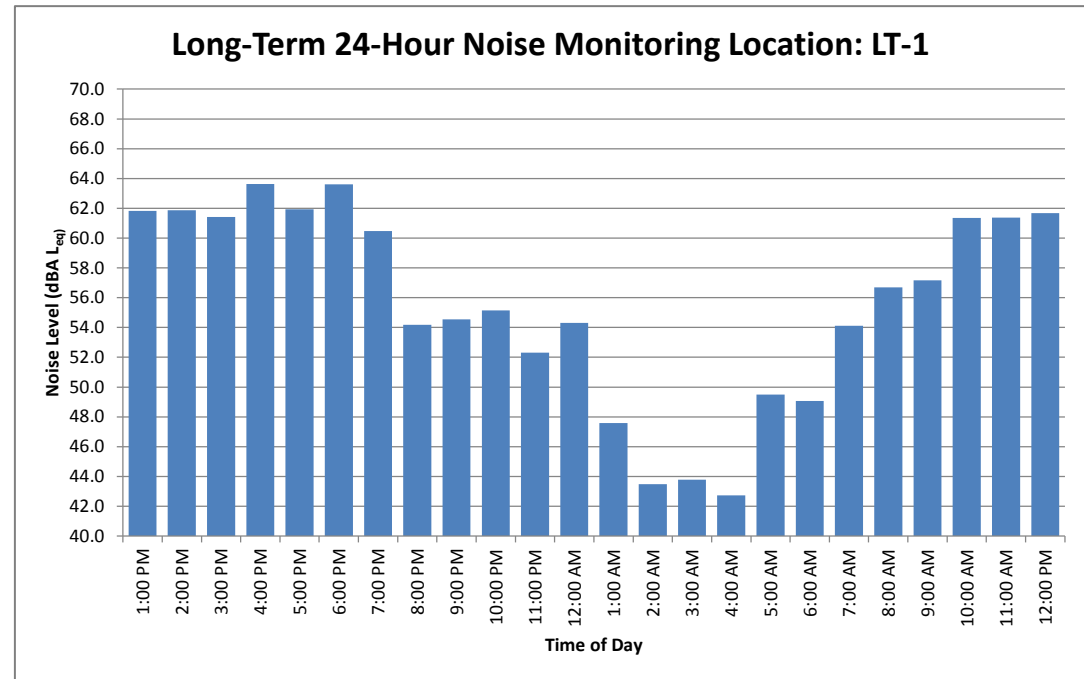
Hourly Leq	Edit	Hourly Leq	Hourly Leq
60.8		13	1:00 PM 60.8 1199190.851
		14	2:00 PM 65.4 3429686.38
		15	3:00 PM 66.0 4023827.678
1		16	4:00 PM 65.2 3331460.654
		17	5:00 PM 66.3 4243166.178
		18	6:00 PM 64.4 2729534.993
		19	7:00 PM 57.7 587899.7566
		20	8:00 PM 55.8 383706.1415
		21	9:00 PM 54.8 304222.9707
		22	10:00 PM 54.8 3053175.58
		23	11:00 PM 52.5 1782478.078
1	0	12:00 AM	54.2 2649870.983
	1	1:00 AM	52.9 1950710.324
	2	2:00 AM	48.0 629850.7619
	3	3:00 AM	49.5 886955.9756
	4	4:00 AM	43.2 210916.3254
1	5	5:00 AM	46.0 402569.0191
	6	6:00 AM	53.6 2268556.901
	7	7:00 AM	58.6 730252.6643
	8	8:00 AM	57.0 501286.3274
	9	9:00 AM	59.0 797262.1938
	10	10:00 AM	59.2 828048.0799
	11	11:00 AM	62.5 1786316.191
	12	12:00 PM	61.4 1395641.28

Ldn 62.2
Peak Leq 66.3

1	Daytime	
	Min	54.8
	Max	66.3
	Evening	
	Min	
	Max	
	Night	
	Min	43.2
	Max	54.8
	MAX	78.4
	MIN	40.40



Hourly Leq	Edit	Hourly Leq	Hourly Leq
61.8	1	13	1:00 PM 61.8 1524662.658
		14	2:00 PM 61.9 1538009.421
		15	3:00 PM 61.4 1388470.743
		16	4:00 PM 63.6 2308739.575
		17	5:00 PM 61.9 1560462.98
		18	6:00 PM 63.6 2299631.376
		19	7:00 PM 60.5 1114063.091
1		20	8:00 PM 54.2 261404.1265
		21	9:00 PM 54.5 284720.5135
		22	10:00 PM 55.1 3264294.815
		23	11:00 PM 52.3 1699411.836
0		12:00 AM	54.3 2695360.937
1		1	1:00 AM 47.6 573586.7677
2		2	2:00 AM 43.5 222743.4606
3		3	3:00 AM 43.8 239237.1211
1		4	4:00 AM 42.7 187192.1971
5		5	5:00 AM 49.5 889983.045
6		6	6:00 AM 49.1 805590.7672
7		7	7:00 AM 54.1 257256.2822
8		8	8:00 AM 56.7 467194.4559
9		9	9:00 AM 57.2 520160.3841
10		10	10:00 AM 61.4 1367518.821
11		11	11:00 AM 61.4 1373931.696
12		12	12:00 PM 61.7 1472473.206



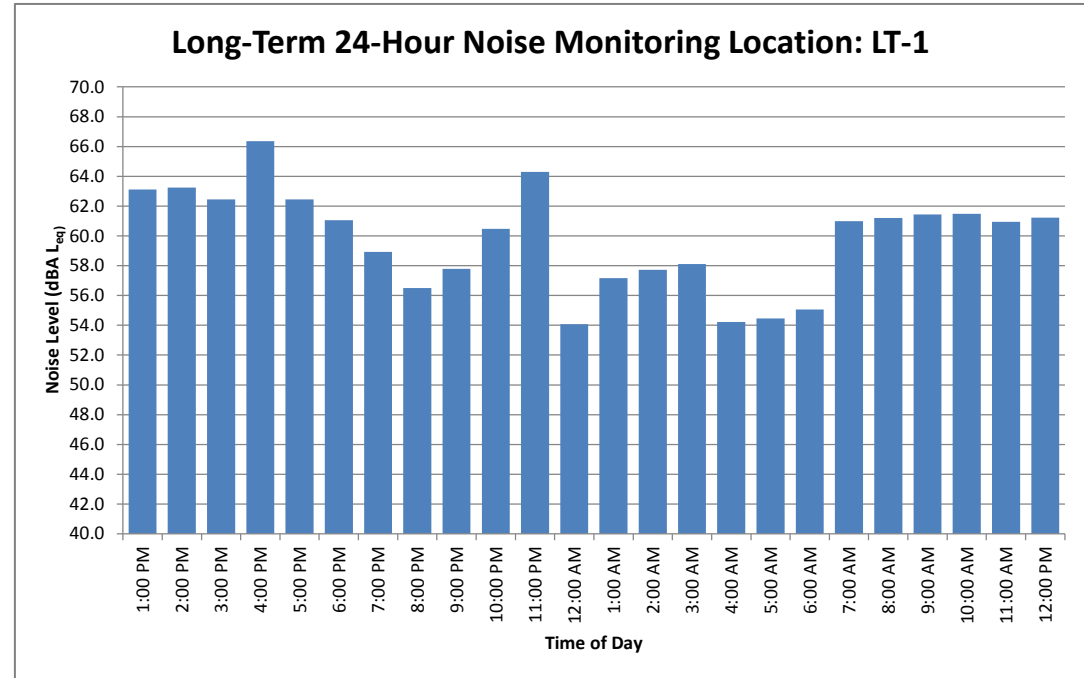
1	Ldn	60.7
	Peak Leq	63.6
1	Daytime	
	Min	54.1
	Max	63.6
1	Evening	
	Min	
	Max	
	Night	
	Min	42.7
	Max	55.1
	MAX	76.7
	MIN	40.30

10-03-17

Hourly Leq Edit

63.1

	Hourly Leq	Hourly Leq	
13	1:00 PM	63.1	2050593.229
14	2:00 PM	63.3	2113600.647
15	3:00 PM	62.4	1754100.388
16	4:00 PM	66.4	4330434.906
17	5:00 PM	62.4	1754249.458
18	6:00 PM	61.0	1271121.935
19	7:00 PM	58.9	780464.9858
20	8:00 PM	56.5	446937.3256
21	9:00 PM	57.8	601675.7401
22	10:00 PM	60.5	11160109.51
23	11:00 PM	64.3	26949335.41
0	12:00 AM	54.1	2547315.036
1	1:00 AM	57.2	5200414.009
2	2:00 AM	57.7	5906417.716
3	3:00 AM	58.1	6466973.996
4	4:00 AM	54.2	2642669.459
5	5:00 AM	54.5	2786266.474
6	6:00 AM	55.0	3197586.253
7	7:00 AM	61.0	1253554.799
8	8:00 AM	61.2	1316683.976
9	9:00 AM	61.4	1390610.494
10	10:00 AM	61.5	1405219.258
11	11:00 AM	60.9	1240013.082
12	12:00 PM	61.2	1325260.893



1

Ldn	65.7
Peak Leq	66.4

Daytime

Min	56.5
Max	66.4

Evening

1

Min

Max

1

Night

Min	54.1
-----	------

1

Max	64.3
-----	------

MAX	81.70
-----	-------

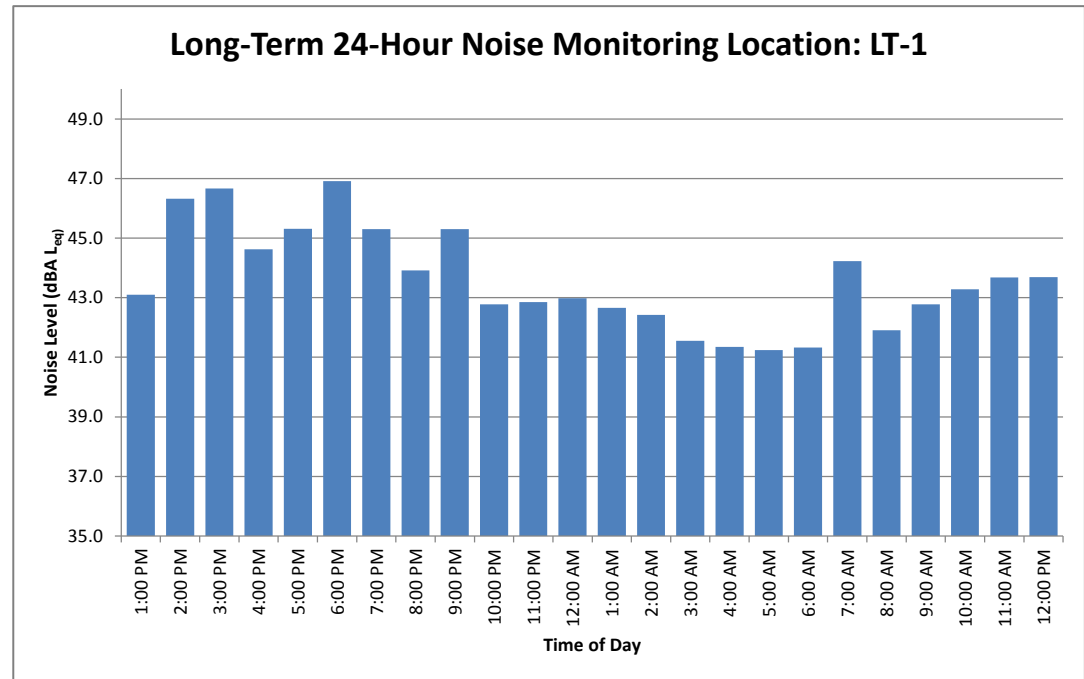
MIN	41.00
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Hourly Leq	Edit	Hourly Leq	Hourly Leq
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		14	2:00 PM 46.3 42846.68896
		15	3:00 PM 46.7 46446.7522
		16	4:00 PM 44.6 29002.58973
		17	5:00 PM 45.3 34001.10733
		18	6:00 PM 46.9 49147.24397
		19	7:00 PM 45.3 33875.71007
		20	8:00 PM 43.9 24631.37509
		21	9:00 PM 45.3 33876.44703
		22	10:00 PM 42.8 189475.0587
		23	11:00 PM 42.9 193037.8962
		0	12:00 AM 43.0 198745.1493
		1	1:00 AM 42.7 184554.6973
		2	2:00 AM 42.4 174860.7613
		3	3:00 AM 41.6 143052.9836
		4	4:00 AM 41.3 136344.8852
		5	5:00 AM 41.2 133053.7401
		6	6:00 AM 41.3 135802.4831
		7	7:00 AM 44.2 26459.34057
		8	8:00 AM 41.9 15497.35764
		9	9:00 AM 42.8 18933.17265
		10	10:00 AM 43.3 21266.44203
		11	11:00 AM 43.7 23336.00568
		12	12:00 PM 43.7 23402.80442

Ldn 49.1
Peak Leq 46.9

Daytime
Min 41.9
Max 46.9
Evening
Min
Max
Night
Min 41.2
Max 43.0

MAX 59.8
MIN 40.90

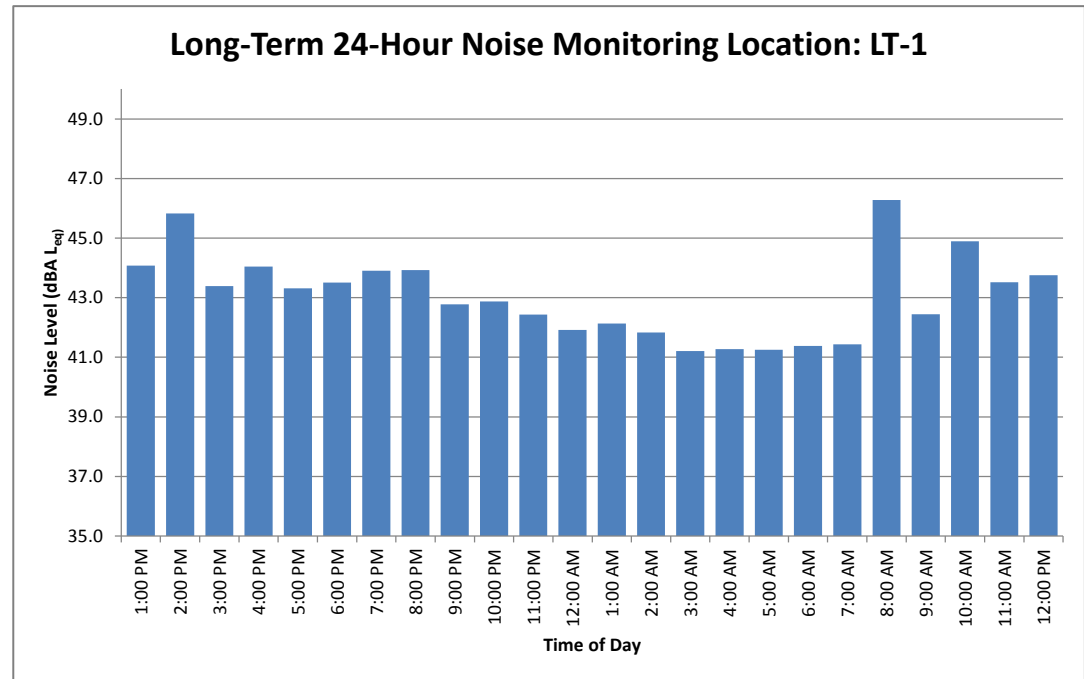


Hourly Leq	Edit	Hourly Leq	Hourly Leq
44.1		13	1:00 PM 44.1 25590.62638
		14	2:00 PM 45.8 38272.02393
		15	3:00 PM 43.4 21806.30927
		16	4:00 PM 44.0 25342.51876
		17	5:00 PM 43.3 21452.58004
		18	6:00 PM 43.5 22425.13886
		19	7:00 PM 43.9 24565.0557
		20	8:00 PM 43.9 24675.30111
		21	9:00 PM 42.8 18942.24756
		22	10:00 PM 42.9 193568.6391
		23	11:00 PM 42.4 174926.6668
		0	12:00 AM 41.9 155396.5107
		1	1:00 AM 42.1 163267.4601
		2	2:00 AM 41.8 152589.1569
		3	3:00 AM 41.2 132143.9441
		4	4:00 AM 41.3 133923.3282
		5	5:00 AM 41.2 133238.4491
		6	6:00 AM 41.4 137301.1481
		7	7:00 AM 41.4 13897.31377
		8	8:00 AM 46.3 42478.78256
		9	9:00 AM 42.4 17553.6361
		10	10:00 AM 44.9 30812.57027
		11	11:00 AM 43.5 22477.84872
		12	12:00 PM 43.8 23757.79575

Ldn 48.6
Peak Leq 46.3

Daytime
Min 41.4
Max 46.3
Evening
Min
Max
Night
Min 41.2
Max 42.9

MAX 61.8
MIN 41.10



Hourly Leq	Edit	Hourly Leq	Hourly Leq
43.6		13	1:00 PM 43.6 22661.70241
		14	2:00 PM 43.7 23195.82058
		15	3:00 PM 43.7 23411.16867
		16	4:00 PM 44.7 29497.78338
		17	5:00 PM 44.5 28196.3265
		18	6:00 PM 46.6 45935.17175
		19	7:00 PM 45.9 39083.21483
		20	8:00 PM 43.9 24463.24996
		21	9:00 PM 43.0 20037.01583
		22	10:00 PM 42.5 176300.9042
		23	11:00 PM 42.6 181148.226
		0	12:00 AM 44.4 273830.2572
		1	1:00 AM 44.3 266271.2782
		2	2:00 AM 46.1 406642.3316
		3	3:00 AM 44.2 265372.5754
		4	4:00 AM 44.9 308830.615
		5	5:00 AM 42.2 166137.1477
		6	6:00 AM 41.9 156018.5279
		7	7:00 AM 43.0 20177.24375
		8	8:00 AM 42.7 18441.65041
		9	9:00 AM 43.8 23933.90175
		10	10:00 AM 44.1 25464.81286
		11	11:00 AM 44.5 28202.86739
		12	12:00 PM 44.8 29994.22597

Ldn 50.4
Peak Leq 46.6

Daytime
Min 42.7
Max 46.6
Evening
Min
Max
Night
Min 41.9
Max 46.1

MAX 61.1
MIN 41.50

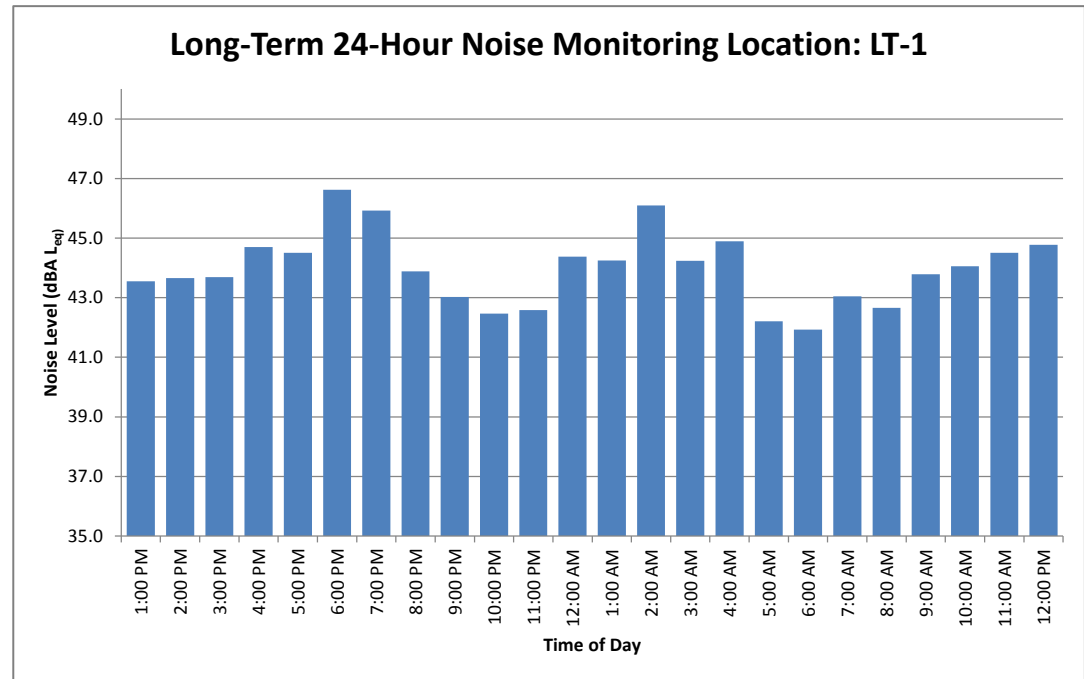


TABLE Existing Traffic Volumes-01
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Pinehurst Road - north of unnamed road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 440 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 47.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Unnamed road - east of Pinehurst Road
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 0 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 20.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - north of Sibley Preserve
Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1970 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-04
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Sibley Preserve Driveway - east of Skyline
 Boulevard
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 750 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 49.48

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - south of Sibley Preserve
Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1760 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-06
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Old Tunnel Road - north of Quarry Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 220 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 44.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Wilder Road - south of Western Hills Red Tail Hawk Staging Area
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 80 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 39.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Orinda Fields Lane - south of Wilder Road
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1070 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 51.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-09
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - east of Orinda Fields Lane
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 380 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 46.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-10
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - west of Orinda Fields Lane
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1460 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 52.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - north of Huckleberry Trail
Parkway Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1730 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing Traffic Volumes-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - south of Huckleberry Trail Parkway Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1740 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-01

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Pinehurst Road - north of unnamed road

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 920 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic
 Volumes-02
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Unnamed road - east of Pinehurst Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 850 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic
 Volumes-03
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - north of Sibley Preserve Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2380 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES
 DAY EVENING NIGHT
 --- ----- -----

AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	51.8

TABLE Existing + Project Traffic

Volumes-04

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Sibley Preserve Driveway - east of Skyline
Boulevard

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1380 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 52.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic
 Volumes-05
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - south of Sibley Preserve
 Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1980 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic
 Volumes-06
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Old Tunnel Road - north of Quarry Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 540 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Wilder Road - south of Western Hills Red Tail Hawk Staging Area

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 450 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 47.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic
 Volumes-08
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Orinda Fields Lane - south of Wilder Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1630 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 52.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Wilder Road - east of Orinda Fields Lane

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 380 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 46.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-10

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Wilder Road - west of Orinda Fields Lane

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2020 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Skyline Boulevard - north of Huckleberry Trail Parkway Driveway

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1950 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Project Traffic

Volumes-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Skyline Boulevard - south of Huckleberry Trail Parkway Driveway

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1960 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic

Volumes-01

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Pinehurst Road - north of unnamed road

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 440 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 47.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic
 Volumes-02
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Unnamed road - east of Pinehurst Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 0 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 20.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic

Volumes-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - north of Sibley Preserve Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1970 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic
 Volumes-04
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Sibley Preserve Driveway - east of Skyline
 Boulevard
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 750 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 49.48

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic

Volumes-05

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
ROADWAY SEGMENT: Skyline Boulevard - south of Sibley Preserve Driveway
NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1760 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic
 Volumes-06
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Old Tunnel Road - north of Quarry Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 220 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 44.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic
 Volumes-07
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - south of Western Hills Red Tail Hawk Staging Area
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 80 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 39.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic
 Volumes-08
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Orinda Fields Lane - south of Wilder Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3070 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	61.3

TABLE Existing + Future Traffic

Volumes-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Wilder Road - east of Orinda Fields Lane

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
- Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2660 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	55.8

TABLE Existing + Future Traffic
 Volumes-10
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - west of Orinda Fields Lane
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5470 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	89.9

TABLE Existing + Future Traffic

Volumes-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Skyline Boulevard - north of Huckleberry Trail Parkway Driveway

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1730 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Future Traffic

Volumes-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018

ROADWAY SEGMENT: Skyline Boulevard - south of Huckleberry Trail Parkway Driveway

NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1740 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-01
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Pinehurst Road - north of unnamed road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 920 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-02
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Unnamed road - east of Pinehurst Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 850 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-03
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - north of Sibley Preserve
 Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2380 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	51.8

TABLE Existing + Future + Project
 Traffic Volumes-04
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Sibley Preserve Driveway - east of Skyline
 Boulevard
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1380 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES
 DAY EVENING NIGHT
 --- ----- -----

AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 52.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-05
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - south of Sibley Preserve
 Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1980 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-06
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Old Tunnel Road - north of Quarry Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 540 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 48.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-07
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - south of Western Hills Red Tail Hawk Staging Area
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 450 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 47.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-08
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Orinda Fields Lane - south of Wilder Road
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3630 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	68.5

TABLE Existing + Future + Project
 Traffic Volumes-09
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - east of Orinda Fields Lane
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2660 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	55.8

TABLE Existing + Future + Project
 Traffic Volumes-10
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Wilder Road - west of Orinda Fields Lane
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6300 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	98.7

TABLE Existing + Future + Project
 Traffic Volumes-11
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - north of Huckleberry Trail
 Parkway Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment
 - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1950 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES
 DAY EVENING NIGHT
 --- ----- -----

AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing + Future + Project
 Traffic Volumes-12
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 06/07/2018
 ROADWAY SEGMENT: Skyline Boulevard - south of Huckleberry Trail Parkway Driveway
 NOTES: Sibley Volcanic Regional Preserve Land Use Plan Amendment - Existing + Future + Project Traffic Volumes

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1960 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES
 DAY EVENING NIGHT
 --- ----- -----

AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

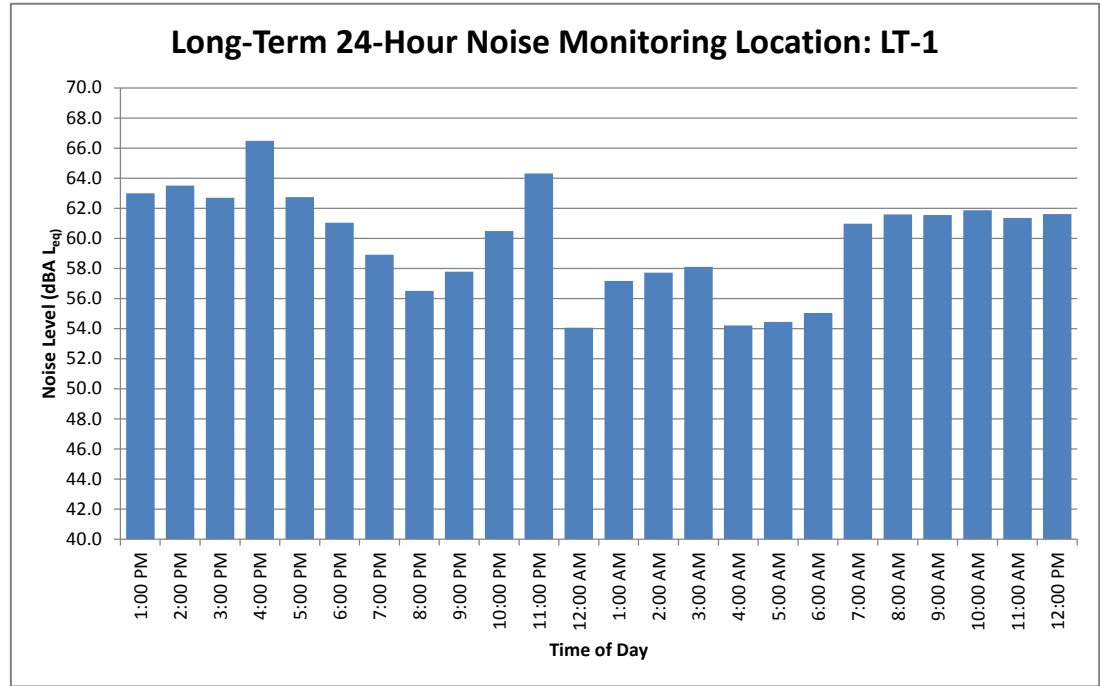
* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

January 1 - February 13 and November 2 - December 31 (8:00 a.m. to 5:20 p.m.)

Hourly Leq	Edit	Hourly Leq	
63.0		13	1:00 PM 63.0 1995978.192
		14	2:00 PM 63.5 2237635.566
		15	3:00 PM 62.7 1859458.259
		16	4:00 PM 66.5 4449275.77
		17	5:00 PM 62.7 1877265.141
		18	6:00 PM 61.0 1271121.935
		19	7:00 PM 58.9 780464.9858
		20	8:00 PM 56.5 446937.3256
		21	9:00 PM 57.8 601675.7401
		22	10:00 PM 60.5 11160109.51
		23	11:00 PM 64.3 26949335.41
		0	12:00 AM 54.1 2547315.036
		1	1:00 AM 57.2 5200414.009
		2	2:00 AM 57.7 5906417.716
		3	3:00 AM 58.1 6466973.996
		4	4:00 AM 54.2 2642669.459
		5	5:00 AM 54.5 2786266.474
		6	6:00 AM 55.0 3197586.253
		7	7:00 AM 61.0 1253554.799
		8	8:00 AM 61.6 1445589.855
		9	9:00 AM 61.5 1427091.877
		10	10:00 AM 61.9 1536399.904
		11	11:00 AM 61.4 1369504.787
		12	12:00 PM 61.6 1452255.704



1

Ldn	65.8
Peak Leq	66.5

Daytime

Min	56.5
Max	66.5

Evening

1

Min

Max

1

Night

Min	54.1
-----	------

1

Max	64.3
-----	------

February 14 - March 8 (8:00 a.m. to 6:00 p.m.)

Hourly Leq	Edit	Hourly Leq	
63.0	13	1:00 PM	63.0
	14	2:00 PM	63.5
	15	3:00 PM	62.7
	16	4:00 PM	66.5
	17	5:00 PM	62.7
	18	6:00 PM	61.4
	19	7:00 PM	58.9
	20	8:00 PM	56.5
	21	9:00 PM	57.8
	22	10:00 PM	60.5
	23	11:00 PM	64.3
	0	12:00 AM	54.1
	1	1:00 AM	57.2
	2	2:00 AM	57.7
	3	3:00 AM	58.1
	4	4:00 AM	54.2
	5	5:00 AM	54.5
	6	6:00 AM	55.0
	7	7:00 AM	61.0
	8	8:00 AM	61.6
	9	9:00 AM	61.5
	10	10:00 AM	61.9
	11	11:00 AM	61.4
	12	12:00 PM	61.6

1

Ldn 65.8
Peak Leq 66.5

Daytime

Min 56.5
Max 66.5

Evening

1

Min

Max

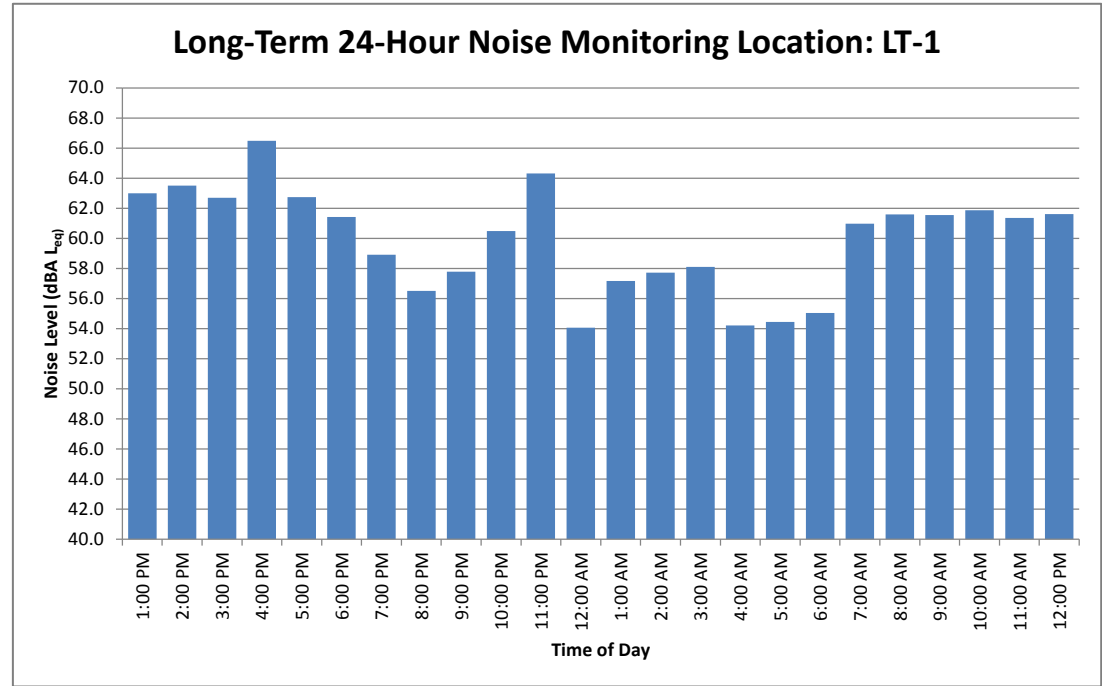
1

Night

Min 54.1

1

Max 64.3



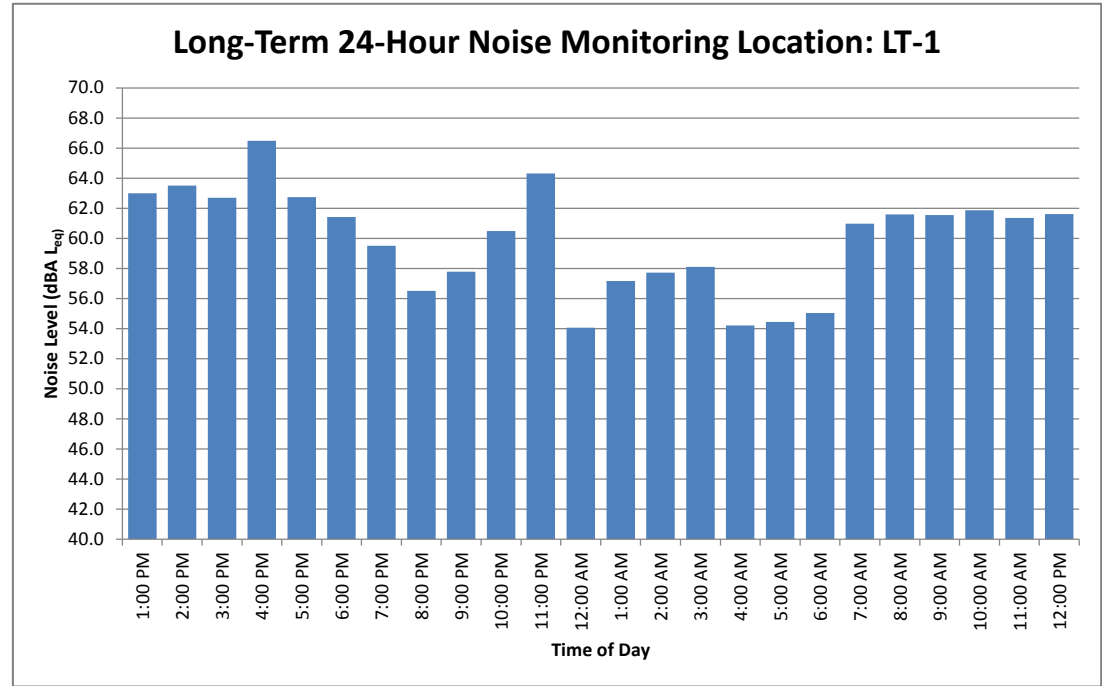
March 8 - May 20 and September 4 - November 1 (8:00 a.m. to 7:00 p.m.)

Hourly Leq	Edit	Hourly Leq	
63.0		13	1:00 PM 63.0 1995978.192
		14	2:00 PM 63.5 2237635.566
		15	3:00 PM 62.7 1859458.259
		16	4:00 PM 66.5 4449275.77
		17	5:00 PM 62.7 1877265.141
		18	6:00 PM 61.4 1386843.307
		19	7:00 PM 59.5 892348.5454
		20	8:00 PM 56.5 446937.3256
		21	9:00 PM 57.8 601675.7401
		22	10:00 PM 60.5 11160109.51
		23	11:00 PM 64.3 26949335.41
		0	12:00 AM 54.1 2547315.036
		1	1:00 AM 57.2 5200414.009
		2	2:00 AM 57.7 5906417.716
		3	3:00 AM 58.1 6466973.996
		4	4:00 AM 54.2 2642669.459
		5	5:00 AM 54.5 2786266.474
		6	6:00 AM 55.0 3197586.253
		7	7:00 AM 61.0 1253554.799
		8	8:00 AM 61.6 1445589.855
		9	9:00 AM 61.5 1427091.877
		10	10:00 AM 61.9 1536399.904
		11	11:00 AM 61.4 1369504.787
		12	12:00 PM 61.6 1452255.704

1

Ldn 65.8
Peak Leq 66.5

Daytime
Min 56.5
Max 66.5
Evening
1 Min
Max
1 Night
Min 54.1
1 Max 64.3



May 21 - September 3 (8:00 a.m. to 8:00 p.m.)

Hourly Leq	Edit	Hourly Leq	
63.0	13	1:00 PM	63.0
	14	2:00 PM	63.5
	15	3:00 PM	62.7
	16	4:00 PM	66.5
	17	5:00 PM	62.7
	18	6:00 PM	61.4
	19	7:00 PM	59.5
	20	8:00 PM	57.6
	21	9:00 PM	57.8
	22	10:00 PM	60.5
	23	11:00 PM	64.3
	0	12:00 AM	54.1
	1	1:00 AM	57.2
	2	2:00 AM	57.7
	3	3:00 AM	58.1
	4	4:00 AM	54.2
	5	5:00 AM	54.5
	6	6:00 AM	55.0
	7	7:00 AM	61.0
	8	8:00 AM	61.6
	9	9:00 AM	61.5
	10	10:00 AM	61.9
	11	11:00 AM	61.4
	12	12:00 PM	61.6

1

Ldn 65.8
Peak Leq 66.5

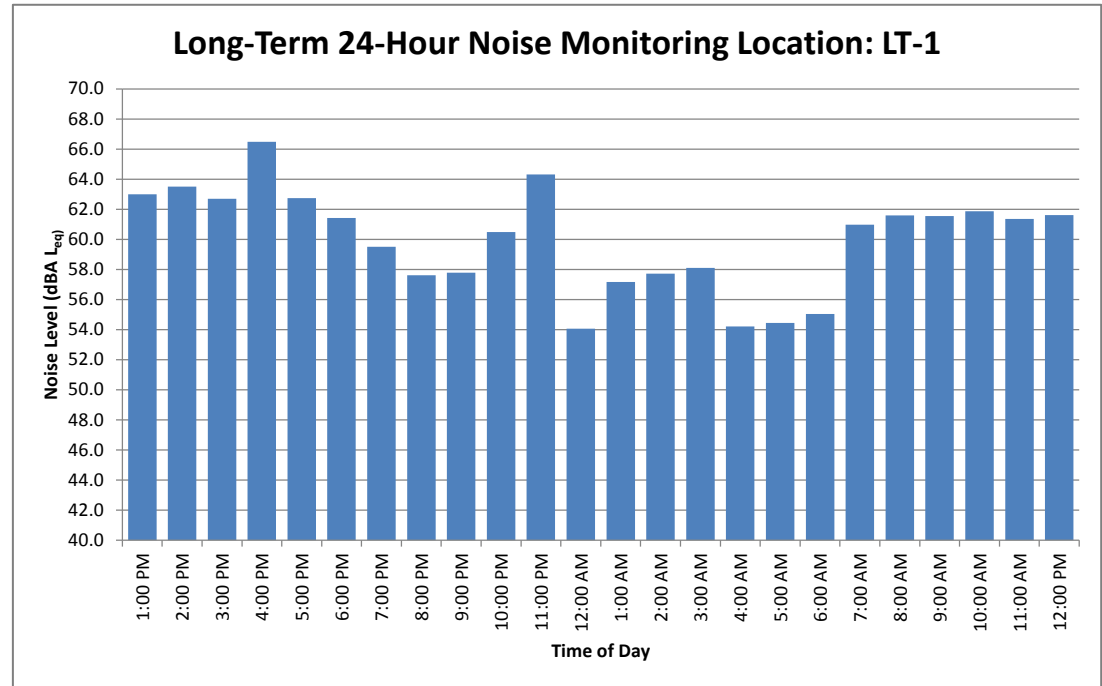
Daytime

Min 57.6
Max 66.5

Evening

1 Min
Max

1 Night
Min 54.1
Max 64.3



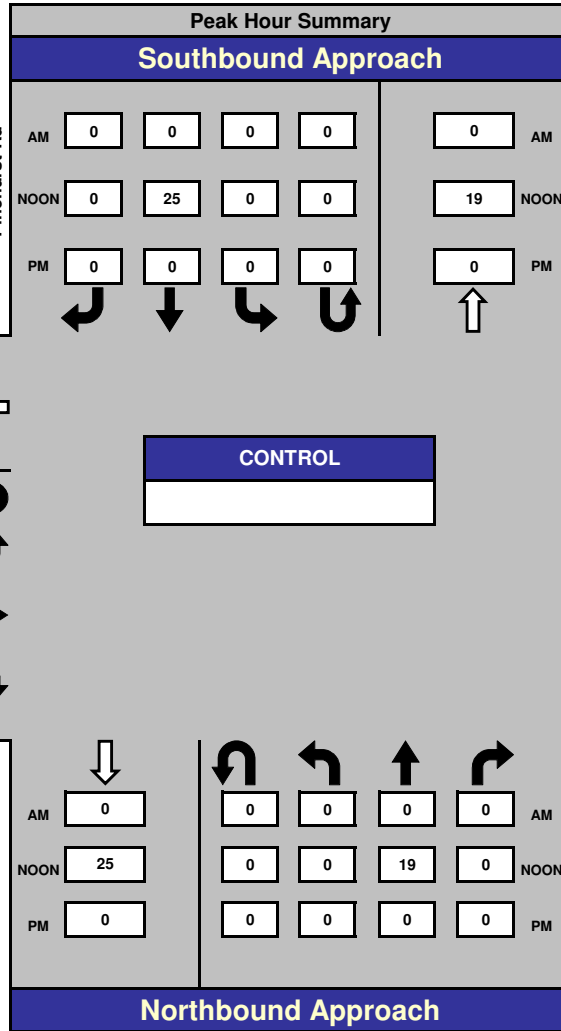
APPENDIX H

Transportation and Traffic Data

Pinehurst Rd & Unnamed Rd

Date: 6/10/2017
 Day: Saturday

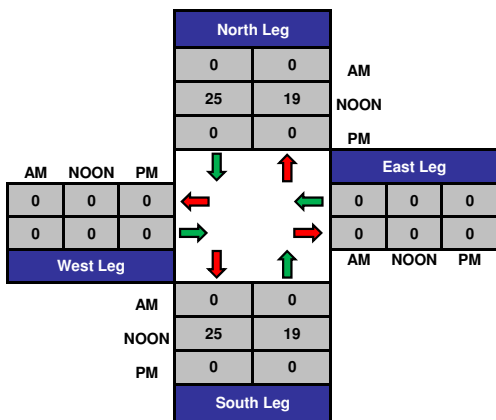
Project #: 17-7492-001



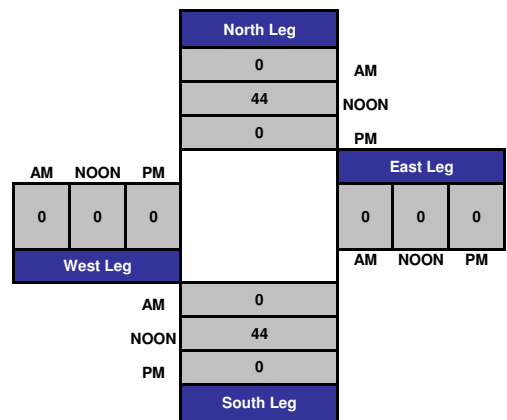
AM Peak Hour	
NOON Peak Hour	13:15 - 14:15
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



Total Volume Per Leg

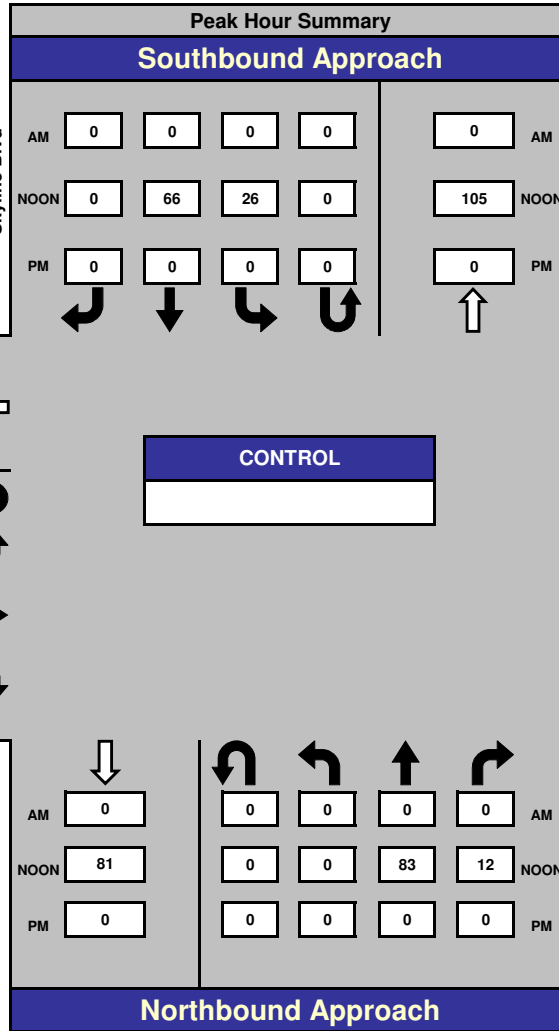


Skyline Blvd & Robert Sibley Preserve Dwy

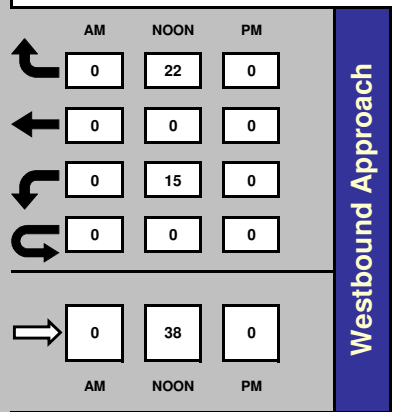
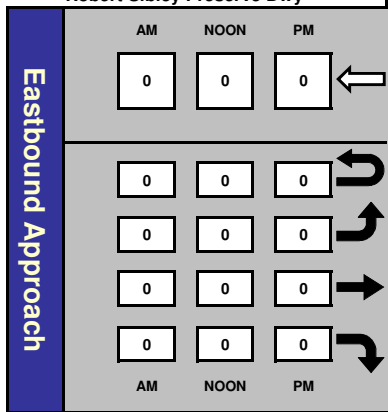
Date: 6/10/2017

Day: Saturday

Project #: 17-7492-002

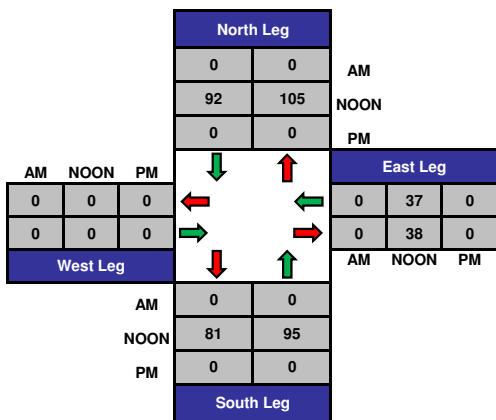


AM Peak Hour	
NOON Peak Hour	14:00 - 15:00
PM Peak Hour	

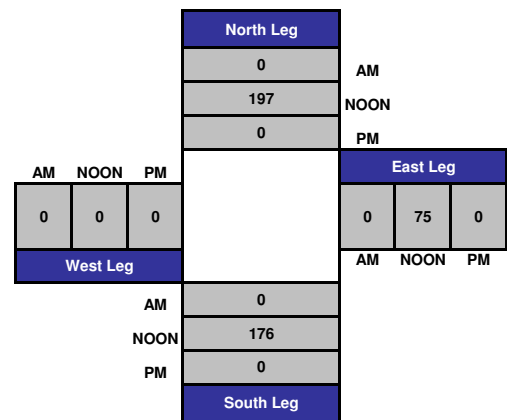


Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



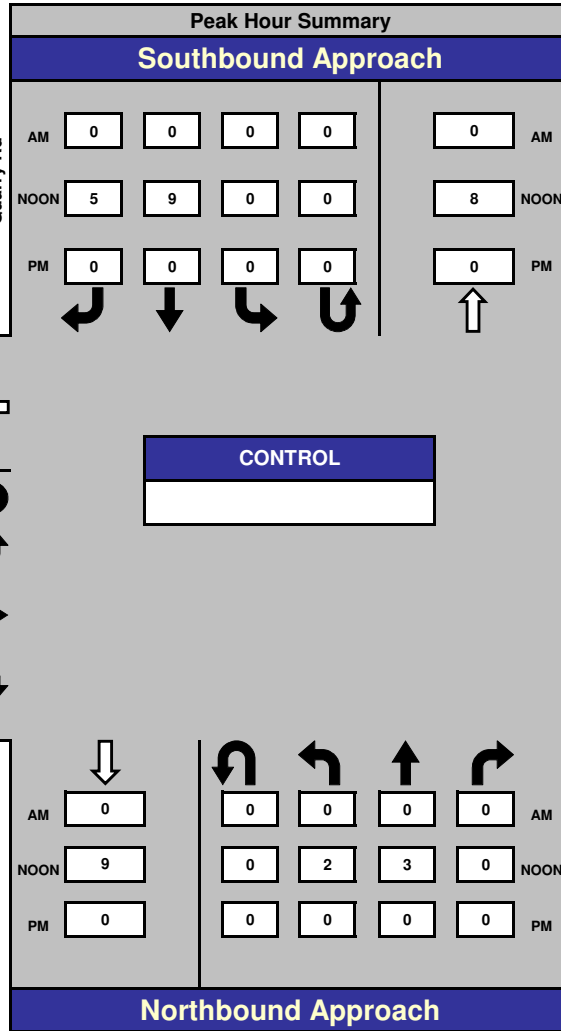
Total Volume Per Leg



Quarry Rd & Old Tunnel Rd

Date: 6/10/2017
 Day: Saturday

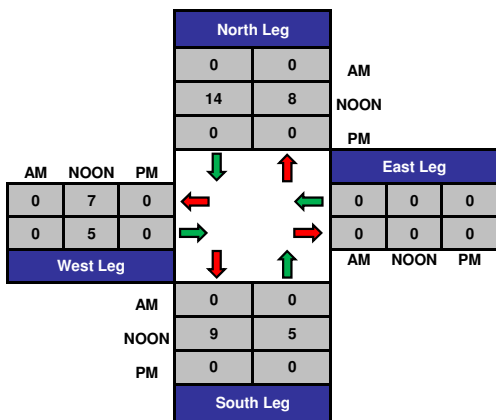
Project #: 17-7492-003



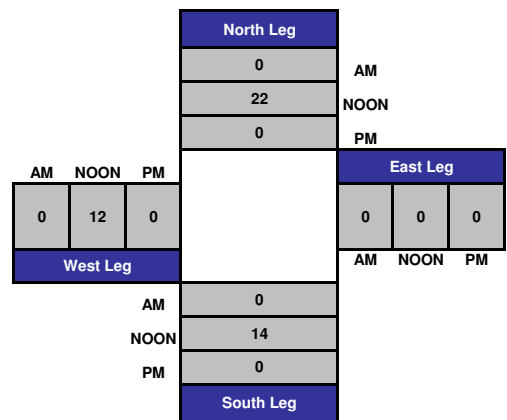
AM Peak Hour	
NOON Peak Hour	14:30 - 15:30
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



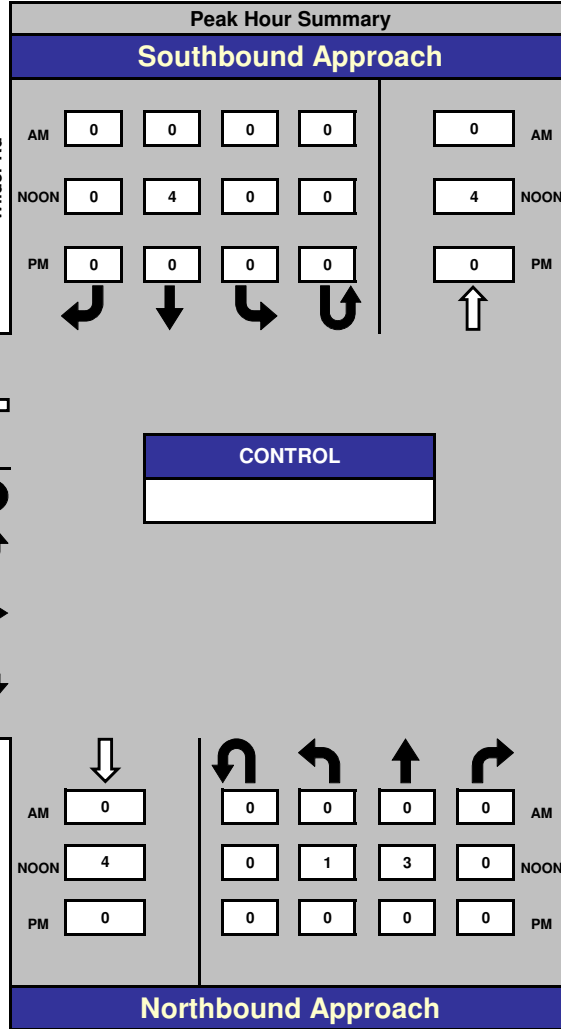
Total Volume Per Leg



Wilder Rd & Internal Dwy

Date: 6/10/2017
Day: Saturday

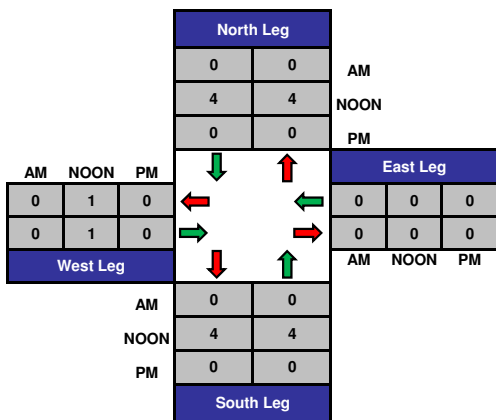
Project #: 17-7492-004



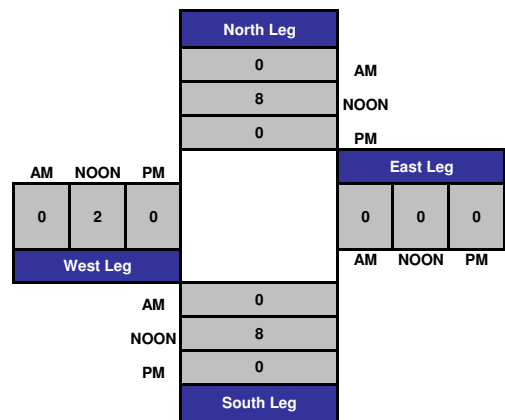
AM Peak Hour	
NOON Peak Hour	13:45 - 14:45
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



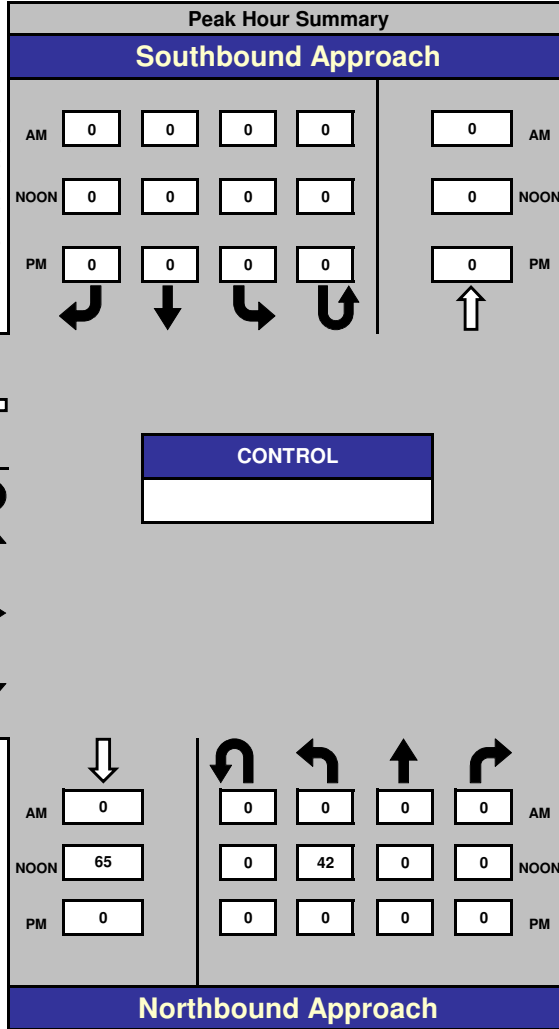
Total Volume Per Leg



Orinda Fields Ln & Wilder Rd

Date: 6/10/2017
Day: Saturday

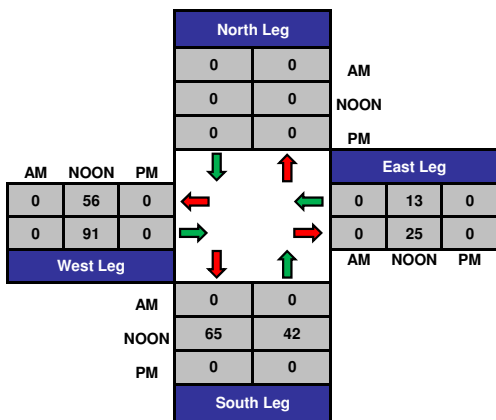
Project #: 17-7492-005



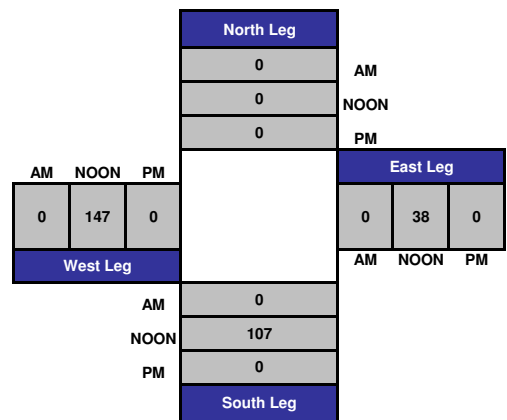
AM Peak Hour	
NOON Peak Hour	13:30 - 14:30
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



Total Volume Per Leg

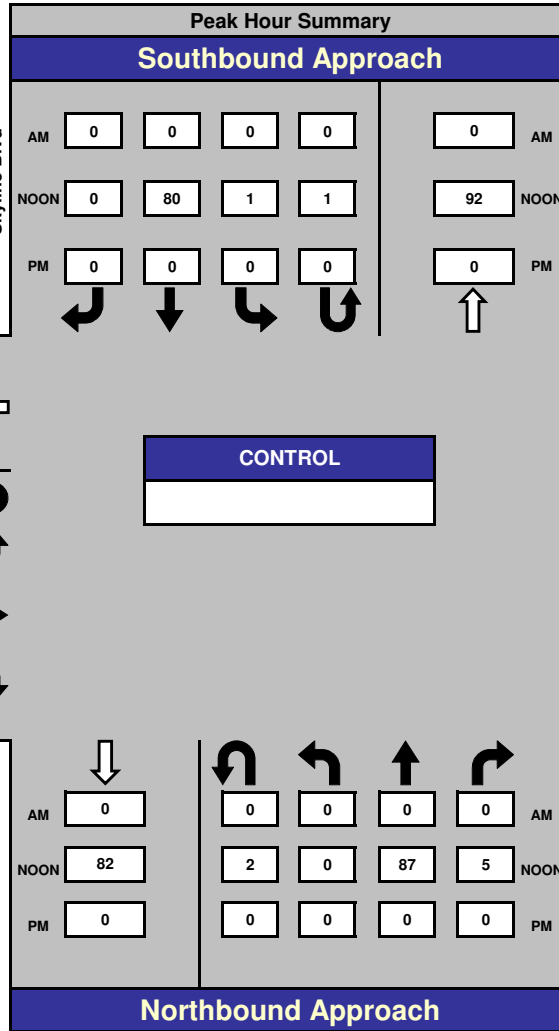


Skyline Blvd & Huckleberry Trail Parking Dwy

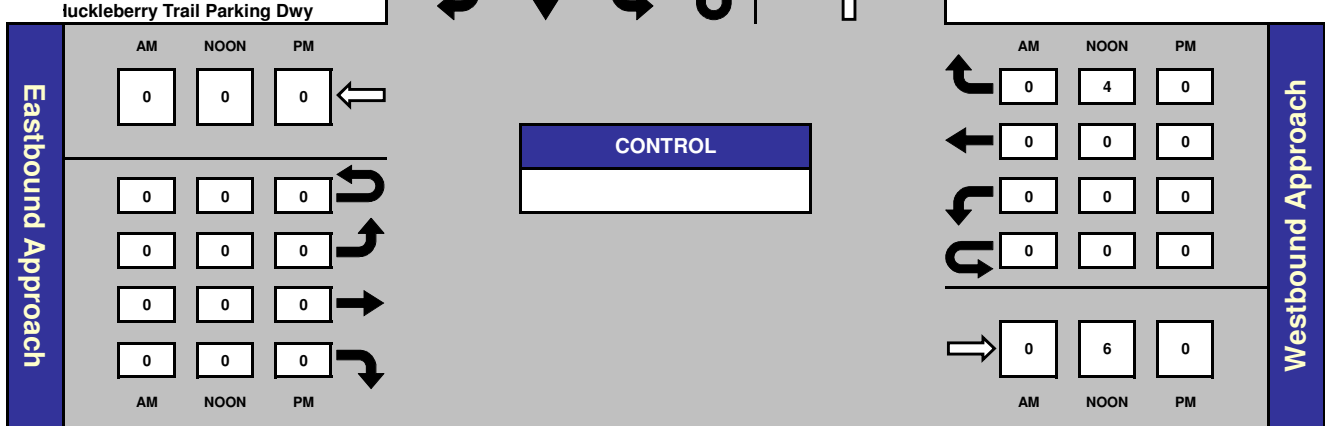
Date: 6/10/2017

Day: Saturday

Project #: 17-7492-006

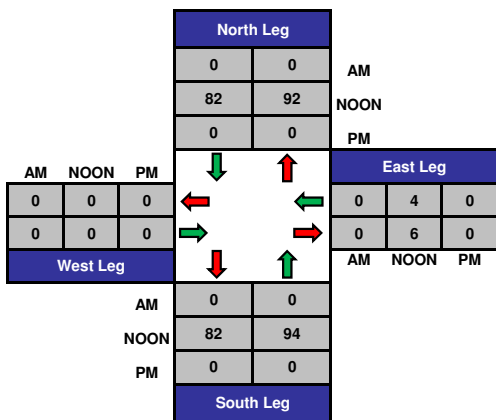


AM Peak Hour	
NOON Peak Hour	14:00 - 15:00
PM Peak Hour	

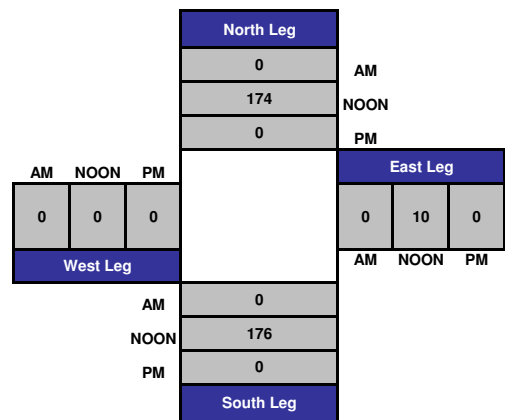


Count Periods	Start	End
AM	NONE	NONE
NOON	12:30 PM	3:30 PM
PM	NONE	NONE

Total Ins & Outs



Total Volume Per Leg



SPEED

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Friday

City: Orinda

Date: 6/2/2017

Project #: CA17_7484_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1:00	0	0	0	0	0	0	1	1	1	0	0	0	0	3
2:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	1	0	1	0	0	0	0	0	2
4:00	0	0	0	1	0	0	0	1	0	0	0	0	0	2
5:00	0	0	0	0	0	1	0	0	2	0	0	0	0	3
6:00	0	0	0	2	3	3	3	1	1	0	0	0	0	13
7:00	0	0	1	2	3	13	11	0	2	2	0	0	0	34
8:00	0	0	1	1	18	17	17	4	2	1	0	0	0	61
9:00	0	0	0	2	7	11	5	3	1	2	0	0	0	31
10:00	0	0	0	0	11	7	6	4	0	1	0	0	0	29
11:00	0	0	0	5	9	7	7	1	1	0	0	0	0	30
12:00 PM	0	0	0	0	8	9	6	2	0	1	0	0	0	26
13:00	0	0	2	5	5	8	5	5	4	1	0	0	0	35
14:00	0	0	0	3	11	6	8	1	0	1	0	0	0	30
15:00	0	0	2	6	19	20	7	1	0	1	0	0	0	56
16:00	0	0	0	6	8	13	6	1	0	0	0	0	0	34
17:00	0	0	1	3	4	15	13	6	2	1	0	0	0	45
18:00	0	0	0	9	6	14	5	1	0	1	0	0	0	36
19:00	0	0	0	4	5	7	3	7	4	0	0	0	0	30
20:00	0	0	1	2	2	4	4	1	1	2	0	0	0	17
21:00	0	1	0	3	3	5	3	1	0	0	0	0	0	16
22:00	0	0	2	3	2	7	2	1	0	0	0	0	0	17
23:00	0	0	0	1	3	5	1	0	0	0	0	0	0	10
Totals		1	10	59	127	174	113	43	21	14				562
% of Totals		0%	2%	10%	23%	31%	20%	8%	4%	2%				100%

AM Volumes	0	0	2	14	51	61	50	16	10	6	0	0	0	210
% AM			0%	2%	9%	11%	9%	3%	2%	1%				37%
AM Peak Hour			7:00	11:00	8:00	8:00	8:00	8:00	5:00	7:00				8:00
Volume			1	5	18	17	17	4	2	2				61
PM Volumes	0	1	8	45	76	113	63	27	11	8	0	0	0	352
% PM		0%	1%	8%	14%	20%	11%	5%	2%	1%				63%
PM Peak Hour		21:00	13:00	18:00	15:00	15:00	17:00	19:00	13:00	20:00				15:00
Volume		1	2	9	19	20	13	7	4	2				56
Directional Peak Periods			AM 7-9				NOON 12-2			PM 4-6		Off Peak Volumes		
All Speeds			Volume			Volume			Volume			Volume		
			95	↔	17%	61	↔	11%	79	↔	14%	327	↔	58%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Pinehurst Rd	Summary	31	37	38	45	52	562

VOLUME

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Friday
 Date: 6/2/2017

City: Orinda
 Project #: CA17_7484_001

DAILY TOTALS					NB	SB	EB	WB	Total		
					290	272	0	0	562		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	0	0	0		12:00	4	4	0	0	8
0:15	0	0	0	0		12:15	3	3	0	0	6
0:30	1	0	0	0	1	12:30	4	2	0	0	6
0:45	0	1	0	0	1	12:45	3	14	3	12	26
1:00	1	1	0	0	2	13:00	5	4	0	0	9
1:15	0	1	0	0	1	13:15	4	5	0	0	9
1:30	0	0	0	0		13:30	5	4	0	0	9
1:45	0	1	0	2	3	13:45	5	19	3	16	35
2:00	0	0	0	0		14:00	5	1	0	0	6
2:15	0	1	0	0	1	14:15	2	2	0	0	4
2:30	0	0	0	0		14:30	3	3	0	0	6
2:45	0	0	1	0	1	14:45	7	17	7	13	30
3:00	1	0	0	0	1	15:00	7	6	0	0	13
3:15	0	0	0	0		15:15	16	5	0	0	21
3:30	0	0	0	0		15:30	7	8	0	0	15
3:45	0	1	1	1	2	15:45	5	35	2	21	56
4:00	1	0	0	0	1	16:00	1	7	0	0	8
4:15	0	0	0	0		16:15	7	4	0	0	11
4:30	1	0	0	0	1	16:30	4	1	0	0	5
4:45	0	2	0	0	2	16:45	4	16	6	18	34
5:00	0	0	0	0		17:00	2	6	0	0	8
5:15	0	0	0	0		17:15	6	5	0	0	11
5:30	1	0	0	0	1	17:30	3	14	0	0	17
5:45	2	3	0	0	3	17:45	4	15	5	30	45
6:00	1	0	0	0	1	18:00	7	4	0	0	11
6:15	2	0	0	0	2	18:15	2	6	0	0	8
6:30	5	2	0	0	7	18:30	4	5	0	0	9
6:45	3	11	0	2	13	18:45	2	15	6	21	36
7:00	5	0	0	0	5	19:00	2	2	0	0	4
7:15	7	1	0	0	8	19:15	1	7	0	0	8
7:30	6	2	0	0	8	19:30	3	5	0	0	8
7:45	9	27	4	7	34	19:45	4	10	6	20	30
8:00	2	1	0	0	3	20:00	2	6	0	0	8
8:15	6	9	0	0	15	20:15	1	2	0	0	3
8:30	16	13	0	0	29	20:30	0	1	0	0	1
8:45	10	34	4	27	61	20:45	2	5	3	12	17
9:00	7	2	0	0	9	21:00	2	3	0	0	5
9:15	7	4	0	0	11	21:15	1	2	0	0	3
9:30	4	2	0	0	6	21:30	1	5	0	0	6
9:45	2	20	3	11	31	21:45	0	4	2	12	16
10:00	7	0	0	0	7	22:00	3	0	0	0	3
10:15	7	4	0	0	11	22:15	1	3	0	0	4
10:30	1	3	0	0	4	22:30	2	3	0	0	5
10:45	5	20	2	9	29	22:45	0	6	5	11	17
11:00	1	4	0	0	5	23:00	0	3	0	0	3
11:15	6	5	0	0	11	23:15	0	1	0	0	1
11:30	5	4	0	0	9	23:30	0	2	0	0	2
11:45	2	14	3	16	30	23:45	0	4	10	0	14
TOTALS	134	76			210	TOTALS	156	196			352
SPLIT %	63.8%	36.2%			37.4%	SPLIT %	44.3%	55.7%			62.6%

DAILY TOTALS					NB	SB	EB	WB	Total
					290	272	0	0	562

AM Peak Hour	8:30	8:15		8:15	PM Peak Hour	14:45	16:45		14:45
AM Pk Volume	40	28		67	PM Pk Volume	37	31		63
Pk Hr Factor	0.625	0.538		0.578	Pk Hr Factor	0.453	0.500		0.750
7 - 9 Volume	61	34	0	95	4 - 6 Volume	31	48	0	79
7 - 9 Peak Hour	8:00	7:45		8:00	4 - 6 Peak Hour	16:15	16:45		16:45
7 - 9 Pk Volume	34	27	0	61	4 - 6 Pk Volume	17	31	0	46
Pk Hr Factor	0.531	0.519	0.000	0.526	Pk Hr Factor	0.607	0.554	0.000	0.676

SPEED

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Saturday

City: Orinda

Date: 6/3/2017

Project #: CA17_7484_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	0	1	2	1	0	0	0	0	0	0	0	4
1:00	0	0	0	0	0	0	1	0	1	0	0	0	0	2
2:00	0	0	0	0	0	0	2	0	1	0	0	0	0	3
3:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
4:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00	0	0	0	0	1	0	1	0	0	0	0	0	0	2
6:00	0	0	0	3	0	1	0	0	0	0	0	0	0	4
7:00	0	0	0	0	3	3	1	2	0	1	0	0	0	10
8:00	0	0	1	1	5	5	3	2	1	0	0	0	0	18
9:00	0	1	1	1	2	3	2	2	1	1	0	0	0	14
10:00	0	0	1	7	3	8	2	3	1	0	0	0	0	25
11:00	0	0	2	4	7	11	5	3	1	0	0	0	0	33
12:00 PM	2	0	2	0	4	8	6	3	5	1	0	0	0	31
13:00	0	0	2	6	12	9	2	2	0	1	0	0	0	34
14:00	0	0	4	9	4	7	4	4	4	0	0	0	0	36
15:00	0	0	2	8	7	11	4	1	1	1	0	0	0	35
16:00	2	0	3	2	11	10	3	1	4	0	0	0	0	36
17:00	0	0	0	7	4	7	2	4	0	0	0	0	0	24
18:00	0	0	0	6	11	6	3	0	3	0	0	0	0	29
19:00	0	0	0	0	2	3	1	2	2	1	0	0	0	11
20:00	0	0	2	4	7	1	6	0	0	0	0	0	0	20
21:00	0	0	1	4	18	7	1	0	2	1	0	0	0	34
22:00	0	0	3	8	19	16	5	2	2	1	0	0	0	56
23:00	0	0	2	6	15	6	3	1	0	0	0	0	0	33
Totals	4	1	26	77	138	123	57	32	30	8				496
% of Totals	1%	0%	5%	16%	28%	25%	11%	6%	6%	2%				100%

AM Volumes	0	1	5	17	24	32	17	12	7	2	0	0	0	117	
% AM		0%	1%	3%	5%	6%	3%	2%	1%	0%				24%	
AM Peak Hour		9:00	11:00	10:00	11:00	11:00	11:00	10:00	1:00	7:00				11:00	
Volume		1	2	7	7	11	5	3	1	1				33	
PM Volumes	4	0	21	60	114	91	40	20	23	6	0	0	0	379	
% PM	1%		4%	12%	23%	18%	8%	4%	5%	1%				76%	
PM Peak Hour	12:00		14:00	14:00	22:00	22:00	12:00	14:00	12:00	12:00				22:00	
Volume	2		4	9	19	16	6	4	5	1				56	
Directional Peak Periods			AM 7-9				NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds			Volume		%	Volume		%	Volume		%	Volume		%	
			28	↔	6%	65	↔	13%	60	↔	12%	343	↔	69%	

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Pinehurst Rd	Summary	28	35	36	45	52	496

VOLUME

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Saturday
 Date: 6/3/2017

City: Orinda
 Project #: CA17_7484_001

DAILY TOTALS						NB	SB	EB	WB	Total	
						248	248	0	0	496	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	0	0	0		12:00	5	2	0	0	7
0:15	1	0	0	0	1	12:15	9	1	0	0	10
0:30	1	1	0	0	2	12:30	4	3	0	0	7
0:45	0	2	1	2	1 4	12:45	3	21	4	10	7 31
1:00	0	0	0	0		13:00	1	4	0	0	5
1:15	0	0	0	0		13:15	7	4	0	0	11
1:30	0	1	0	0	1	13:30	2	7	0	0	9
1:45	0	1	2	0	1 2	13:45	3	13	6	21	9 34
2:00	0	0	0	0		14:00	5	1	0	0	6
2:15	0	1	0	0	1	14:15	4	4	0	0	8
2:30	0	1	0	0	1	14:30	3	3	0	0	6
2:45	0	1	3	0	1 3	14:45	5	17	11	19	16 36
3:00	1	0	0	0	1	15:00	7	5	0	0	12
3:15	0	0	0	0		15:15	2	4	0	0	6
3:30	0	0	0	0		15:30	3	3	0	0	6
3:45	0	1	0	0	1	15:45	9	21	2	14	11 35
4:00	0	0	0	0		16:00	7	4	0	0	11
4:15	1	0	0	0	1	16:15	7	2	0	0	9
4:30	0	0	0	0		16:30	5	2	0	0	7
4:45	0	1	0	0	1	16:45	4	23	5	13	9 36
5:00	0	0	0	0		17:00	2	1	0	0	3
5:15	1	0	0	0	1	17:15	6	1	0	0	7
5:30	0	0	0	0		17:30	3	1	0	0	4
5:45	1	2	0	0	1 2	17:45	3	14	7	10	10 24
6:00	1	0	0	0	1	18:00	1	5	0	0	6
6:15	1	0	0	0	1	18:15	5	5	0	0	10
6:30	1	0	0	0	1	18:30	5	2	0	0	7
6:45	0	3	1	1	1 4	18:45	4	15	2	14	6 29
7:00	1	0	0	0	1	19:00	0	1	0	0	1
7:15	2	1	0	0	3	19:15	2	2	0	0	4
7:30	2	1	0	0	3	19:30	2	1	0	0	3
7:45	1	6	2	4	3 10	19:45	1	5	2	6	3 11
8:00	1	1	0	0	2	20:00	1	1	0	0	2
8:15	3	1	0	0	4	20:15	1	3	0	0	4
8:30	2	0	0	0	2	20:30	3	3	0	0	6
8:45	4	10	6	8	10 18	20:45	3	8	5	12	8 20
9:00	3	0	0	0	3	21:00	6	6	0	0	12
9:15	3	1	0	0	4	21:15	2	4	0	0	6
9:30	3	0	0	0	3	21:30	0	5	0	0	5
9:45	3	12	1	2	4 14	21:45	1	9	10	25	11 34
10:00	1	2	0	0	3	22:00	1	15	0	0	16
10:15	4	0	0	0	4	22:15	1	11	0	0	12
10:30	8	1	0	0	9	22:30	6	8	0	0	14
10:45	3	16	6	9	9 25	22:45	5	13	9	43	14 56
11:00	7	6	0	0	13	23:00	4	5	0	0	9
11:15	4	2	0	0	6	23:15	6	3	0	0	9
11:30	4	1	0	0	5	23:30	4	3	0	0	7
11:45	3	18	6	15	9 33	23:45	4	18	4	15	8 33
TOTALS	71	46			117	TOTALS	177	202			379
SPLIT %	60.7%	39.3%			23.6%	SPLIT %	46.7%	53.3%			76.4%

DAILY TOTALS						NB	SB	EB	WB	Total
						248	248	0	0	496

AM Peak Hour	10:15	10:30			10:30	PM Peak Hour	15:45	21:45		22:00
AM Pk Volume	22	15			37	PM Pk Volume	28	44		56
Pk Hr Factor	0.688	0.625			0.712	Pk Hr Factor	0.643	0.750		0.875
7 - 9 Volume	16	12	0	0	28	4 - 6 Volume	37	23	0	60
7 - 9 Peak Hour	8:00	8:00			8:00	4 - 6 Peak Hour	16:00	16:00		16:00
7 - 9 Pk Volume	10	8	0	0	18	4 - 6 Pk Volume	23	13	0	36
Pk Hr Factor	0.625	0.333	0.000	0.000	0.450	Pk Hr Factor	0.821	0.650	0.000	0.818

SPEED

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Sunday

City: Orinda

Date: 6/4/2017

Project #: CA17_7484_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	2	9	12	3	0	0	0	0	0	0	0	26
1:00	0	1	0	6	4	1	3	1	0	0	0	0	0	16
2:00	0	0	0	2	4	3	0	0	0	0	0	0	0	9
3:00	0	0	0	0	0	0	1	1	0	0	0	0	0	2
4:00	0	0	0	0	0	0	1	0	0	1	0	0	0	2
5:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
6:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:00	0	0	0	1	0	2	1	0	0	0	0	0	0	4
8:00	0	0	1	0	2	3	4	2	0	0	0	0	0	12
9:00	0	0	3	3	2	5	5	2	2	0	0	0	0	22
10:00	0	0	1	3	7	3	11	1	0	0	0	0	0	26
11:00	0	0	0	5	6	6	1	2	1	0	0	0	0	21
12:00 PM	0	0	0	1	5	8	1	2	2	2	0	0	0	21
13:00	0	0	3	7	9	5	7	2	0	0	0	0	0	33
14:00	0	0	4	10	6	9	4	3	0	2	0	0	0	38
15:00	0	0	4	6	9	3	3	4	2	2	0	0	0	33
16:00	0	0	2	2	5	11	9	3	2	1	0	0	0	35
17:00	0	0	2	4	6	7	8	1	1	1	0	0	0	30
18:00	0	0	0	3	6	10	2	0	1	0	0	0	0	22
19:00	0	0	1	0	5	1	4	4	2	0	0	0	0	17
20:00	0	0	0	2	9	14	4	2	1	0	0	0	0	32
21:00	0	0	0	1	5	5	2	4	2	0	0	0	0	19
22:00	0	0	1	0	3	1	1	0	0	0	0	0	0	6
23:00	0	0	1	4	1	5	0	0	0	1	0	0	0	12
Totals		1	25	69	106	105	72	35	16	11				440
% of Totals		0%	6%	16%	24%	24%	16%	8%	4%	3%				100%

AM Volumes	0	1	7	29	37	26	27	10	3	2	0	0	0	142	
% AM		0%	2%	7%	8%	6%	6%	2%	1%	0%				32%	
AM Peak Hour		1:00	9:00			11:00	10:00	8:00	9:00	4:00					
Volume		1	3	9	12	6	11	2	2	1				26	
PM Volumes	0	0	18	40	69	79	45	25	13	9	0	0	0	298	
% PM			4%	9%	16%	18%	10%	6%	3%	2%				68%	
PM Peak Hour			14:00	14:00	13:00	20:00	16:00	15:00	12:00	12:00				14:00	
Volume			4	10	9	14	9	4	2	2				38	
Directional Peak Periods			AM 7-9				NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds			Volume		%	Volume		%	Volume		%	Volume		%	
			16	↔	4%	54	↔	12%	65	↔	15%	305	↔	69%	

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Pinehurst Rd	Summary	28	36	36	45	52	440

VOLUME

Pinehurst Rd Bet. Canyon Rd & Skyline Blvd

Day: Sunday
 Date: 6/4/2017

City: Orinda
 Project #: CA17_7484_001

DAILY TOTALS					NB	SB	EB	WB	Total		
					221	219	0	0	440		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	3	6	0	0	9	12:00	2	3	0	0	5
0:15	4	0	0	0	4	12:15	1	1	0	0	2
0:30	9	0	0	0	9	12:30	2	2	0	0	4
0:45	3	19	1	7	4	12:45	5	10	5	11	10
1:00	4	1	0	0	5	13:00	6	2	0	0	8
1:15	3	2	0	0	5	13:15	3	3	0	0	6
1:30	1	2	0	0	3	13:30	6	4	0	0	10
1:45	0	8	3	8	3	13:45	4	19	5	14	9
2:00	2	1	0	0	3	14:00	7	2	0	0	9
2:15	2	1	0	0	3	14:15	6	4	0	0	10
2:30	2	1	0	0	3	14:30	6	4	0	0	10
2:45	0	6	0	3	9	14:45	1	20	8	18	9
3:00	0	0	0	0		15:00	5	3	0	0	8
3:15	0	0	0	0		15:15	5	7	0	0	12
3:30	0	0	0	0		15:30	3	5	0	0	8
3:45	0	2	2	0	2	15:45	4	17	1	16	5
4:00	1	0	0	0	1	16:00	2	8	0	0	10
4:15	0	0	0	0		16:15	6	4	0	0	10
4:30	0	0	0	0		16:30	6	3	0	0	9
4:45	1	2	0	0	1	16:45	4	18	2	17	6
5:00	0	0	0	0		17:00	4	7	0	0	11
5:15	0	0	0	0		17:15	2	2	0	0	4
5:30	0	0	0	0		17:30	2	5	0	0	7
5:45	1	1	0	0	1	17:45	2	10	6	20	8
6:00	1	0	0	0	1	18:00	1	3	0	0	4
6:15	0	0	0	0		18:15	5	4	0	0	9
6:30	0	0	0	0		18:30	2	3	0	0	5
6:45	0	1	0	0	1	18:45	2	10	2	12	4
7:00	0	0	0	0		19:00	3	3	0	0	6
7:15	1	0	0	0	1	19:15	2	4	0	0	6
7:30	1	0	0	0	1	19:30	1	1	0	0	2
7:45	0	2	2	2	2	19:45	1	7	2	10	3
8:00	1	1	0	0	2	20:00	0	11	0	0	11
8:15	0	1	0	0	1	20:15	4	3	0	0	7
8:30	3	2	0	0	5	20:30	2	4	0	0	6
8:45	2	6	2	6	4	20:45	2	8	6	24	8
9:00	6	1	0	0	7	21:00	1	5	0	0	6
9:15	2	2	0	0	4	21:15	2	4	0	0	6
9:30	4	2	0	0	6	21:30	2	2	0	0	4
9:45	5	17	0	5	5	21:45	1	6	2	13	3
10:00	1	2	0	0	3	22:00	0	3	0	0	3
10:15	7	3	0	0	10	22:15	0	0	0	0	
10:30	5	1	0	0	6	22:30	1	1	0	0	2
10:45	5	18	2	8	7	22:45	0	1	1	5	1
11:00	2	5	0	0	7	23:00	2	2	0	0	4
11:15	3	1	0	0	4	23:15	0	2	0	0	2
11:30	2	2	0	0	4	23:30	0	3	0	0	3
11:45	5	12	1	9	6	23:45	1	3	2	9	3
TOTALS	92	50			142	TOTALS	129	169			298
SPLIT %	64.8%	35.2%			32.3%	SPLIT %	43.3%	56.7%			67.7%

DAILY TOTALS					NB	SB	EB	WB	Total
					221	219	0	0	440

AM Peak Hour	0:15	10:15			10:15	PM Peak Hour	13:30	20:00			14:30
AM Pk Volume	20	11			30	PM Pk Volume	23	24			39
Pk Hr Factor	0.556	0.550			0.750	Pk Hr Factor	0.714	0.792			0.813
7 - 9 Volume	8	8	0	0	16	4 - 6 Volume	28	37	0	0	65
7 - 9 Peak Hour	8:00	7:45			8:00	4 - 6 Peak Hour	16:15	17:00			16:15
7 - 9 Pk Volume	6	6	0	0	12	4 - 6 Pk Volume	20	20	0	0	36
Pk Hr Factor	0.500	0.750	0.000	0.000	0.600	Pk Hr Factor	0.833	0.714	0.000	0.000	0.818

SPEED

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Friday

City: Orinda

Date: 6/2/2017

Project #: CA17_7484_002

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	0	1	2	2	0	0	0	0	0	0	0	0	5
1:00	0	0	2	1	0	1	0	0	0	0	0	0	0	4
2:00	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00	0	0	0	7	1	2	0	0	0	0	0	0	0	10
6:00	3	2	6	14	13	4	0	0	0	0	0	0	0	42
7:00	0	1	15	47	36	7	1	0	0	0	0	0	0	107
8:00	3	2	13	58	60	4	0	0	0	0	0	0	0	140
9:00	4	3	36	52	32	9	0	0	0	0	0	0	0	136
10:00	2	4	19	36	24	6	0	0	0	0	0	0	0	91
11:00	4	2	21	52	20	5	0	0	0	0	0	0	0	104
12:00 PM	1	2	16	46	28	10	1	0	0	0	0	0	0	104
13:00	2	2	20	62	34	3	0	0	0	0	0	0	0	123
14:00	2	0	29	83	56	15	2	0	0	0	0	0	0	187
15:00	1	9	62	240	113	6	0	0	0	0	0	0	0	431
16:00	1	10	50	232	167	32	2	0	0	0	0	0	0	494
17:00	0	5	23	125	137	33	0	0	0	0	0	0	0	323
18:00	2	3	25	78	54	5	1	0	0	0	0	0	0	168
19:00	0	0	14	41	35	9	1	0	0	0	0	0	0	100
20:00	0	0	5	26	17	8	1	0	0	0	0	0	0	57
21:00	1	0	10	13	8	4	1	0	0	0	0	0	0	37
22:00	0	1	5	23	10	2	1	0	0	0	0	0	0	42
23:00	0	1	2	7	9	0	0	0	0	0	0	0	0	19
Totals	27	47	374	1246	856	165	11							2726
% of Totals	1%	2%	14%	46%	31%	6%	0%							100%

AM Volumes	17	14	113	270	188	38	1	0	0	0	0	0	0	641
% AM	1%	1%	4%	10%	7%	1%	0%							24%
AM Peak Hour	9:00	10:00	9:00	8:00	8:00	9:00	7:00							8:00
Volume	4	4	36	58	60	9	1							140
PM Volumes	10	33	261	976	668	127	10	0	0	0	0	0	0	2085
% PM	0%	1%	10%	36%	25%	5%	0%							76%
PM Peak Hour	13:00	16:00	15:00	15:00	16:00	17:00	14:00							16:00
Volume	2	10	62	240	167	33	2							494
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds			Volume		%	Volume		%	Volume		%	Volume		%
			247	↔	9%	227	↔	8%	817	↔	30%	1435	↔	53%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	24	29	29	34	36	2726

VOLUME

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Friday
 Date: 6/2/2017

City: Orinda
 Project #: CA17_7484_002

DAILY TOTALS					NB	SB	EB	WB	Total
					1,848	878	0	0	2,726

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	0	0	0		12:00	12	11	0	0	23
0:15	0	0	0	0		12:15	11	11	0	0	22
0:30	3	1	0	0	4	12:30	17	18	0	0	35
0:45	1	4	0	1	1 5	12:45	11	51	13	53	24 104
1:00	0	1	0	0	1	13:00	17	22	0	0	39
1:15	0	2	0	0	2	13:15	15	13	0	0	28
1:30	0	0	0	0		13:30	16	11	0	0	27
1:45	0	1	4	0	1 4	13:45	17	65	12	58	29 123
2:00	0	0	0	0		14:00	17	16	0	0	33
2:15	0	0	0	0		14:15	21	10	0	0	31
2:30	0	1	0	0	1	14:30	34	19	0	0	53
2:45	0	0	1	0	1	14:45	57	129	13	58	70 187
3:00	0	0	0	0		15:00	65	22	0	0	87
3:15	0	0	0	0		15:15	69	25	0	0	94
3:30	0	0	0	0		15:30	85	17	0	0	102
3:45	0	0	0	0		15:45	123	342	25	89	148 431
4:00	0	0	0	0		16:00	100	25	0	0	125
4:15	0	0	0	0		16:15	148	21	0	0	169
4:30	0	0	0	0		16:30	90	21	0	0	111
4:45	1	1	0	0	1 1	16:45	68	406	21	88	89 494
5:00	3	1	0	0	4	17:00	58	30	0	0	88
5:15	1	2	0	0	3	17:15	63	26	0	0	89
5:30	0	1	0	0	1	17:30	63	19	0	0	82
5:45	1	5	1	5	2 10	17:45	33	217	31	106	64 323
6:00	1	6	0	0	7	18:00	37	19	0	0	56
6:15	4	3	0	0	7	18:15	28	19	0	0	47
6:30	11	4	0	0	15	18:30	18	16	0	0	34
6:45	9	25	4	17	13 42	18:45	20	103	11	65	31 168
7:00	15	6	0	0	21	19:00	15	10	0	0	25
7:15	11	6	0	0	17	19:15	17	10	0	0	27
7:30	23	11	0	0	34	19:30	19	10	0	0	29
7:45	24	73	11	34	35 107	19:45	10	61	9	39	19 100
8:00	25	16	0	0	41	20:00	10	10	0	0	20
8:15	28	10	0	0	38	20:15	6	5	0	0	11
8:30	29	6	0	0	35	20:30	9	7	0	0	16
8:45	18	100	8	40	26 140	20:45	3	28	7	29	10 57
9:00	17	10	0	0	27	21:00	5	10	0	0	15
9:15	40	9	0	0	49	21:15	1	3	0	0	4
9:30	26	13	0	0	39	21:30	4	4	0	0	8
9:45	12	95	9	41	21 136	21:45	7	17	3	20	10 37
10:00	10	8	0	0	18	22:00	3	5	0	0	8
10:15	12	13	0	0	25	22:15	9	5	0	0	14
10:30	13	16	0	0	29	22:30	4	4	0	0	8
10:45	10	45	9	46	19 91	22:45	5	21	7	21	12 42
11:00	18	12	0	0	30	23:00	2	3	0	0	5
11:15	13	11	0	0	24	23:15	0	2	0	0	2
11:30	14	13	0	0	27	23:30	2	6	0	0	8
11:45	10	55	13	49	23 104	23:45	1	5	3	14	4 19
TOTALS	403	238			641	TOTALS	1445	640			2085
SPLIT %	62.9%	37.1%			23.5%	SPLIT %	69.3%	30.7%			76.5%

DAILY TOTALS					NB	SB	EB	WB	Total
					1,848	878	0	0	2,726

AM Peak Hour	7:45	11:45			7:45	PM Peak Hour	15:45	17:00		15:45
AM Pk Volume	106	53			149	PM Pk Volume	461	106		553
Pk Hr Factor	0.914	0.462			0.909	Pk Hr Factor	0.615	0.710		0.818
7 - 9 Volume	173	74	0	0	247	4 - 6 Volume	623	194	0	817
7 - 9 Peak Hour	7:45	7:30			7:45	4 - 6 Peak Hour	16:00	17:00		16:00
7 - 9 Pk Volume	106	48	0	0	149	4 - 6 Pk Volume	406	106	0	494
Pk Hr Factor	0.914	0.750	0.000	0.000	0.909	Pk Hr Factor	0.686	0.855	0.000	0.731

SPEED

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Saturday

Date: 6/3/2017

City: Orinda

Project #: CA17_7484_002

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	1	1	3	5	3	3	0	0	0	0	0	0	0	16
1:00	1	0	1	5	4	0	0	0	0	0	0	0	0	11
2:00	0	0	0	3	2	0	0	0	0	0	0	0	0	5
3:00	0	1	1	0	1	1	0	0	0	0	0	0	0	4
4:00	0	0	0	0	2	0	0	0	0	0	0	0	0	2
5:00	0	0	1	2	2	0	0	0	0	0	0	0	0	5
6:00	0	0	4	5	4	1	0	0	0	0	0	0	0	14
7:00	0	1	1	12	8	2	0	0	0	0	0	0	0	24
8:00	0	1	12	24	11	2	0	0	0	0	0	0	0	50
9:00	1	3	20	40	26	2	0	0	0	0	0	0	0	92
10:00	5	7	32	55	21	6	0	0	0	0	0	0	0	126
11:00	4	7	32	58	41	2	0	0	0	0	0	0	0	144
12:00 PM	2	2	33	63	40	9	1	0	0	0	0	0	0	150
13:00	1	13	27	70	26	6	1	0	0	0	0	0	0	144
14:00	2	12	26	57	33	10	0	0	0	0	0	0	0	140
15:00	1	3	33	68	44	9	0	0	0	0	0	0	0	158
16:00	3	3	17	74	31	3	2	1	0	0	0	0	0	134
17:00	2	7	25	60	36	4	1	0	0	0	0	0	0	135
18:00	1	4	19	41	24	7	3	0	0	0	0	0	0	99
19:00	0	0	14	36	33	9	2	0	0	0	0	0	0	94
20:00	0	1	9	35	14	11	1	1	0	0	0	0	0	72
21:00	1	1	10	27	18	6	0	0	0	0	0	0	0	63
22:00	0	0	3	19	12	5	0	1	0	0	0	0	0	40
23:00	0	6	2	5	13	0	0	0	0	0	0	0	0	26
Totals	25	73	325	764	449	98	11	3						1748
% of Totals	1%	4%	19%	44%	26%	6%	1%	0%						100%

AM Volumes	12	21	107	209	125	19	0	0	0	0	0	0	0	493
% AM	1%	1%	6%	12%	7%	1%								28%
AM Peak Hour	10:00	10:00	10:00	11:00	11:00	10:00								11:00
Volume	5	7	32	58	41	6								144
PM Volumes	13	52	218	555	324	79	11	3	0	0	0	0	0	1255
% PM	1%	3%	12%	32%	19%	5%	1%	0%						72%
PM Peak Hour	16:00	13:00	12:00	16:00	15:00	20:00	18:00	16:00						15:00
Volume	3	13	33	74	44	11	3	1						158
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds			Volume		%	Volume		%	Volume		%	Volume		%
			74	↔	4%	294	↔	17%	269	↔	15%	1111	↔	64%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	23	28	28	33	36	1748

VOLUME

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Saturday
 Date: 6/3/2017

City: Orinda
 Project #: CA17_7484_002

DAILY TOTALS						NB	SB	EB	WB	Total	
						911	837	0	0	1,748	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	2	0	0	2	12:00	22	18	0	0	40
0:15	2	1	0	0	3	12:15	18	13	0	0	31
0:30	4	2	0	0	6	12:30	19	21	0	0	40
0:45	2	8	3	8	5	12:45	21	80	18	70	39
1:00	0	3	0	0	3	13:00	14	16	0	0	30
1:15	1	3	0	0	4	13:15	22	14	0	0	36
1:30	2	1	0	0	3	13:30	27	20	0	0	47
1:45	1	4	0	7	1	13:45	13	76	18	68	31
2:00	0	1	0	0	1	14:00	16	15	0	0	31
2:15	1	1	0	0	2	14:15	22	13	0	0	35
2:30	1	0	0	0	1	14:30	17	19	0	0	36
2:45	1	3	0	2	1	14:45	20	75	18	65	38
3:00	0	0	0	0	1	15:00	16	20	0	0	36
3:15	1	1	0	0	2	15:15	27	13	0	0	40
3:30	0	1	0	0	1	15:30	20	20	0	0	40
3:45	1	2	0	2	1	15:45	24	87	18	71	42
4:00	0	1	0	0	1	16:00	22	17	0	0	39
4:15	0	1	0	0	1	16:15	14	19	0	0	33
4:30	0	0	0	0	1	16:30	18	15	0	0	33
4:45	0	0	2	0	2	16:45	17	71	12	63	29
5:00	0	0	0	0	1	17:00	22	22	0	0	44
5:15	1	0	0	0	1	17:15	15	12	0	0	27
5:30	0	0	0	0	4	17:30	15	12	0	0	27
5:45	2	3	2	2	4	17:45	22	74	15	61	37
6:00	1	3	0	0	4	18:00	12	19	0	0	31
6:15	3	1	0	0	4	18:15	10	11	0	0	21
6:30	1	2	0	0	3	18:30	11	11	0	0	22
6:45	1	6	2	8	3	18:45	16	49	9	50	25
7:00	1	4	0	0	5	19:00	14	12	0	0	26
7:15	5	3	0	0	8	19:15	12	9	0	0	21
7:30	0	1	0	0	1	19:30	8	17	0	0	25
7:45	7	13	3	11	10	19:45	10	44	12	50	22
8:00	7	3	0	0	10	20:00	5	13	0	0	18
8:15	7	0	0	0	7	20:15	9	12	0	0	21
8:30	10	4	0	0	14	20:30	9	9	0	0	18
8:45	13	37	6	13	19	20:45	3	26	12	46	15
9:00	14	11	0	0	25	21:00	5	14	0	0	19
9:15	12	10	0	0	22	21:15	10	9	0	0	19
9:30	12	12	0	0	24	21:30	5	8	0	0	13
9:45	11	49	10	43	21	21:45	3	23	9	40	12
10:00	18	11	0	0	29	22:00	7	5	0	0	12
10:15	24	21	0	0	45	22:15	3	4	0	0	7
10:30	17	11	0	0	28	22:30	6	6	0	0	12
10:45	11	70	13	56	24	22:45	4	20	5	20	9
11:00	19	18	0	0	37	23:00	6	2	0	0	8
11:15	17	22	0	0	39	23:15	2	5	0	0	7
11:30	16	12	0	0	28	23:30	3	2	0	0	5
11:45	27	79	13	65	40	23:45	1	12	5	14	6
TOTALS	274	219			493	TOTALS	637	618			1255
SPLIT %	55.6%	44.4%			28.2%	SPLIT %	50.8%	49.2%			71.8%

DAILY TOTALS						NB	SB	EB	WB	Total
						911	837	0	0	1,748

AM Peak Hour	11:45	10:45			11:45	PM Peak Hour	15:15	15:30		15:15
AM Pk Volume	86	65			151	PM Pk Volume	93	74		161
Pk Hr Factor	0.454	0.739			0.500	Pk Hr Factor	0.813	0.829		0.958
7 - 9 Volume	50	24	0	0	74	4 - 6 Volume	145	124	0	269
7 - 9 Peak Hour	8:00	8:00			8:00	4 - 6 Peak Hour	17:00	16:15		16:15
7 - 9 Pk Volume	37	13	0	0	50	4 - 6 Pk Volume	74	68	0	139
Pk Hr Factor	0.712	0.542	0.000	0.000	0.658	Pk Hr Factor	0.841	0.773	0.000	0.790

SPEED

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Sunday

Date: 6/4/2017

City: Orinda

Project #: CA17_7484_002

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	6	11	6	1	0	0	0	0	0	0	0	25
1:00	0	1	3	2	3	1	0	0	0	0	0	0	0	10
2:00	0	0	2	2	3	0	0	0	0	0	0	0	0	7
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
5:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
6:00	0	0	1	6	2	1	0	0	0	0	0	0	0	10
7:00	0	0	6	7	8	1	0	0	0	0	0	0	0	22
8:00	0	0	6	33	19	3	0	0	0	0	0	0	0	61
9:00	1	5	14	48	34	6	0	0	0	0	0	0	0	108
10:00	1	2	18	50	31	7	0	0	0	0	0	0	0	109
11:00	3	9	29	71	37	6	3	0	0	0	0	0	0	158
12:00 PM	1	6	26	57	28	5	2	0	0	0	0	0	0	125
13:00	1	2	26	63	40	5	1	0	0	0	0	0	0	138
14:00	0	2	32	77	47	10	0	0	0	0	0	0	0	168
15:00	2	5	25	59	24	3	4	0	0	0	0	0	0	122
16:00	1	5	35	77	55	8	1	0	0	0	0	0	0	182
17:00	1	4	15	52	33	2	0	0	0	0	0	0	0	107
18:00	0	1	14	27	26	9	1	0	0	0	0	0	0	78
19:00	0	2	11	32	25	5	0	0	0	0	0	0	0	75
20:00	0	0	7	26	19	8	0	0	0	0	0	0	0	60
21:00	1	2	3	16	14	3	0	0	0	0	0	0	0	39
22:00	0	0	2	10	7	3	0	0	0	0	0	0	0	22
23:00	0	0	4	10	2	0	0	0	0	0	0	0	0	16
Totals	12	47	286	737	464	87	12							1645
% of Totals	1%	3%	17%	45%	28%	5%	1%							100%

AM Volumes	5	18	86	231	144	26	3	0	0	0	0	0	0	513
% AM	0%	1%	5%	14%	9%	2%	0%							31%
AM Peak Hour	11:00	11:00	11:00	11:00	11:00	10:00	11:00							11:00
Volume	3	9	29	71	37	7	3							158
PM Volumes	7	29	200	506	320	61	9	0	0	0	0	0	0	1132
% PM	0%	2%	12%	31%	19%	4%	1%							69%
PM Peak Hour	15:00	12:00	16:00	14:00	16:00	14:00	15:00							16:00
Volume	2	6	35	77	55	10	4							182
Directional Peak Periods		AM 7-9				NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds		Volume		%	Volume		%	Volume		%	Volume		%	
		83	↔	5%	263	↔	16%	289	↔	18%	1010	↔	61%	

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	23	28	28	33	36	1645

VOLUME

Skyline Blvd Bet. Snake Rd & Huckleberry Path

Day: Sunday
 Date: 6/4/2017

City: Orinda
 Project #: CA17_7484_002

DAILY TOTALS					NB	SB	EB	WB	Total		
					797	848	0	0	1,645		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	3	6	0	0	9	12:00	17	16	0	0	33
0:15	2	1	0	0	3	12:15	14	12	0	0	26
0:30	3	4	0	0	7	12:30	18	13	0	0	31
0:45	4	12	2	13	6	12:45	18	67	17	58	35
1:00	2	0	0	0	2	13:00	21	18	0	0	39
1:15	2	1	0	0	3	13:15	11	26	0	0	37
1:30	1	4	0	0	5	13:30	16	14	0	0	30
1:45	0	5	0	5	0	13:45	13	61	19	77	32
2:00	0	1	0	0	1	14:00	19	26	0	0	45
2:15	1	2	0	0	3	14:15	20	19	0	0	39
2:30	0	1	0	0	1	14:30	20	26	0	0	46
2:45	1	2	1	5	2	14:45	17	76	21	92	38
3:00	0	0	0	0		15:00	14	22	0	0	36
3:15	0	0	0	0		15:15	11	16	0	0	27
3:30	0	0	0	0		15:30	14	10	0	0	24
3:45	0	0	0	0		15:45	23	62	12	60	35
4:00	0	0	0	0		16:00	20	22	0	0	42
4:15	0	0	0	0		16:15	19	27	0	0	46
4:30	0	0	0	0		16:30	26	21	0	0	47
4:45	1	1	1	1	2	16:45	22	87	25	95	47
5:00	0	0	0	0		17:00	15	18	0	0	33
5:15	1	0	0	0	1	17:15	15	10	0	0	25
5:30	0	0	0	0		17:30	8	14	0	0	22
5:45	0	1	0	0	1	17:45	11	49	16	58	27
6:00	1	1	0	0	2	18:00	13	11	0	0	24
6:15	2	1	0	0	3	18:15	8	10	0	0	18
6:30	1	1	0	0	2	18:30	11	9	0	0	20
6:45	1	5	2	5	3	18:45	8	40	8	38	16
7:00	4	1	0	0	5	19:00	8	6	0	0	14
7:15	1	1	0	0	2	19:15	7	12	0	0	19
7:30	4	4	0	0	8	19:30	9	13	0	0	22
7:45	5	14	2	8	7	19:45	10	34	10	41	20
8:00	9	10	0	0	19	20:00	3	11	0	0	14
8:15	6	7	0	0	13	20:15	6	9	0	0	15
8:30	5	5	0	0	10	20:30	5	8	0	0	13
8:45	13	33	6	28	19	20:45	7	21	11	39	18
9:00	16	9	0	0	25	21:00	5	5	0	0	10
9:15	15	7	0	0	22	21:15	5	7	0	0	12
9:30	14	17	0	0	31	21:30	3	5	0	0	8
9:45	11	56	19	52	30	21:45	5	18	4	21	9
10:00	10	15	0	0	25	22:00	1	3	0	0	4
10:15	13	11	0	0	24	22:15	1	6	0	0	7
10:30	11	15	0	0	26	22:30	3	4	0	0	7
10:45	17	51	17	58	34	22:45	3	8	1	14	4
11:00	18	17	0	0	35	23:00	4	4	0	0	8
11:15	26	15	0	0	41	23:15	2	1	0	0	3
11:30	21	16	0	0	37	23:30	1	2	0	0	3
11:45	21	86	24	72	45	23:45	1	8	1	8	2
TOTALS	266	247			513	TOTALS	531	601			1132
SPLIT %	51.9%	48.1%			31.2%	SPLIT %	46.9%	53.1%			68.8%

DAILY TOTALS					NB	SB	EB	WB	Total
					797	848	0	0	1,645

AM Peak Hour	11:00	11:00			11:00	PM Peak Hour	15:45	16:00			16:00
AM Pk Volume	86	72			158	PM Pk Volume	88	95			182
Pk Hr Factor	0.827	0.750			0.878	Pk Hr Factor	0.788	0.740			0.968
7 - 9 Volume	47	36	0	0	83	4 - 6 Volume	136	153	0	0	289
7 - 9 Peak Hour	8:00	8:00			8:00	4 - 6 Peak Hour	16:00	16:00			16:00
7 - 9 Pk Volume	33	28	0	0	61	4 - 6 Pk Volume	87	95	0	0	182
Pk Hr Factor	0.635	0.700	0.000	0.000	0.803	Pk Hr Factor	0.837	0.880	0.000	0.000	0.968

SPEED

Skyline Blvd S/O Grizzly Peak Blvd

Day: Friday

Date: 6/2/2017

City: Orinda

Project #: CA17_7484_003

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	1	0	1	1	0	1	0	0	0	0	0	0	0	4
1:00	0	0	3	3	0	1	0	0	0	0	0	0	0	7
2:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	2	1	0	0	0	0	0	0	0	3
4:00	0	0	0	1	1	0	0	0	0	0	0	0	0	2
5:00	0	0	2	3	0	3	0	0	0	0	0	0	0	8
6:00	0	3	8	8	8	1	1	0	0	0	0	0	0	29
7:00	1	2	18	36	32	5	2	0	0	0	0	0	0	96
8:00	0	2	19	66	51	7	0	0	0	0	0	0	0	145
9:00	0	3	22	44	27	4	1	0	0	0	0	0	0	101
10:00	0	4	22	39	23	3	2	0	0	0	0	0	0	93
11:00	0	2	26	46	20	3	0	0	0	0	0	0	0	97
12:00 PM	0	4	17	52	25	2	1	0	0	0	0	0	0	101
13:00	2	0	33	51	25	5	0	0	0	0	0	0	0	116
14:00	0	5	27	64	54	13	2	0	0	0	0	0	0	165
15:00	3	5	73	214	106	6	1	0	0	0	0	0	0	408
16:00	0	15	71	281	137	12	1	0	0	0	0	0	0	517
17:00	0	4	45	162	104	10	1	0	0	0	0	0	0	326
18:00	0	5	25	72	49	2	0	0	0	0	0	0	0	153
19:00	0	1	13	45	18	3	1	0	0	0	0	0	0	81
20:00	0	1	7	25	13	4	0	0	0	0	0	0	0	50
21:00	0	0	10	15	5	3	0	0	0	0	0	0	0	33
22:00	0	0	4	20	6	3	0	0	0	0	0	0	0	33
23:00	0	0	7	5	4	2	0	0	0	0	0	0	0	18
Totals	7	56	454	1253	710	94	13							2587
% of Totals	0%	2%	18%	48%	27%	4%	1%							100%

AM Volumes	2	16	122	247	164	29	6	0	0	0	0	0	0	586		
% AM	0%	1%	5%	10%	6%	1%	0%							23%		
AM Peak Hour		10:00	11:00	8:00	8:00	8:00	7:00							8:00		
Volume	1	4	26	66	51	7	2							145		
PM Volumes	5	40	332	1006	546	65	7	0	0	0	0	0	0	2001		
% PM	0%	2%	13%	39%	21%	3%	0%							77%		
PM Peak Hour	15:00	16:00	15:00	16:00	16:00	14:00	14:00							16:00		
Volume	3	15	73	281	137	13	2							517		
Directional Peak Periods		AM 7-9				NOON 12-2			PM 4-6			Off Peak Volumes				
All Speeds		Volume			%	Volume			%	Volume			%	Volume		
		241	↔		9%	217	↔		8%	843	↔		33%	1286	↔	

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	24	28	28	33	35	2587

VOLUME

Skyline Blvd S/O Grizzly Peak Blvd

Day: Friday
 Date: 6/2/2017

City: Orinda
 Project #: CA17_7484_003

DAILY TOTALS					NB	SB	EB	WB	Total		
					1,771	816	0	0	2,587		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	0	0	0		12:00	11	14	0	0	25
0:15	0	1	0	0	1	12:15	11	10	0	0	21
0:30	1	0	0	0	1	12:30	13	16	0	0	29
0:45	2	3	0	1	2	12:45	14	49	12	52	26
1:00	0	3	0	0	3	13:00	18	14	0	0	32
1:15	1	2	0	0	3	13:15	13	10	0	0	23
1:30	0	0	0	0		13:30	15	11	0	0	26
1:45	0	1	1	6	1	13:45	19	65	16	51	35
2:00	0	0	0	0		14:00	18	14	0	0	32
2:15	0	0	0	0		14:15	20	11	0	0	31
2:30	0	1	0	0	1	14:30	29	13	0	0	42
2:45	0	0	1	0	1	14:45	50	117	10	48	60
3:00	0	0	0	0		15:00	65	20	0	0	85
3:15	1	0	0	0	1	15:15	69	18	0	0	87
3:30	0	1	0	0	1	15:30	75	11	0	0	86
3:45	0	1	1	2	1	15:45	129	338	21	70	150
4:00	1	0	0	0	1	16:00	118	14	0	0	132
4:15	0	0	0	0		16:15	150	26	0	0	176
4:30	0	0	0	0		16:30	88	28	0	0	116
4:45	1	2	0	0	1	16:45	69	425	24	92	93
5:00	1	1	0	0	2	17:00	55	35	0	0	90
5:15	1	2	0	0	3	17:15	68	25	0	0	93
5:30	1	0	0	0	1	17:30	61	24	0	0	85
5:45	1	4	1	4	2	17:45	32	216	26	110	58
6:00	0	4	0	0	4	18:00	37	19	0	0	56
6:15	3	1	0	0	4	18:15	29	19	0	0	48
6:30	6	2	0	0	8	18:30	11	10	0	0	21
6:45	11	20	2	9	13	18:45	19	96	9	57	28
7:00	14	2	0	0	16	19:00	15	10	0	0	25
7:15	13	6	0	0	19	19:15	10	11	0	0	21
7:30	18	12	0	0	30	19:30	13	8	0	0	21
7:45	21	66	10	30	31	19:45	12	50	2	31	14
8:00	25	11	0	0	36	20:00	11	9	0	0	20
8:15	30	11	0	0	41	20:15	9	5	0	0	14
8:30	25	10	0	0	35	20:30	6	4	0	0	10
8:45	22	102	11	43	33	20:45	4	30	2	20	6
9:00	14	10	0	0	24	21:00	3	8	0	0	11
9:15	23	11	0	0	34	21:15	2	4	0	0	6
9:30	13	13	0	0	26	21:30	3	2	0	0	5
9:45	7	57	10	44	17	21:45	6	14	5	19	11
10:00	11	9	0	0	20	22:00	2	3	0	0	5
10:15	10	12	0	0	22	22:15	8	4	0	0	12
10:30	11	19	0	0	30	22:30	3	5	0	0	8
10:45	10	42	11	51	21	22:45	3	16	5	17	8
11:00	14	11	0	0	25	23:00	1	2	0	0	3
11:15	14	11	0	0	25	23:15	1	4	0	0	5
11:30	12	11	0	0	23	23:30	2	4	0	0	6
11:45	12	52	12	45	24	23:45	1	5	3	13	4
TOTALS	350	236			586	TOTALS	1421	580			2001
SPLIT %	59.7%	40.3%			22.7%	SPLIT %	71.0%	29.0%			77.3%

DAILY TOTALS					NB	SB	EB	WB	Total
					1,771	816	0	0	2,587

AM Peak Hour	8:00	10:15			8:00	PM Peak Hour	15:45	16:15			15:45
AM Pk Volume	102	53			145	PM Pk Volume	485	113			574
Pk Hr Factor	0.850	0.697			0.884	Pk Hr Factor	0.603	0.771			0.815
7 - 9 Volume	168	73	0	0	241	4 - 6 Volume	641	202	0	0	843
7 - 9 Peak Hour	8:00	7:30			8:00	4 - 6 Peak Hour	16:00	16:15			16:00
7 - 9 Pk Volume	102	44	0	0	145	4 - 6 Pk Volume	425	113	0	0	517
Pk Hr Factor	0.850	0.917	0.000	0.000	0.884	Pk Hr Factor	0.708	0.807	0.000	0.000	0.734

SPEED

Skyline Blvd S/O Grizzly Peak Blvd

Day: Saturday

Date: 6/3/2017

City: Orinda

Project #: CA17_7484_003

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	2	3	3	1	0	0	0	0	0	0	0	10
1:00	0	0	2	1	3	1	0	0	0	0	0	0	0	7
2:00	0	0	3	0	1	1	0	0	0	0	0	0	0	5
3:00	0	0	0	1	1	0	1	0	0	0	0	0	0	3
4:00	0	0	0	2	0	0	0	0	0	0	0	0	0	2
5:00	0	0	3	2	0	2	0	0	0	0	0	0	0	7
6:00	0	0	4	3	2	1	0	0	0	0	0	0	0	10
7:00	0	2	13	12	10	2	2	0	0	0	0	0	0	41
8:00	0	3	17	21	10	2	0	0	0	0	0	0	0	53
9:00	0	7	17	22	15	5	0	0	0	0	0	0	0	66
10:00	1	8	41	49	23	0	0	0	0	0	0	0	0	122
11:00	8	13	53	42	12	0	1	0	0	0	0	0	0	129
12:00 PM	11	27	61	44	9	1	0	0	0	0	0	0	0	153
13:00	8	24	49	61	7	1	0	0	0	0	0	0	0	150
14:00	3	22	53	51	15	0	0	0	0	0	0	0	0	144
15:00	2	18	58	73	15	1	0	0	0	0	0	0	0	167
16:00	3	9	30	63	23	4	0	0	0	0	0	0	0	132
17:00	2	5	31	59	34	3	0	0	0	0	0	0	0	134
18:00	0	1	17	42	17	6	3	0	0	0	0	0	0	86
19:00	1	0	18	29	22	7	1	0	0	0	0	0	0	78
20:00	0	2	14	38	17	2	0	0	0	0	0	0	0	73
21:00	0	0	11	26	20	3	3	0	0	0	0	0	0	63
22:00	0	2	5	17	13	3	0	0	0	0	0	0	0	40
23:00	0	1	6	6	11	1	0	0	0	0	0	0	0	25
Totals	39	145	508	667	283	47	11							1700
% of Totals	2%	9%	30%	39%	17%	3%	1%							100%

AM Volumes	9	34	155	158	80	15	4	0	0	0	0	0	0	455		
% AM	1%	2%	9%	9%	5%	1%	0%							27%		
AM Peak Hour	11:00	11:00	11:00	10:00	10:00	9:00	7:00							11:00		
Volume	8	13	53	49	23	5	2							129		
PM Volumes	30	111	353	509	203	32	7	0	0	0	0	0	0	1245		
% PM	2%	7%	21%	30%	12%	2%	0%							73%		
PM Peak Hour	12:00	12:00	12:00	15:00	17:00	19:00	18:00							15:00		
Volume	11	27	61	73	34	7	3							167		
Directional Peak Periods		AM 7-9				NOON 12-2			PM 4-6			Off Peak Volumes				
All Speeds		Volume			%	Volume			%	Volume			%	Volume		
		94	↔		6%	303	↔		18%	266	↔		16%	1037	↔	

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	21	26	26	32	35	1700

VOLUME

Skyline Blvd S/O Grizzly Peak Blvd

Day: Saturday
 Date: 6/3/2017

City: Orinda
 Project #: CA17_7484_003

DAILY TOTALS						NB	SB	EB	WB	Total	
						882	818	0	0	1,700	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	0	0	0	0		12:00	20	19	0	0	39
0:15	0	1	0	0	1	12:15	21	13	0	0	34
0:30	2	4	0	0	6	12:30	21	16	0	0	37
0:45	2	4	1	6	3 10	12:45	16	78	27	75	43 153
1:00	0	3	0	0	3	13:00	11	21	0	0	32
1:15	0	3	0	0	3	13:15	18	17	0	0	35
1:30	0	0	0	0		13:30	25	17	0	0	42
1:45	0	1	7	0	1 7	13:45	25	79	16	71	41 150
2:00	0	2	0	0	2	14:00	22	11	0	0	33
2:15	0	1	0	0	1	14:15	25	10	0	0	35
2:30	1	0	0	0	1	14:30	23	20	0	0	43
2:45	0	1	1	4	1 5	14:45	18	88	15	56	33 144
3:00	0	0	0	0		15:00	29	13	0	0	42
3:15	1	0	0	0	1	15:15	28	14	0	0	42
3:30	0	1	0	0	1	15:30	30	12	0	0	42
3:45	1	2	0	1	1 3	15:45	21	108	20	59	41 167
4:00	0	0	0	0		16:00	19	11	0	0	30
4:15	0	1	0	0	1	16:15	17	16	0	0	33
4:30	1	0	0	0	1	16:30	18	20	0	0	38
4:45	0	1	0	1	2	16:45	18	72	13	60	31 132
5:00	0	0	0	0		17:00	24	19	0	0	43
5:15	1	0	0	0	1	17:15	17	11	0	0	28
5:30	2	2	0	0	4	17:30	14	10	0	0	24
5:45	0	3	2	4	2 7	17:45	23	78	16	56	39 134
6:00	1	1	0	0	2	18:00	13	10	0	0	23
6:15	3	2	0	0	5	18:15	10	11	0	0	21
6:30	1	0	0	0	1	18:30	14	7	0	0	21
6:45	1	6	1	4	2 10	18:45	11	48	10	38	21 86
7:00	2	4	0	0	6	19:00	12	5	0	0	17
7:15	9	6	0	0	15	19:15	10	9	0	0	19
7:30	1	2	0	0	3	19:30	11	12	0	0	23
7:45	7	19	10	22	17 41	19:45	12	45	7	33	19 78
8:00	5	8	0	0	13	20:00	6	11	0	0	17
8:15	5	7	0	0	12	20:15	11	12	0	0	23
8:30	7	11	0	0	18	20:30	8	10	0	0	18
8:45	3	20	7	33	10 53	20:45	2	27	13	46	15 73
9:00	8	9	0	0	17	21:00	9	11	0	0	20
9:15	8	5	0	0	13	21:15	5	10	0	0	15
9:30	8	12	0	0	20	21:30	6	7	0	0	13
9:45	7	31	9	35	16 66	21:45	3	23	12	40	15 63
10:00	19	12	0	0	31	22:00	4	5	0	0	9
10:15	16	19	0	0	35	22:15	4	6	0	0	10
10:30	19	11	0	0	30	22:30	6	7	0	0	13
10:45	11	65	15	57	26 122	22:45	4	18	4	22	8 40
11:00	10	23	0	0	33	23:00	6	2	0	0	8
11:15	15	19	0	0	34	23:15	2	6	0	0	8
11:30	12	11	0	0	23	23:30	2	2	0	0	4
11:45	18	55	21	74	39 129	23:45	1	11	4	14	5 25
TOTALS	207	248			455	TOTALS	675	570			1245
SPLIT %	45.5%	54.5%			26.8%	SPLIT %	54.2%	45.8%			73.2%

DAILY TOTALS						NB	SB	EB	WB	Total
						882	818	0	0	1,700

AM Peak Hour	11:45	11:00			11:45	PM Peak Hour	15:00	12:45			15:00
AM Pk Volume	80	74			149	PM Pk Volume	108	82			167
Pk Hr Factor	0.475	0.804			0.500	Pk Hr Factor	0.725	0.897			0.994
7 - 9 Volume	39	55	0	0	94	4 - 6 Volume	150	116	0	0	266
7 - 9 Peak Hour	7:45	7:45			7:45	4 - 6 Peak Hour	17:00	16:15			16:15
7 - 9 Pk Volume	24	36	0	0	60	4 - 6 Pk Volume	78	68	0	0	145
Pk Hr Factor	0.857	0.818	0.000	0.000	0.833	Pk Hr Factor	0.813	0.850	0.000	0.000	0.843

SPEED

Skyline Blvd S/O Grizzly Peak Blvd

Day: Sunday

Date: 6/4/2017

City: Orinda

Project #: CA17_7484_003

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
0:00 AM	0	1	7	13	2	1	0	0	0	0	0	0	0	24
1:00	0	1	0	5	1	1	0	0	0	0	0	0	0	8
2:00	0	1	2	2	2	0	0	0	0	0	0	0	0	7
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	1	1	0	0	0	0	0	0	0	0	2
5:00	0	0	0	1	2	0	0	0	0	0	0	0	0	3
6:00	0	1	1	5	2	1	1	0	0	0	0	0	0	11
7:00	0	2	7	5	6	1	0	0	0	0	0	0	0	21
8:00	0	1	16	21	10	1	0	0	0	0	0	0	0	49
9:00	2	7	31	38	21	1	0	0	0	0	0	0	0	100
10:00	1	18	42	39	13	1	0	0	0	0	0	0	0	114
11:00	0	13	53	61	21	4	1	0	0	0	0	0	0	153
12:00 PM	4	5	40	59	15	3	2	0	0	0	0	0	0	128
13:00	0	6	36	59	18	1	1	0	0	0	0	0	0	121
14:00	2	7	43	74	30	5	2	0	0	0	0	0	0	163
15:00	0	4	32	74	20	3	1	0	0	0	0	0	0	134
16:00	0	3	38	77	30	3	1	0	0	0	0	0	0	152
17:00	1	1	24	53	22	1	0	0	0	0	0	0	0	102
18:00	0	3	28	33	16	2	0	0	0	0	0	0	0	82
19:00	0	2	23	29	14	6	3	0	0	0	0	0	0	77
20:00	0	1	7	32	11	0	2	0	0	0	0	0	0	53
21:00	0	1	12	14	6	2	2	0	0	0	0	0	0	37
22:00	0	0	1	15	5	0	0	0	0	0	0	0	0	21
23:00	0	0	5	5	0	1	0	0	0	0	0	0	0	11
Totals	10	78	448	715	268	38	16							1573
% of Totals	1%	5%	28%	45%	17%	2%	1%							100%

AM Volumes	3	45	159	191	81	11	2	0	0	0	0	0	0	492
% AM	0%	3%	10%	12%	5%	1%	0%							31%
AM Peak Hour	9:00	10:00	11:00	11:00	9:00	11:00	6:00							11:00
Volume	2	18	53	61	21	4	1							153
PM Volumes	7	33	289	524	187	27	14	0	0	0	0	0	0	1081
% PM	0%	2%	18%	33%	12%	2%	1%							69%
PM Peak Hour	12:00	14:00	14:00	16:00	14:00	19:00	19:00							14:00
Volume	4	7	43	77	30	6	3							163
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds			Volume		%	Volume		%	Volume		%	Volume		%
			70	↔	4%	249	↔	16%	254	↔	16%	1000	↔	64%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Skyline Blvd	Summary	22	27	27	32	35	1573

VOLUME

Skyline Blvd S/O Grizzly Peak Blvd

Day: Sunday
 Date: 6/4/2017

City: Orinda
 Project #: CA17_7484_003

DAILY TOTALS					NB	SB	EB	WB	Total		
					785	788	0	0	1,573		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
0:00	3	6	0	0	9	12:00	14	16	0	0	30
0:15	2	1	0	0	3	12:15	19	14	0	0	33
0:30	3	3	0	0	6	12:30	18	12	0	0	30
0:45	4	12	2	12	6	12:45	17	68	18	60	35
1:00	1	0	0	0	1	13:00	17	10	0	0	27
1:15	2	3	0	0	5	13:15	10	22	0	0	32
1:30	0	2	0	0	2	13:30	19	16	0	0	35
1:45	0	3	0	5	8	13:45	13	59	14	62	27
2:00	0	1	0	0	1	14:00	18	19	0	0	37
2:15	1	2	0	0	3	14:15	18	16	0	0	34
2:30	0	1	0	0	1	14:30	25	24	0	0	49
2:45	1	2	1	5	2	14:45	22	83	21	80	43
3:00	0	0	0	0		15:00	17	21	0	0	38
3:15	0	0	0	0		15:15	18	25	0	0	43
3:30	0	0	0	0		15:30	13	13	0	0	26
3:45	0	0	0	0		15:45	14	62	13	72	27
4:00	0	0	0	0		16:00	17	17	0	0	34
4:15	0	0	0	0		16:15	21	18	0	0	39
4:30	0	0	0	0		16:30	24	12	0	0	36
4:45	1	1	1	1	2	16:45	14	76	29	76	43
5:00	0	0	0	0		17:00	17	13	0	0	30
5:15	0	0	0	0		17:15	12	15	0	0	27
5:30	2	1	0	0	3	17:30	10	13	0	0	23
5:45	0	2	0	1	3	17:45	11	50	11	52	22
6:00	1	1	0	0	2	18:00	18	13	0	0	31
6:15	3	1	0	0	4	18:15	7	8	0	0	15
6:30	0	2	0	0	2	18:30	8	7	0	0	15
6:45	1	5	2	6	3	18:45	12	45	9	37	21
7:00	4	2	0	0	6	19:00	9	9	0	0	18
7:15	2	2	0	0	4	19:15	10	10	0	0	20
7:30	2	3	0	0	5	19:30	11	8	0	0	19
7:45	2	10	4	11	6	19:45	15	45	5	32	20
8:00	2	12	0	0	14	20:00	6	8	0	0	14
8:15	3	6	0	0	9	20:15	6	7	0	0	13
8:30	4	5	0	0	9	20:30	7	3	0	0	10
8:45	11	20	6	29	17	20:45	7	26	9	27	16
9:00	9	16	0	0	25	21:00	5	8	0	0	13
9:15	8	10	0	0	18	21:15	7	4	0	0	11
9:30	10	12	0	0	22	21:30	2	2	0	0	4
9:45	13	40	22	60	35	21:45	6	20	3	17	9
10:00	11	19	0	0	30	22:00	2	4	0	0	6
10:15	13	12	0	0	25	22:15	2	6	0	0	8
10:30	12	12	0	0	24	22:30	2	3	0	0	5
10:45	18	54	17	60	35	22:45	1	7	1	14	2
11:00	18	16	0	0	34	23:00	1	3	0	0	4
11:15	20	14	0	0	34	23:15	0	0	0	0	
11:30	27	13	0	0	40	23:30	2	2	0	0	4
11:45	26	91	19	62	45	23:45	1	4	2	7	3
TOTALS	240	252			492	TOTALS	545	536			1081
SPLIT %	48.8%	51.2%			31.3%	SPLIT %	50.4%	49.6%			68.7%

DAILY TOTALS					NB	SB	EB	WB	Total
					785	788	0	0	1,573

AM Peak Hour	11:00	9:30		11:00	PM Peak Hour	14:00	14:30		14:30
AM Pk Volume	91	65		153	PM Pk Volume	83	91		173
Pk Hr Factor	0.843	0.739		0.850	Pk Hr Factor	0.820	0.720		0.883
7 - 9 Volume	30	40	0	70	4 - 6 Volume	126	128	0	254
7 - 9 Peak Hour	8:00	8:00		8:00	4 - 6 Peak Hour	16:00	16:00		16:00
7 - 9 Pk Volume	20	29	0	49	4 - 6 Pk Volume	76	76	0	152
Pk Hr Factor	0.455	0.604	0.000	0.721	Pk Hr Factor	0.792	0.655	0.000	0.884

Table A: Robert Sibley Volcanic Regional Preserve Accident Summary

No.	Collision Date	Time of Day ¹	Nearest Intersection	Location from Intersection	Parties Involved	Injured Victims	Killed Victims	Cause of Collision	Type of Collision	Preceding Movement
1	5/12/12	Night	Old Tunnel Road / SR-24	10 feet south	Single Car	0	0	Improper Turning	Hit Object	Car was making an unsafe turn
2	7/31/12	Day	Skyline Blvd / Snake Road	At the intersection	Car and Bicycle	1	0	Automobile Right of Way	Other	Car was making a northbound left turn, bicycle was proceeding straight east
3	10/27/12	Day	Skyline Blvd / Pinehurst Road	At the intersection	Car and Bicycle	1	0	Automobile Right of Way	Other	Car was proceeding straight south, bicycle was proceeding straight east
4	8/23/12	Day	Skyline Blvd / Elverton Drive	0.2 miles east	Car and Bicycle	1	0	Unsafe Speed	Other	Both car and bicycle were proceeding straight in the same direction
5	12/22/12	Night	Pinehurst Road / Canyon Road	2 miles north	Single Car	0	0	Unsafe Speed	Overtaken	Car was proceeding straight
6	7/22/12	Day	Grizzly Peak Blvd / Skyline Blvd	1 mile west	Motorcycle and Bicycle	1	0	Automobile Right of Way	Other	Motorcycle was making an eastbound left turn, bicycle was proceeding straight west
7	2/10/13	Day	Pinehurst Road / Canyon Road	0.5 miles north	Two Cars	2	0	Driving or Bicycling Under the Influence of Alcohol or Drug	Head-On	One car crossed into the opposing lane heading southbound, the other car was proceeding straight north
8	4/3/13	Day	Skyline Blvd / Elverton Drive	245 feet east	Two Cars	2	0	Wrong Side of Road	Head-On	One car crossed into the opposing lane heading eastbound, the other car was proceeding straight west
9	5/11/13	Night	Pinehurst Road / Canyon Road	2 miles west	Single Car	2	0	Improper Turning	Overtaken	Car ran off road
10	12/14/13	Night	Wilder Road / SR-24	500 feet north	Two Cars	0	0	Hazardous Parking	Sideswipe	One car was backing southbound, the other car was stopped
11	9/27/13	Night	Pinehurst Road / Canyon Road	0.8 miles west	Single Car	0	0	Improper Turning	Hit Object	Car ran off road
12	8/20/13	Night	Skyline Blvd / Snake Road	200 feet west	Two Cars	0	0	Unknown	Sideswipe	One car ran off road, the other car was parked
13	11/4/13	Night	Pinehurst Road / Canyon Road	0.5 miles west	Motorcycle	0	0	Other Than Driver (or Pedestrian)	Hit Object	Motorcycle was proceeding straight
14	3/4/14	Night	Pinehurst Road / Skyline Blvd	525 feet south	Single Car	0	0	Unsafe Speed	Overtaken	Car ran off road
15	3/14/14	Day	Pinehurst Road / Canyon Road	At the intersection	Single Car	0	0	Improper Turning	Hit Object	Car was making an unsafe turn
16	5/12/14	Night	Pinehurst Road / Alameda County Line	71 feet north	Single Car	0	0	Other Than Driver (or Pedestrian)	Hit Object	Car ran off road
17	9/10/14	Day	Pinehurst Road / Oak Lane	500 feet west	Two Bicycles	2	0	Other Than Driver (or Pedestrian)	Overtaken	Both bicycles were proceeding straight in the same direction
18	8/28/14	Day	Pinehurst Road / Laurel Lane	550 feet east	Two Cars	1	0	Automobile Right of Way	Broadside	One car was making a left turn, the other car was proceeding straight in the same direction
19	8/30/14	Day	Skyline Blvd / Shepherd Canyon Road	200 feet east	Car and Bicycle	0	0	Unknown	Broadside	Car was making a westbound U-turn, bicycle was proceeding straight west
20	3/13/15	Day	Pinehurst Road / Oak Lane	100 feet south	Single Bicycle	1	0	Improper Turning	Overtaken	Bicycle was making an unsafe turn
21	7/24/15	Night	Pinehurst Road / Canyon Road	0.9 miles south	Single Car	1	0	Improper Turning	Hit Object	Car was making an unsafe turn
22	5/21/15	Day	Skyline Blvd / Manzanita Drive	0.2 miles west	Three Cars	0	0	Unsafe Speed	Head-On	Two cars were proceeding straight west, the other car was proceeding straight east
23	10/11/15	Day	Skyline Blvd / Snake Road	1000 feet west	Car and Pedestrian	1	0	Unsafe Speed	Vehicle/Pedestrian	Car was proceeding straight east, pedestrian was walking east
24	6/28/15	Night	Skyline Blvd / Elverton Drive	100 feet east	Single Car	0	0	Improper Turning	Hit Object	Car was proceeding straight east
25	8/29/16	Day	Skyline Blvd / Roberts Park	428 feet west	Car and Motorcycle	0	1	Automobile Right of Way	Broadside	Car was making an eastbound U-turn, motorcycle was proceeding straight east
26	8/9/15	Night	SR-24 WB Ramp / Wilder Road	5 feet east	Single Car	0	0	Driving or Bicycling Under the Influence of Alcohol or Drug	Hit Object	Not Stated
27	5/18/16	Day	SR-24 EB Ramp / Wilder Road	300 feet west	Two Cars	1	0	Other Than Driver (or Pedestrian)	Rear End	One car was proceeding straight east, the other car was parked
28	10/8/16	Night	Pinehurst Road / John McCoskor Ranch Road	0.5 miles north	Single Car	0	0	Improper Turning	Hit Object	Car ran off road
29	10/15/16	Night	Pinehurst Road / Canyon Road	0.5 miles north	Single Car	0	0	Unsafe Speed	Hit Object	Car was proceeding straight

Source: Statewide Integrated Traffic Records System (SWITRS) from 1/1/2012 to 12/31/2016 within Contra Costa County, Orinda, and Oakland.

¹7:00 a.m. to 7:00 p.m. is considered "Day"; 7:00 p.m. to 7:00 a.m. is considered "Night"

EB = eastbound

WB = westbound

SR-24 = State Route 24

HCM 6th TWSC
1: Pinehurst Road & Unnamed Road

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	0	19	0	0	25
Future Vol, veh/h	0	0	19	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	28	0	0	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	64	28	0 0 28 0
Stage 1	28	-	- - - -
Stage 2	36	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	942	1047	- - 1585 -
Stage 1	995	-	- - - -
Stage 2	986	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	942	1047	- - 1585 -
Mov Cap-2 Maneuver	942	-	- - - -
Stage 1	995	-	- - - -
Stage 2	986	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1585	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-

HCM 6th TWSC
2: Skyline Boulevard & Sibley Preserve Driveway

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	15	22	83	12	26	66
Future Vol, veh/h	15	22	83	12	26	66
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	26	97	14	30	77

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	241	107	0 0 111 0
Stage 1	104	-	- - - -
Stage 2	137	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	747	947	- - 1479 -
Stage 1	920	-	- - - -
Stage 2	890	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	731	944	- - 1479 -
Mov Cap-2 Maneuver	731	-	- - - -
Stage 1	901	-	- - - -
Stage 2	890	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	844	1479
HCM Lane V/C Ratio	-	-	0.051	0.02
HCM Control Delay (s)	-	-	9.5	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
3: Quarry Road & Old Tunnel Road

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	5	0	2	3	9	5
Future Vol, veh/h	5	0	2	3	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	0	3	5	15	8

Major/Minor	Minor2	Major2		
Conflicting Flow All	19	19	-	0
Stage 1	19	19	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	998	875	-	-
Stage 1	1004	880	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	998	0	-	-
Mov Cap-2 Maneuver	998	0	-	-
Stage 1	1004	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	8.6	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	998	-	-
HCM Lane V/C Ratio	0.008	-	-
HCM Control Delay (s)	8.6	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-

HCM 6th TWSC
4: Wilder Road & Internal Driveway

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	1	0	1	3	4	0
Future Vol, veh/h	1	0	1	3	4	0
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	2	5	7	0

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	18	9	7	0	0
Stage 1	7	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	1000	1073	1614	-	-
Stage 1	1016	-	-	-	-
Stage 2	1012	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	999	1071	1614	-	-
Mov Cap-2 Maneuver	999	-	-	-	-
Stage 1	1015	-	-	-	-
Stage 2	1012	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1614	-	999	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
5: Orinda Fields Lane & Wilder Road

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	25	65	0	13	42	0
Future Vol, veh/h	25	65	0	13	42	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	80	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	76	0	15	49	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	105
Stage 1	-	-	29
Stage 2	-	-	15
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1486	967
Stage 1	-	-	994
Stage 2	-	-	1008
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1486	967
Mov Cap-2 Maneuver	-	-	967
Stage 1	-	-	994
Stage 2	-	-	1008

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	967	-	-	1486	-
HCM Lane V/C Ratio	0.051	-	-	-	-
HCM Control Delay (s)	8.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Skyline Boulevard & Huckleberry Trail Driveway

01 Existing Saturday Peak Hour
04/22/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Vol, veh/h	0	4	87	5	2	80
Future Vol, veh/h	0	4	87	5	2	80
Conflicting Peds, #/hr	3	3	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	97	6	2	89

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	198	105	0
Stage 1	102	-	-
Stage 2	96	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	791	949	1486
Stage 1	922	-	-
Stage 2	928	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	786	944	1483
Mov Cap-2 Maneuver	786	-	-
Stage 1	919	-	-
Stage 2	925	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	1483
HCM Lane V/C Ratio	-	-	0.005	0.001
HCM Control Delay (s)	-	-	8.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
1: Pinehurst Road & Unnamed Road

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	17	22	19	20	26	25
Future Vol, veh/h	17	22	19	20	26	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	32	28	29	38	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	155	43	0 0 57 0
Stage 1	43	-	- - - -
Stage 2	112	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	836	1027	- - 1547 -
Stage 1	979	-	- - - -
Stage 2	913	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	815	1027	- - 1547 -
Mov Cap-2 Maneuver	815	-	- - - -
Stage 1	955	-	- - - -
Stage 2	913	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	922 1547	-
HCM Lane V/C Ratio	-	-	0.061 0.024	-
HCM Control Delay (s)	-	-	9.2 7.4	0
HCM Lane LOS	-	-	A A	A
HCM 95th %tile Q(veh)	-	-	0.2 0.1	-

HCM 6th TWSC
2: Skyline Boulevard & Sibley Preserve Driveway

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	27	40	83	22	49	66
Future Vol, veh/h	27	40	83	22	49	66
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	47	97	26	57	77

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	301	113	0 0 123 0
Stage 1	110	-	- - - -
Stage 2	191	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	691	940	- - 1464 -
Stage 1	915	-	- - - -
Stage 2	841	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	663	937	- - 1464 -
Mov Cap-2 Maneuver	663	-	- - - -
Stage 1	877	-	- - - -
Stage 2	841	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	10	0	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	803 1464	-
HCM Lane V/C Ratio	-	-	0.097 0.039	-
HCM Control Delay (s)	-	-	10 7.6	0
HCM Lane LOS	-	-	B A	A
HCM 95th %tile Q(veh)	-	-	0.3 0.1	-

HCM 6th TWSC
3: Quarry Road & Old Tunnel Road

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	15	0	6	9	19	11
Future Vol, veh/h	15	0	6	9	19	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	0	10	15	32	18

Major/Minor	Minor2	Major2		
Conflicting Flow All	41	41	-	0
Stage 1	41	41	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	970	851	-	-
Stage 1	981	861	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	970	0	-	-
Mov Cap-2 Maneuver	970	0	-	-
Stage 1	981	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	8.8	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	970	-	-
HCM Lane V/C Ratio	0.026	-	-
HCM Control Delay (s)	8.8	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM 6th TWSC
4: Wilder Road & Internal Driveway

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	1	0	1	23	21	0
Future Vol, veh/h	1	0	1	23	21	0
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	2	41	38	0

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	85	40	38	0	0
Stage 1	38	-	-	-	-
Stage 2	47	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	916	1031	1572	-	-
Stage 1	984	-	-	-	-
Stage 2	975	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	915	1029	1572	-	-
Mov Cap-2 Maneuver	915	-	-	-	-
Stage 1	983	-	-	-	-
Stage 2	975	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	915	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
5: Orinda Fields Lane & Wilder Road

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	3.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	25	95	0	13	68	0
Future Vol, veh/h	25	95	0	13	68	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	80	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	112	0	15	80	0
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	141	0	44	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	15	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2,218	-	3,518	3,318
Pot Cap-1 Maneuver	-	-	1442	-	967	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1008	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1442	-	967	1046
Mov Cap-2 Maneuver	-	-	-	-	967	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1008	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	9.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	967	-	-	1442	-	
HCM Lane V/C Ratio	0.083	-	-	-	-	
HCM Control Delay (s)	9.1	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

HCM 6th TWSC
6: Skyline Boulevard & Huckleberry Trail Driveway

02 Existing + Project Saturday Peak Hour
04/23/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Vol, veh/h	0	4	97	5	2	92
Future Vol, veh/h	0	4	97	5	2	92
Conflicting Peds, #/hr	3	3	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	108	6	2	102
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	222	116	0	0	116	0
Stage 1	113	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3,518	3,318	-	-	2,218	-
Pot Cap-1 Maneuver	766	936	-	-	1473	-
Stage 1	912	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	761	932	-	-	1470	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	0.2			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	932	1470	-	
HCM Lane V/C Ratio	-	-	0.005	0.002	-	
HCM Control Delay (s)	-	-	8.9	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

HCM 6th TWSC
1: Pinehurst Road & Unnamed Road

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	0	0	19	0	0	25
Future Vol, veh/h	0	0	19	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	28	0	0	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	64	28	0 0 28 0
Stage 1	28	-	- - - -
Stage 2	36	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	942	1047	- - 1585 -
Stage 1	995	-	- - - -
Stage 2	986	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	942	1047	- - 1585 -
Mov Cap-2 Maneuver	942	-	- - - -
Stage 1	995	-	- - - -
Stage 2	986	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1585	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	-

HCM 6th TWSC
2: Skyline Boulevard & Sibley Preserve Driveway

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	15	22	83	12	26	66
Future Vol, veh/h	15	22	83	12	26	66
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	26	97	14	30	77

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	241	107	0 0 111 0
Stage 1	104	-	- - - -
Stage 2	137	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	747	947	- - 1479 -
Stage 1	920	-	- - - -
Stage 2	890	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	731	944	- - 1479 -
Mov Cap-2 Maneuver	731	-	- - - -
Stage 1	901	-	- - - -
Stage 2	890	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	844	1479
HCM Lane V/C Ratio	-	-	0.051	0.02
HCM Control Delay (s)	-	-	9.5	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
3: Quarry Road & Old Tunnel Road

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	5	0	2	3	9	5
Future Vol, veh/h	5	0	2	3	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	0	3	5	15	8

Major/Minor	Minor2	Major2		
Conflicting Flow All	19	19	-	0
Stage 1	19	19	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.42	6.52	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	-
Pot Cap-1 Maneuver	998	875	-	-
Stage 1	1004	880	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	998	0	-	-
Mov Cap-2 Maneuver	998	0	-	-
Stage 1	1004	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	8.6	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	998	-	-
HCM Lane V/C Ratio	0.008	-	-
HCM Control Delay (s)	8.6	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-

HCM 6th TWSC
4: Wilder Road & Internal Driveway

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	1	0	1	3	4	0
Future Vol, veh/h	1	0	1	3	4	0
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	2	5	7	0

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	18	9	7	0	0
Stage 1	7	-	-	-	-
Stage 2	11	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	1000	1073	1614	-	-
Stage 1	1016	-	-	-	-
Stage 2	1012	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	999	1071	1614	-	-
Mov Cap-2 Maneuver	999	-	-	-	-
Stage 1	1015	-	-	-	-
Stage 2	1012	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1614	-	999	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
5: Orinda Fields Lane & Wilder Road

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	3.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	148	161	0	118	146	0
Future Vol, veh/h	148	161	0	118	146	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	80	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	174	189	0	139	172	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	363	0
Stage 1	-	-	-	174
Stage 2	-	-	-	139
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1196	-
Stage 1	-	-	-	856
Stage 2	-	-	-	888
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1196	-
Mov Cap-2 Maneuver	-	-	-	680
Stage 1	-	-	-	856
Stage 2	-	-	-	888

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	680	-	-	1196	-
HCM Lane V/C Ratio	0.253	-	-	-	-
HCM Control Delay (s)	12.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0	-

HCM 6th TWSC
6: Skyline Boulevard & Huckleberry Trail Driveway

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	0	4	87	5	2	80
Future Vol, veh/h	0	4	87	5	2	80
Conflicting Peds, #/hr	3	3	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	97	6	2	89

Major/Minor	Minor1	Major1	Major2	Minor2
Conflicting Flow All	198	105	0	0
Stage 1	102	-	-	-
Stage 2	96	-	-	-
Critical Hdwy	6.42	6.22	-	-
Critical Hdwy Stg 1	5.42	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-
Follow-up Hdwy	3.518	3.318	-	-
Pot Cap-1 Maneuver	791	949	-	-
Stage 1	922	-	-	-
Stage 2	928	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	786	944	-	-
Mov Cap-2 Maneuver	786	-	-	-
Stage 1	919	-	-	-
Stage 2	925	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	1483
HCM Lane V/C Ratio	-	-	0.005	0.001
HCM Control Delay (s)	-	-	8.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
99: Skyline Boulevard & Grizzly Peak

03 Existing + Future Projects Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1	0	0
Stage 1	-	-	1
Stage 2	-	-	0
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1622	-	1022
Stage 1	-	-	1022
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1622	-	1022
Mov Cap-2 Maneuver	-	-	1022
Stage 1	-	-	1022
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th TWSC
1: Pinehurst Road & Unnamed Road

04 Existing + Future Projects + Project Saturday Peak Hour
04/24/2018

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕			↕
Traffic Vol, veh/h	17	22	19	20	26	25
Future Vol, veh/h	17	22	19	20	26	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	32	28	29	38	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	155	43	0
Stage 1	43	-	-
Stage 2	112	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	836	1027	1547
Stage 1	979	-	-
Stage 2	913	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	815	1027	1547
Mov Cap-2 Maneuver	815	-	-
Stage 1	955	-	-
Stage 2	913	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	3.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	922	1547	-
HCM Lane V/C Ratio	-	-	0.061	0.024	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

HCM 6th TWSC 04 Existing + Future Projects + Project Saturday Peak Hour
 2: Skyline Boulevard & Sibley Preserve Driveway 04/24/2018

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	27	40	83	22	49	66
Future Vol, veh/h	27	40	83	22	49	66
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	47	97	26	57	77

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	301	113	0 0 123 0
Stage 1	110	-	- - - -
Stage 2	191	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	691	940	- - 1464 -
Stage 1	915	-	- - - -
Stage 2	841	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	663	937	- - 1464 -
Mov Cap-2 Maneuver	663	-	- - - -
Stage 1	877	-	- - - -
Stage 2	841	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	10	0	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 803	1464	-
HCM Lane V/C Ratio	-	- 0.097	0.039	-
HCM Control Delay (s)	-	- 10	7.6	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.3	0.1	-

HCM 6th TWSC 04 Existing + Future Projects + Project Saturday Peak Hour
 3: Quarry Road & Old Tunnel Road 04/24/2018

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	15	0	6	9	19	11
Future Vol, veh/h	15	0	6	9	19	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	60	60	60	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	0	10	15	32	18

Major/Minor	Minor2	Major2
Conflicting Flow All	41	41 - 0
Stage 1	41	41 - -
Stage 2	0	0 - -
Critical Hdwy	6.42	6.52 - -
Critical Hdwy Stg 1	5.42	5.52 - -
Critical Hdwy Stg 2	-	- - - -
Follow-up Hdwy	3.518	4.018 - -
Pot Cap-1 Maneuver	970	851 - -
Stage 1	981	861 - -
Stage 2	-	- - - -
Platoon blocked, %	-	- - - -
Mov Cap-1 Maneuver	970	0 - -
Mov Cap-2 Maneuver	970	0 - -
Stage 1	981	0 - -
Stage 2	-	0 - -

Approach	NB	SB
HCM Control Delay, s	8.8	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	970	-	-
HCM Lane V/C Ratio	0.026	-	-
HCM Control Delay (s)	8.8	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM 6th TWSC 04 Existing + Future Projects + Project Saturday Peak Hour
 4: Wilder Road & Internal Driveway 04/24/2018

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	1	0	1	23	21	0
Future Vol, veh/h	1	0	1	23	21	0
Conflicting Peds, #/hr	2	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	2	41	38	0

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	85	40	38	0	-
Stage 1	38	-	-	-	-
Stage 2	47	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	916	1031	1572	-	-
Stage 1	984	-	-	-	-
Stage 2	975	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	915	1029	1572	-	-
Mov Cap-2 Maneuver	915	-	-	-	-
Stage 1	983	-	-	-	-
Stage 2	975	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	915	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC 04 Existing + Future Projects + Project Saturday Peak Hour
 5: Orinda Fields Lane & Wilder Road 04/24/2018

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕	↕			↕	↕
Traffic Vol, veh/h	148	191	0	118	172	0
Future Vol, veh/h	148	191	0	118	172	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	80	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	174	225	0	139	202	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	399	0	313
Stage 1	-	-	-	-	174
Stage 2	-	-	-	-	139
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1160	-	680
Stage 1	-	-	-	-	856
Stage 2	-	-	-	-	888
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1160	-	680
Mov Cap-2 Maneuver	-	-	-	-	680
Stage 1	-	-	-	-	856
Stage 2	-	-	-	-	888

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	680	-	-	1160	-
HCM Lane V/C Ratio	0.298	-	-	-	-
HCM Control Delay (s)	12.5	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0	-

HCM 6th TWSC 04 Existing + Future Projects + Project Saturday Peak Hour
 6: Skyline Boulevard & Huckleberry Trail Driveway 04/24/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	0	4	97	5	2	92
Future Vol, veh/h	0	4	97	5	2	92
Conflicting Peds, #/hr	3	3	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	108	6	2	102
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	222	116	0	0	116	0
Stage 1	113	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	766	936	-	-	1473	-
Stage 1	912	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	761	932	-	-	1470	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	0.2			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	932	1470		
HCM Lane V/C Ratio	-	-	0.005	0.002		
HCM Control Delay (s)	-	-	8.9	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0		

