

# SANTA CLARA COUNTY ROADS AND AIRPORTS

## **ARASTRADERO ROAD REPAIR PROJECT** INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

---

*Prepared for:*  
SANTA CLARA COUNTY  
ROADS AND AIRPORTS DEPARTMENT  
101 SKYPORT DRIVE  
SAN JOSE, CA 95110

*Prepared by:*

**Michael Baker**  
INTERNATIONAL

MICHAEL BAKER INTERNATIONAL  
500 YGNACIO VALLEY ROAD, SUITE 300  
WALNUT CREEK, CA 94596

**JANUARY 2019**

This page intentionally left blank.

# County of Santa Clara

Roads and Airports Department  
101 Skyport Drive, San José, CA 95110  
Phone: 408-573-2481 Fax: 408-441-0276  
[www.CountyRoads.org](http://www.CountyRoads.org)

---

## DRAFT MITIGATED NEGATIVE DECLARATION

The County of Santa Clara Roads and Airports Department has reviewed the proposed project described below and determined it would not have a significant effect on the environment. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, flora, fauna, traffic, and ambient noise.

**NAME OF PROJECT:** Arastradero Road Repair Project

**PROJECT LOCATION:** The repair site is on Arastradero Road near Alpine Road at the crossing of Los Trancos Creek.

**PROJECT DESCRIPTION:** The proposed project is the repair of storm damage to Arastradero Road that occurred during damaging 2016/2017 winter storms that eroded the roadway embankment, exposing several utility lines. The repair work would include removing riprap that was placed as an emergency measure in October 2017 and installing a soldier pile retaining wall to stabilize the roadway embankment and to protect Los Trancos Creek from further erosion. The proposed retaining wall would be installed during the summer of 2019 when flows in the creek are low. The proposed project would also include stabilizing the bank of Los Trancos Creek with interwoven logs, boulders, and plantings.

### APPLICANT/LEAD AGENCY CONTACT INFORMATION:

Herbert Naraval, Project Engineer  
County of Santa Clara Roads and Airports Department  
1505 Schallenberger Road, San José, CA 95131  
Fax: 408-297-0530, Email: [Herbert.Naraval@rda.sccgov.org](mailto:Herbert.Naraval@rda.sccgov.org)

**FINDING:** The County of Santa Clara Roads and Airports Department finds the project described above will not have a significant effect on the environment. The attached Initial Study identifies one or more potentially significant effects on the environment for which mitigation measures are proposed to be implemented to reduce those effects to a less than significant level.

This page intentionally left blank.



## TABLE OF CONTENTS

|   |    |
|---|----|
| <b>INTRODUCTION</b> .....                               | 1  |
| PROJECT OBJECTIVES.....                                 | 2  |
| PROJECT DESCRIPTION.....                                | 2  |
| ENVIRONMENTAL SETTING AND SURROUNDING LAND USES .....   | 9  |
| AGENCIES SENT A COPY OF THIS DOCUMENT .....             | 15 |
| ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED .....        | 16 |
| ENVIRONMENTAL CHECKLIST AND DISCUSSION OF IMPACTS ..... | 17 |
| A. AESTHETICS .....                                     | 17 |
| B. AGRICULTURE/FOREST RESOURCES.....                    | 19 |
| C. AIR QUALITY .....                                    | 21 |
| D. BIOLOGICAL RESOURCES .....                           | 32 |
| E. CULTURAL RESOURCES .....                             | 49 |
| F. GEOLOGY AND SOILS .....                              | 53 |
| G. GREENHOUSE GAS EMISSIONS .....                       | 56 |
| H. HAZARDS AND HAZARDOUS MATERIALS .....                | 59 |
| I. HYDROLOGY AND WATER QUALITY .....                    | 62 |
| J. LAND USE .....                                       | 68 |
| K. NOISE.....   | 69 |
| L. POPULATION AND HOUSING .....                         | 74 |
| M. PUBLIC SERVICES.....                                 | 75 |
| N. MINERAL RESOURCES AND RECREATION.....                | 76 |
| O. TRANSPORTATION/TRAFFIC .....                         | 77 |
| P. TRIBAL CULTURAL RESOURCES.....                       | 80 |
| Q. UTILITIES AND SERVICE SYSTEMS .....                  | 81 |
| R. MANDATORY FINDING OF SIGNIFICANCE.....               | 83 |
| REFERENCES.....   | 85 |

## FIGURES

|          |  |    |
|----------|--|----|
| FIGURE 1 | ARASTRADERO ROAD BEFORE OCTOBER 2017 EMERGENCY REPAIR .....                    | 1  |
| FIGURE 2 | RIPRAP INSTALLED ADJACENT TO ARASTRADERO ROAD<br>DURING EMERGENCY REPAIR ..... | 2  |
| FIGURE 3 | DRILL RIG INSTALLING SOLDIER PILE WALL FOOTINGS.....                           | 3  |
| FIGURE 4 | PROJECT DESIGN.....  | 5  |
| FIGURE 5 | EROSION CONTROL .....  | 7  |
| FIGURE 6 | REGIONAL LOCATION MAP .....  | 11 |
| FIGURE 7 | PROJECT VICINITY MAP.....  | 13 |
| FIGURE 8 | VIEW OF ARASTRADERO ROAD EMBANKMENT<br>FOLLOWING 2016/2017 EROSION .....       | 15 |
| FIGURE 9 | VISUAL FEATURES - ARASTRADERO ROAD .....                                       | 17 |

## TABLE OF CONTENTS

|           |  |    |
|-----------|--|----|
| FIGURE 10 | RIPRAP INSTALLED ADJACENT TO ARASTRADERO ROAD<br>DURING EMERGENCY REPAIR ..... | 33 |
| FIGURE 11 | LOS TRANCOS CREEK MITIGATION.....  | 43 |

### TABLES

|          |   |    |
|----------|---|----|
| TABLE 1  | CRITERIA AIR POLLUTANTS – SUMMARY OF COMMON SOURCES<br>AND EFFECTS.....                                   | 22 |
| TABLE 2  | FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS<br>FOR THE SAN FRANCISCO BAY AREA AIR BASIN ..... | 23 |
| TABLE 3  | SUMMARY OF AMBIENT AIR QUALITY DATA, 2015-2017.....   | 25 |
| TABLE 4  | CONSTRUCTION-RELATED EMISSIONS .....  | 28 |
| TABLE 5  | SUMMARY OF WETLAND IMPACTS –ARASTRADERO ROAD REPAIR PROJECT ..  | 42 |
| TABLE 6  | CULTURAL RESOURCES WITHIN A QUARTER-MILE RADIUS .....   | 50 |
| TABLE 7  | PREVIOUS CULTURAL RESOURCES STUDIES IN THE PROJECT VICINITY .....   | 50 |
| TABLE 8  | GREENHOUSE GASES .....  | 56 |
| TABLE 9  | CONSTRUCTION EQUIPMENT NOISE EMISSIONS AND USAGE FACTORS .....  | 72 |
| TABLE 10 | TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS .....   | 73 |

### APPENDICES

|  |  |
|--|--|
| APPENDIX A.1 – CALEEMOD: ANNUAL                          |  |
| APPENDIX A.2 – CALEEMOD: SUMMER                          |  |
| APPENDIX B – USACE REQUEST FOR REGIONAL GENERAL PERMIT 5 |  |
| APPENDIX C – CULTURAL RESOURCES IDENTIFICATION STUDY     |  |

**INITIAL STUDY**  
**Environmental Checklist and Evaluation for Santa Clara County**

|                                   |                                       |                                      |
|-----------------------------------|---------------------------------------|--------------------------------------|
| <b>File Number:</b>               |                                       | <b>Date:</b> 1/11/2019               |
| <b>Project Type:</b>              | Storm Damage Repair Project           | <b>APN(s):</b>                       |
| <b>Project Location / Address</b> | Arastradero Road and Alpine Road      | <b>GP Designation:</b> Institutional |
| <b>Owner's Name</b>               | Santa Clara County                    | <b>Zoning:</b>                       |
| <b>Applicant's Name:</b>          | Santa Clara County Roads and Airports | <b>Urban Service Area:</b> No        |

**Introduction**

Santa Clara County Roads and Airports proposes to repair the westbound lane and shoulder along Arastradero Road, which was damaged by high flows in Los Trancos Creek following several storm events during the 2016-2017 rainy season. The creek had eroded the road embankment, undercut Arastradero Road’s westbound lane, eroded the subgrade, and exposed a gas line (**Figure 1**). The project is located immediately west of the intersection of Alpine Road and Arastradero Road in Portola Valley, California (37.383076 N, 122.192789 W).

Because of the storm damage that occurred during the winter of 2016-2017, the County installed a temporary repair using riprap in October 2017. The temporary repair required dewatering a portion of the low-flow channel of Los Trancos Creek using a dewatering pump equipped with a fish screen. Fish were removed from the low-flow channel by hand prior to dewatering. The County realigned the channel to the north using a small excavator to create room for the temporary riprap embankment. A silt fence was installed at the downstream end of the low-flow channel to mitigate construction runoff and approximately 115 cubic yards of riprap were placed on the eroded creek slope directly adjacent to Arastradero Road to stabilize the eroded subgrade and streambank (**Figure 2**).



**FIGURE 1. ARASTRADERO ROAD BEFORE OCTOBER 2017 EMERGENCY REPAIR**

The proposed permanent repair would remove the riprap and install a soldier pile retaining wall with concrete facing and a metal beam guardrail to restore the roadway and affected utilities to a safe condition while minimizing impacts on Los Trancos Creek. The wall would be located several feet north of the edge of the roadway pavement and would be approximately 100 feet long. The space between the edge of the roadway and the soldier pile retaining wall would be filled with clean, imported fill.

**Project Objectives**

The County’s objectives are to install a permanent repair of Arastradero Road, which was damaged by storm flows during the winter of 2016-2017, compromising the roadway and roadway embankment and exposing underground utilities. The repair would restore Arastradero Road to a safe condition and the proposed soldier pile retaining wall would be more resistant to damage from future storms. The County also wishes to minimize impacts on Los Trancos Creek and has selected a repair technique that will minimize direct impacts on the creek’s bed and banks.



**FIGURE 2. RIPRAP INSTALLED ADJACENT TO ARASTRADERO ROAD DURING EMERGENCY REPAIR**

**Project Description**

The proposed project would include construction of a soldier pile retaining wall within the Santa Clara County right-of-way adjacent to Arastradero Road. A soldier pile wall is constructed by drilling H-shaped steel beams (“piles”) into the earth at regular intervals — usually 2 to 4 yards apart. In between each vertical pile, horizontal supports fill the gap, helping to spread the load. Known as “lagging walls,” the horizontal supports are typically made of precast concrete panels or pressure-treated timber. Soldier piles with wood lagging and cast-in-place concrete facing would be installed approximately 2 to 5 feet from the edge of the existing roadway. The retaining wall would be approximately 100 feet long. The wall would be approximately 10 feet tall and the top of the wall would be at approximately the same elevation as the roadway surface. The space between the roadway and newly installed retaining wall would be backfilled with clean, imported material.

The first step would be removal of the existing temporary riprap placed to stabilize the roadway and bank in October 2017. The riprap extends approximately 19 feet from the edge of the roadway. This would require placement of a low-flow crossing as a temporary work surface for equipment and workers in the streambed. The working surface would consist of steel plates or wood planks.

Construction crews would use a crane to lift a small excavator into the work area and the riprap would be excavated and removed, including riprap below the elevation of the adjacent creek bed, along with some sand and gravel.

The pilings would be drilled using equipment working from the edge of Arastradero Road. **Figure 3** depicts a typical construction of a soldier pile retaining wall. The soldier piles would be drilled into place and no impact hammer pile driver would be used, reducing ground vibration

impacts and noise levels. The wood lagging for the soldier piles would be installed by hand-held equipment. The wall would be keyed into the roadway embankment both upstream and downstream of the storm-damaged area. Minimal excavation behind and near the base of the wall may be required prior to backfilling.

**Figure 4** shows plan and cross-section views of the proposed soldier pile retaining wall location and elevation with respect to Arastradero Road. The streambed is approximately 10 feet below the roadway elevation; therefore, the retaining wall would be approximately 10 feet tall and would retain approximately 10 feet of soil that would be placed between the wall and roadway after the wall is installed. The depth of piles below the streambed would be approximately 15 to 20 feet (elevation 348).



**FIGURE 3. DRILL RIG INSTALLING SOLDIER PILE WALL FOOTINGS**

The preliminary project geotechnical report (Cal Engineering & Geology 2017) indicates groundwater was encountered in a boring at approximately 8.5 to 11.5 feet below the roadway surface. The depth to groundwater in this area is likely variable due to its proximity to the Los Trancos Creek channel and fluctuates rapidly depending on the depth of water in the creek. Groundwater encountered in the pile excavations and would be pumped from the excavations prior to placement of concrete or would be displaced by concrete tremied from the bottom of the excavation.

The contractor would use a clearing just east of the construction site and adjacent to Arastradero Road for construction staging. Construction equipment would access the site from Arastradero Road; thus, the project would require signage and traffic control.

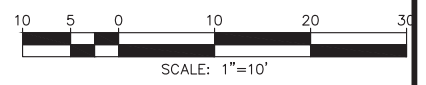
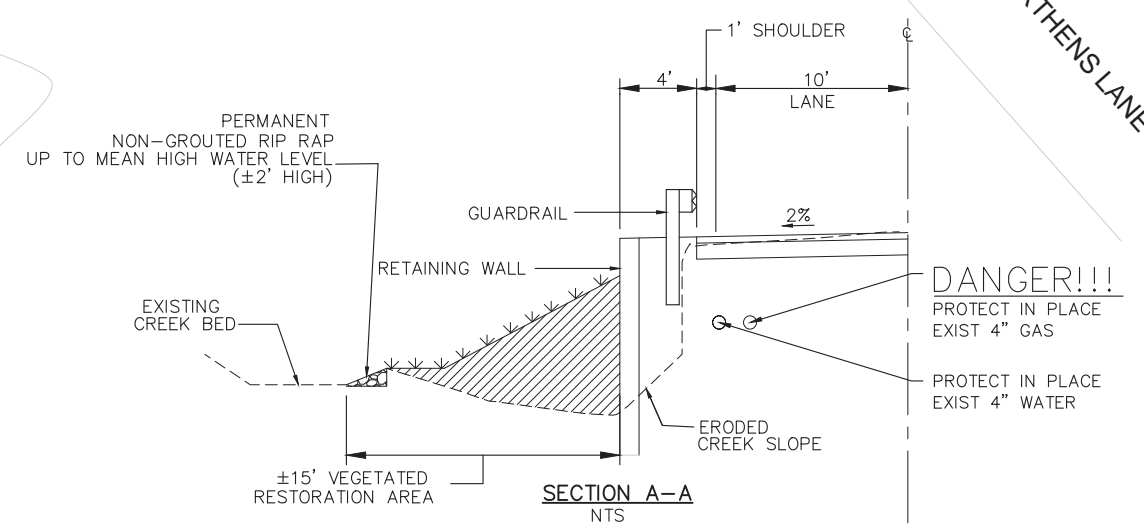
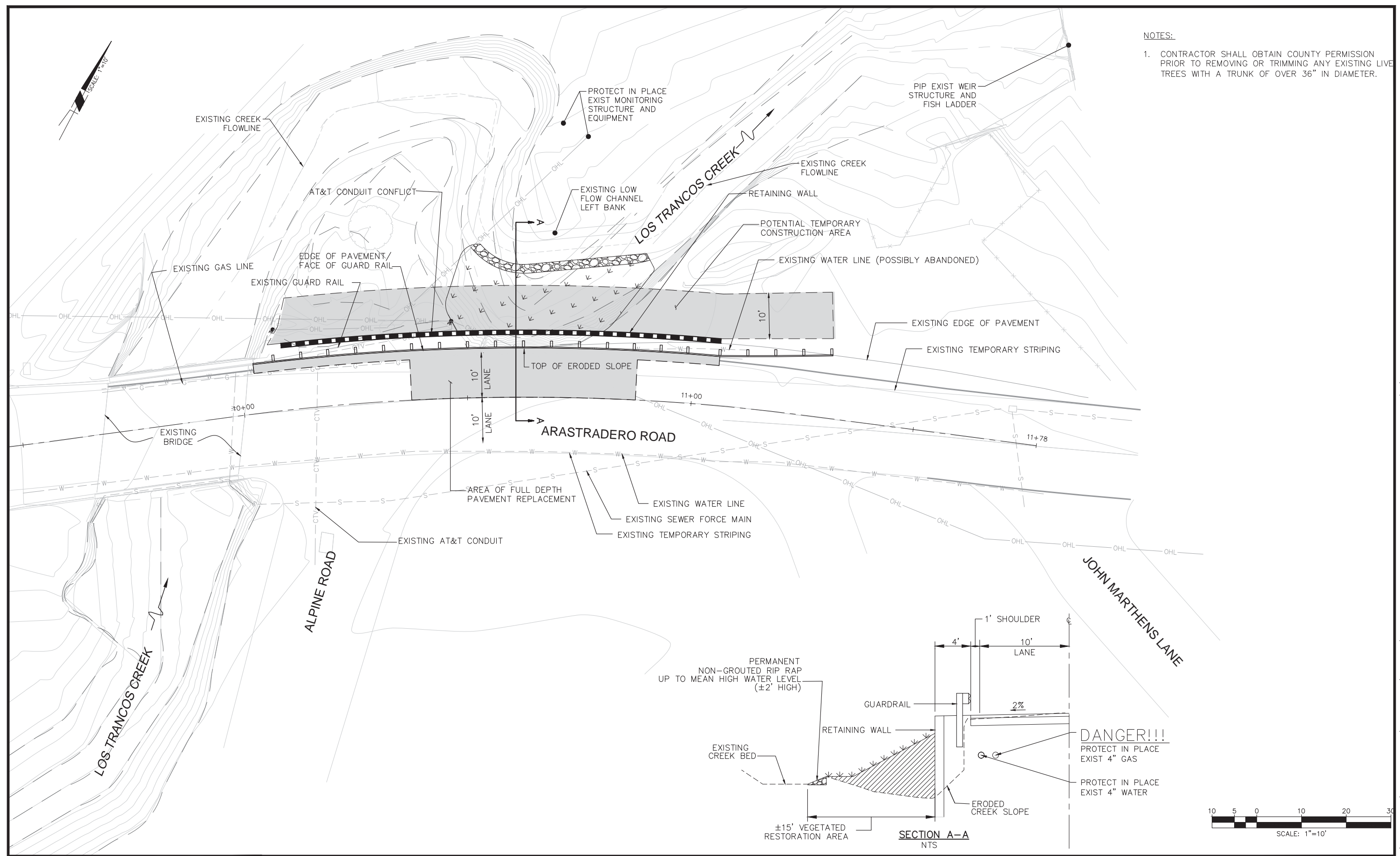
**Figure 5** shows the erosion control and other construction best management practices (BMPs) proposed by the County. The construction contractor would place a row of sandbags on the water-facing (north) side of the piling alignment to protect the work area, divert any stream flow, and minimize water quality impacts. The contractor would also place temporary mats and silt fencing and straw wattles between work areas and Los Trancos Creek. The construction equipment required for the project would include a crane, a drill rig, an excavator, a backhoe, generator, concrete pump or shute, and a sheepsfoot rolling compactor.

Crews would also use small trucks and hand tools. The construction materials required include steel pilings and wood lagging, concrete, rebar, and clean backfill. The contractor would also install a new section of guardrail.

This page intentionally left blank.



- NOTES:**
- CONTRACTOR SHALL OBTAIN COUNTY PERMISSION PRIOR TO REMOVING OR TRIMMING ANY EXISTING LIVE TREES WITH A TRUNK OF OVER 36" IN DIAMETER.



| NO. | REVISIONS | APP'D | DATE |
|-----|-----------|-------|------|
|     |           |       |      |
|     |           |       |      |
|     |           |       |      |


**County of Santa Clara**  
**Roads and Airports Department**

|              |        |
|--------------|--------|
| MBI JOB NO:  | 161873 |
| DRAWN BY:    | DATE   |
| DESIGNED BY: | DATE   |
| CHECKED BY:  | DATE   |

PLANS PREPARED BY

**Michael Baker INTERNATIONAL**

500 Ygnacio Valley Road, Suite 300  
 Walnut Creek, CA 94596  
 Phone: (925) 906-1460 · MBACKERINTL.COM

**ARASTRADERO ROAD**  
**STORM DAMAGE IMPROVEMENTS**

---

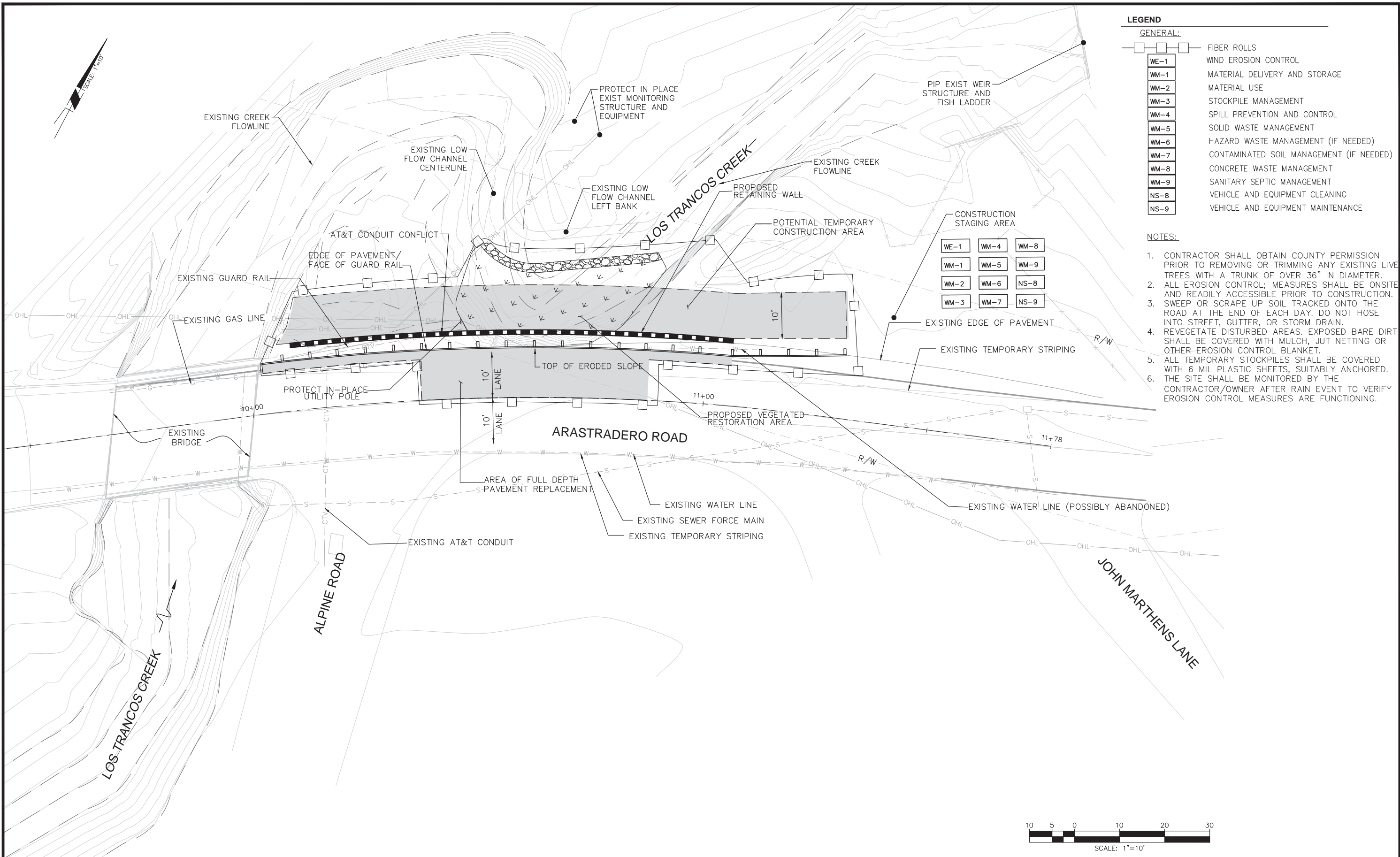
**FIGURE 4. - PROJECT DESIGN**

SHEET

C:\PWBI-LOCAL\BAKER\PROJECTS\ARSTRADERO\ARSTRADERO\PERMANENT DESIGN EXHIBIT\_FINAL.DWG CHOY, DARREN 8/21/2018 5:40 PM

This page intentionally left blank.



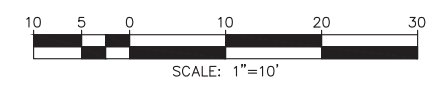


**LEGEND**

**GENERAL:**

|          |  |
|----------|--|
| [Symbol] | FIBER ROLLS                              |
| [Symbol] | WIND EROSION CONTROL                     |
| WE-1     | MATERIAL DELIVERY AND STORAGE            |
| WM-1     | MATERIAL USE                             |
| WM-2     | STOCKPILE MANAGEMENT                     |
| WM-3     | SPILL PREVENTION AND CONTROL             |
| WM-4     | SOLID WASTE MANAGEMENT                   |
| WM-5     | HAZARD WASTE MANAGEMENT (IF NEEDED)      |
| WM-6     | CONTAMINATED SOIL MANAGEMENT (IF NEEDED) |
| WM-7     | CONCRETE WASTE MANAGEMENT                |
| WM-8     | SANITARY SEPTIC MANAGEMENT               |
| WM-9     | VEHICLE AND EQUIPMENT CLEANING           |
| NS-8     | VEHICLE AND EQUIPMENT MAINTENANCE        |
| NS-9     |  |

- NOTES:**
- CONTRACTOR SHALL OBTAIN COUNTY PERMISSION PRIOR TO REMOVING OR TRIMMING ANY EXISTING LIVE TREES WITH A TRUNK OF OVER 36" IN DIAMETER.
  - ALL EROSION CONTROL MEASURES SHALL BE ONSITE AND READILY ACCESSIBLE PRIOR TO CONSTRUCTION.
  - SWEEP OR SCRAPE UP SOIL TRACKED ONTO THE ROAD AT THE END OF EACH DAY. DO NOT HOSE INTO STREET, GUTTER, OR STORM DRAIN.
  - REVEGETATE DISTURBED AREAS. EXPOSED BARE DIRT SHALL BE COVERED WITH MULCH, JUT NETTING OR OTHER EROSION CONTROL BLANKET.
  - ALL TEMPORARY STOCKPILES SHALL BE COVERED WITH 6 MIL PLASTIC SHEETS, SUITABLY ANCHORED. THE SITE SHALL BE MONITORED BY THE CONTRACTOR/OWNER AFTER RAIN EVENT TO VERIFY EROSION CONTROL MEASURES ARE FUNCTIONING.



| NO. | REVISIONS | APP'D | DATE |
|-----|-----------|-------|------|
|     |           |       |      |
|     |           |       |      |
|     |           |       |      |
|     |           |       |      |


**County of Santa Clara**  
**Roads and Airports Department**

|              |        |
|--------------|--------|
| MBI JOB NO:  | 161873 |
| DRAWN BY:    | DATE   |
| DESIGNED BY: | DATE   |
| CHECKED BY:  | DATE   |

PLANS PREPARED BY

**Michael Baker INTERNATIONAL**

500 Ygnacio Valley Road, Suite 300  
Walnut Creek, CA 94596  
Phone: (925) 906-1460 · MBAKERINTL.COM

**ARASTRADERO ROAD**  
**STORM DAMAGE IMPROVEMENTS**

---

**FIGURE 5. - EROSION CONTROL**

SHEET

C:\PWVBI-LOCAL\BAKER\_PROJECTS\ARSTRADERO\161873-PERMANENT DESIGN-CONSTRUCTION.DWG CHOY, DARREN 8/21/2018 5:41 PM

This page intentionally left blank.

When retaining wall construction is complete, the County would install habitat enhancement features in the streambed and adjacent banks. The streambed between the riprap and stream channel would be restored with gravel, boulders, logs, rootwads, and other plantings. Disturbed bank areas upstream and downstream of the retaining wall would be planted with willows to restore riparian habitat.

Before demobilizing, the construction contractor would remove all construction materials and equipment, including all temporary work surfaces and structures, and would restore the area to preconstruction conditions.

### **Schedule**

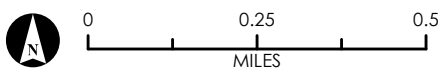
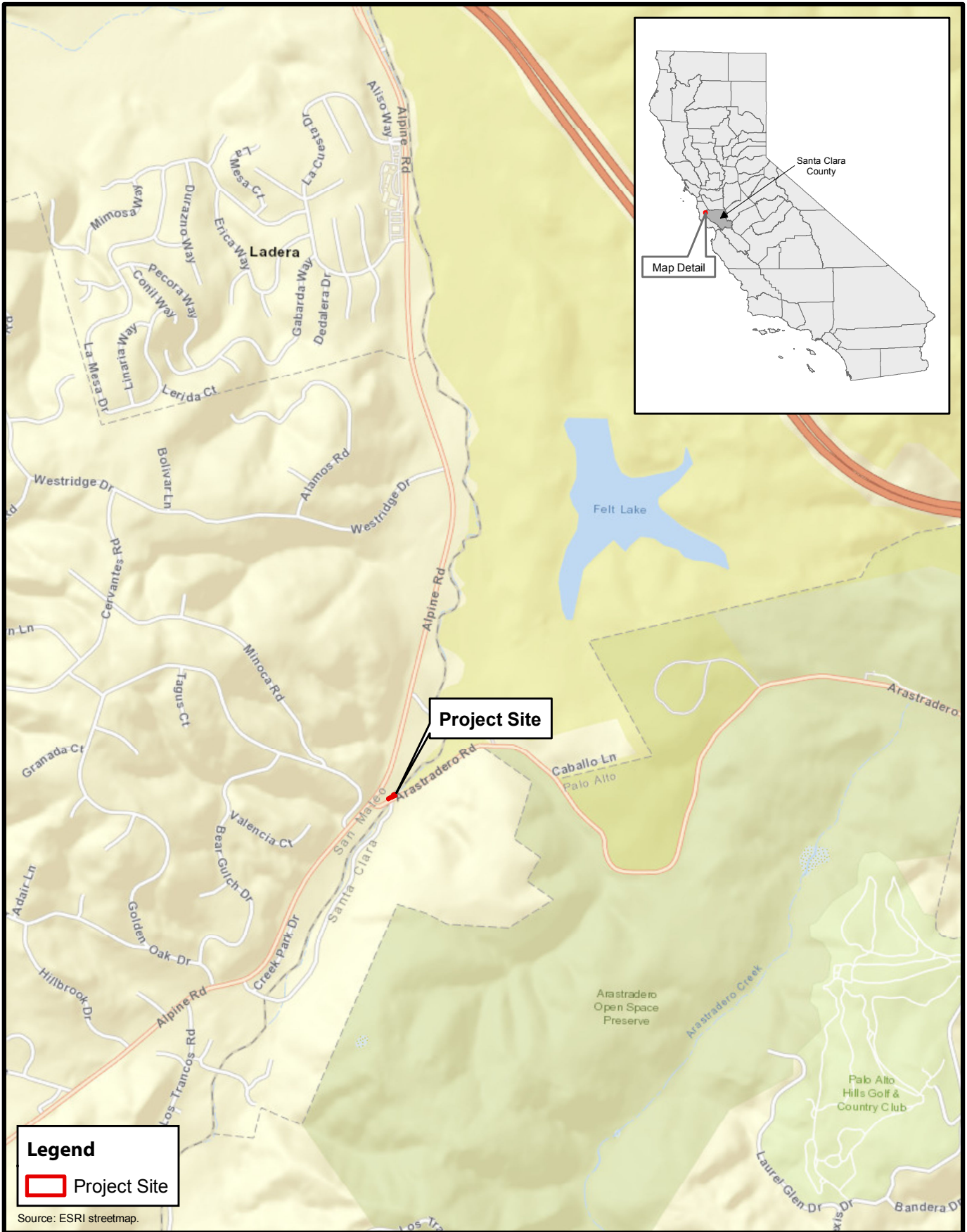
The County plans to complete the final design by March 2019 and procure a construction contractor who would install the repair during the 2019 construction window. The work would occur between July 15 and October 15 and would take approximately four weeks to complete. Before October 31, the construction contractor would demobilize from the site and remove all construction equipment, materials, and in-stream erosion control measures.

### **Environmental Setting and Surrounding Land Uses**

The Arastradero Road repair project site is located along Arastradero Road, approximately 250 feet east of the intersection of Alpine Road in Portola Valley, California (**Figure 6**). The project site is on the Palo Alto U.S. Geological Survey (USGS) 7.5-minute quadrangle map, in Township 6 South, Range 3 West, Section 28 (**Figure 7**). Area elevations range from approximately 365 to 390 feet above mean sea level. The project site consists of the westbound portion of Arastradero Road and an immediately adjacent section of Los Trancos Creek where erosion damage has occurred.

Los Trancos Creek is a tributary of San Francisquito Creek and the site is just upstream of the Stanford University campus. There is a history of steelhead trout in San Francisquito Creek; Stanford University has removed some fish migration obstacles and, several years ago, replaced a steelhead fish ladder on Los Trancos Creek downstream of the site. Based on the presence of the fish ladder and review of the Stanford University Habitat Conservation Plan (Stanford University 2013), the special-status species potentially present at the site include steelhead and California red-legged frog.

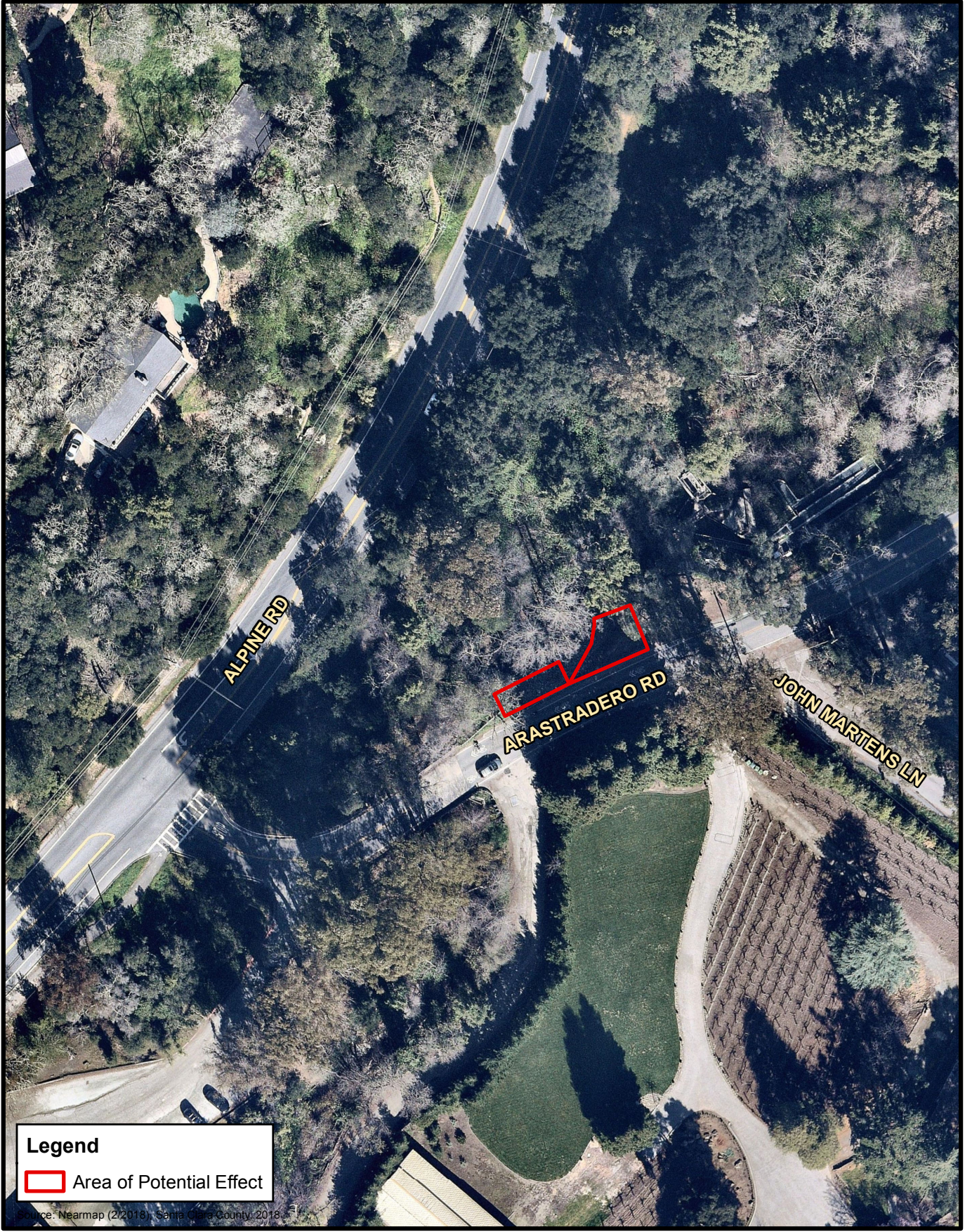
This page intentionally left blank.



**FIGURE 6**  
Regional Location Map

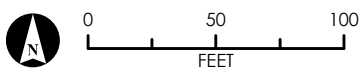
This page intentionally left blank.





**Legend**  
[Red Polygon] Area of Potential Effect

Source: Nearmap (2/2018), Santa Clara County, 2018



**FIGURE 7**  
Project Vicinity Map



This page intentionally left blank.



**Figure 8** shows the area directly adjacent to Arastradero Road, clearly demonstrating the damage from the 2016-2017 storms that also caused extensive infrastructure damage throughout the region.



**FIGURE 8. VIEW OF ARASTRADERO ROAD EMBANKMENT  
FOLLOWING 2016/2017 EROSION**

#### **Agencies sent a copy of this document**

Environmental permits and approvals would be required from the following agencies. These agencies would be provided a copy of this Initial Study by the County or State Clearinghouse:

- Bay Area Air Quality Management District
- California Department of Fish and Wildlife - Section 1602 Lake and Streambed Alteration Agreement and a Section 2081 California Endangered Species Act consultation
- San Francisco Bay Regional Water Quality Control Board - Section 401 Water Quality Certification
- State Historic Preservation Officer - National Historic Preservation Act Section 106 consultation
- State Water Resources Control Board for a Construction General Permit
- U.S. Army Corps of Engineers for a Section 404 Nationwide Permit
- U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) – Endangered Species Act Section 7 consultation

The environmental factors checked below would be potentially affected by this project, involving at least one impact as indicated by the checklist on the following pages.

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED**

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

**DETERMINATION: (To be completed by the Lead Agency)**

**On the basis of this initial evaluation:**

- I find that the proposed project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.
- I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

  
 \_\_\_\_\_  
**Signature**

12/19/18  
 \_\_\_\_\_  
**Date**

HERBERT NARAVAL  
 \_\_\_\_\_  
**Printed name**

\_\_\_\_\_  
**For**

ENVIRONMENTAL CHECKLIST AND DISCUSSION OF IMPACTS

| A. AESTHETICS   |                                |  |                                     |                                     |                 |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|-----------------|
| WOULD THE PROJECT:  | IMPACT                         |  |                                     |                                     | SOURCES         |
|   | YES                            |  |                                     | NO                                  |                 |
|   | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |                 |
| a) Have a substantial adverse effect on a scenic vista?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 2, 3, 4, 6, 17f |
| b) Substantially damage scenic resources along a designated scenic highway?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 6, 7, 17f    |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?                   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 2, 3            |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 4            |

DISCUSSION:

Setting

Scenic Vistas

Scenic vistas are generally described as areas of natural beauty with features such as topography, watercourses, rock outcrops, and natural vegetation that contribute to the landscape’s quality. The Santa Clara County General Plan does not identify any scenic vistas at the project site, which is in a valley; any distant views are blocked by the area’s topography, large trees, and residential streets.

Scenic Resources within Scenic Highways

Scenic resources typically include trees, rock outcroppings, and historic buildings within a state scenic highway. Interstate 280 (I-280) is designated as an eligible state scenic highway—not officially designated—by the California Department of Transportation (Caltrans) State Scenic Highway System (Caltrans 2018). I-280 is located more than a mile from the project site.



FIGURE 9. VISUAL FEATURES - ARASTRADERO ROAD

Visual Character

Visual character is the overall perceptible aesthetic quality of an area created by its unique combination of visual features such as form, bulk, scale, texture, color, and viewing range. The

project site is in a wooded residential area and is characterized by Arastradero Road, large trees, fences, and overhead utilities (**Figure 9**). Because of the roadway geometry and large trees, the site is not readily visible to approaching motorists or from the adjacent residential area.

## DISCUSSION OF IMPACTS

- a) *No Impact.* The Santa Clara County General Plan does not identify any scenic vistas near the project site. No scenic vistas are visible from the site or surrounding area because of intervening topography, trees, and residential areas. There would be no impact. *No Impact.* The project site is not within or visible from any state scenic highway identified by the state or any scenic roadway identified by Santa Clara County. The roadway repair site is more than a mile from I-280, which is an eligible scenic highway, and is not visible to motorists using this highway. The project would only involve restoring the roadway embankment below the existing roadway elevation and would not damage any scenic resources, such as trees, rock outcroppings, or historic buildings. Therefore, the project would not substantially damage scenic resources within a state scenic highway and no impact would occur.
- b) *Less Than Significant Impact.* Key factors for evaluating potential adverse impacts on visual character include (1) substantial changes to the existing landscape that are characteristic of the region or locale; (2) the introduction of uncharacteristic new features that would be visually dominant; or (3) changes that would block or obscured scenic resources and change character or quality. The project site currently is a tree-lined roadway corridor. Los Trancos Creek is approximately 10 feet below the roadway and is not readily visible to passing motorists or bicyclists. The project would involve construction activities that could temporarily affect the visual character in the immediate vicinity of the site. However, it would restore the roadway to pre-storm conditions by removing the existing temporary white rubber posts and installing a new guardrail. The project would affect the bank of Los Trancos Creek facing away from the roadway, replacing the damaged and eroded bank with a soldier pile retaining wall, which would not be readily visible from the public roadway. Therefore, the visual impacts of the project would primarily be temporary construction impacts. The retaining wall would not substantially or permanently alter the visual character or quality of the area in a manner that would be considered adverse, and this impact would be less than significant.
- c) *No Impact.* The project would not require lighting during or after construction. The work would be conducted during daylight hours from approximately 7 a.m. to 3 p.m. Thus, there would be no impact from lighting or glare.

## MITIGATION:

None required.

**B. AGRICULTURE / FOREST RESOURCES**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland.

| WOULD THE PROJECT:   | IMPACT                         |  |                              |                                     | SOURCE        |
|--|--------------------------------|--|------------------------------|-------------------------------------|---------------|
|  | YES                            |  |                              | NO                                  |               |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |               |
| a) Convert 10 or more acres of farmland classified as prime in the report <i>Soils of Santa Clara County (Class I, II)</i> to non-agricultural use?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 3, 23, 24, 26 |
| b) Conflict with existing zoning for agricultural use?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 9, 21a        |
| c) Conflict with an existing Williamson Act Contract or the County's Williamson Act Ordinance (Section C13 of County Ordinance Code)?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 28         |
| d) Conflict with existing zone for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 9             |
| e) Result in the loss of forest land or conversion of forest land to non-forest use?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 32            |
| f) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 3, 4, 26      |

**DISCUSSION:**

Setting

***California Farmland Mapping and Monitoring Program***

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. Farmland designations also include Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. The DOC (2014) shows the project area as residential and other land not suitable for agriculture.

***Locally Designated Farmland***

The Santa Clara County land use plan (Santa Clara County 2016) depicts the project area as open lands, hillsides, and institutional uses. Thus, the project site is not in or near any locally designated agricultural land.

**DISCUSSION OF IMPACTS**

- a) *No Impact.* The project area does not support farmland and would not convert any agricultural land to urban use. Because the project would not affect farmland, there would be no impact.
- b) *No Impact.* The project site is not zoned for agriculture and the project would not conflict with any existing zoning for agricultural use. Therefore, the project would have no zoning conflict and no impact.
- c) *No Impact.* The project would not conflict with or require cancellation of any Williamson Act contract and there would be no impact.
- d) *No Impact.* The project would repair the roadway embankment and thus would not conflict with existing zoning, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The project would not conflict with zoning and there would be no impact.
- e) *No Impact.* The project site is in a residential area that does not contain any forestland. Therefore, the project would not result in the loss or conversion of any forestland to non-forest use and would have no impact.
- f) *No Impact.* The project would only affect areas directly adjacent to Arastradero Road and would not convert forestland to nonagricultural use. There would be no impact.

**MITIGATION:**

None required.

| <b>C. AIR QUALITY</b>   |                                       |   |                                     |                          |               |
|---|---------------------------------------|---|-------------------------------------|--------------------------|---------------|
| Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.  |                                       |   |                                     |                          |               |
| <b>WOULD THE PROJECT:</b>   | <b>IMPACT</b>                         |   |                                     |                          | <b>SOURCE</b> |
|   | <b>YES</b>                            |   |                                     | <b>NO</b>                |               |
|   | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>         |               |
| a) Conflict with or obstruct implementation of the applicable air quality plan?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5, 29, 30     |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?  | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/> | 5, 29, 30     |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5, 29, 30     |
| d) Expose sensitive receptors to substantial pollutant concentrations?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5, 29, 30     |
| e) Create objectionable odors affecting a substantial number of people?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 2, 6       |

**DISCUSSION:**

Setting

The project site is in the San Francisco Bay Area Air Basin (SFBAAB). Air quality in the region is affected by topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current Bay Area Air Quality Management District (BAAQMD) regulations.

***San Francisco Bay Area Air Basin***

The SFBAAB comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. There are 11 climatological subregions within the SFBAAB. The project site is located in the Peninsula climatological subregion of the SFBAAB.

The peninsula region extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains run up the center of the peninsula, with elevations exceeding 2,000 feet at the southern end, decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. The blocking effect of the Santa Cruz Mountains results in variations in summertime maximum temperatures in different parts of the peninsula, with mean summer high temperatures for San Francisco and coastal communities as much as 15 to 20 degrees cooler than communities to the southeast. Annual average wind speeds

range from 5 to 10 mph throughout the peninsula, with higher wind speeds usually found along the coast.

Air pollution potential is highest along the southeastern portion of the peninsula. This is the area most protected from the high winds and fog of the marine layer. Pollutant transport from upwind sites is common. In the southeastern portion of the peninsula, air pollutant emissions are relatively high due to motor vehicle traffic as well as stationary sources (BAAQMD 2017a).

**Pollution Potential Related to Emissions**

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends on the amount of air pollutant emissions in the surrounding area or those that have been transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use, and/or industrialization. Contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor chemicals (BAAQMD 2017a).

**Criteria Air Pollutants**

Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as criteria air pollutants and are categorized as primary and secondary pollutants. Primary air pollutants are those emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), coarse particulate matter (PM<sub>10</sub>) and fine particulate matter (PM<sub>2.5</sub>), lead, and fugitive dust are primary air pollutants. Of these, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are criteria pollutants. ROG and NO<sub>x</sub> are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>) are the principal secondary pollutants. **Table 1** presents a description of the primary and secondary criteria air pollutants and their known health effects.

**TABLE 1**  
**CRITERIA AIR POLLUTANTS – SUMMARY OF COMMON SOURCES AND EFFECTS**

| Pollutant                           | Major Man-Made Sources  | Human Health & Welfare Effects  |
|-------------------------------------|---|---|
| Carbon Monoxide (CO)                | An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.   | Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.   |
| Nitrogen Dioxide (NO <sub>2</sub> ) | A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.  | Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.                       |
| Ozone (O <sub>3</sub> )             | Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NO <sub>x</sub> ) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and | Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. |



| Pollutant  | Major Man-Made Sources  | Human Health & Welfare Effects  |
|--|---|---|
|  | landfills.  |   |
| Particulate Matter (PM <sub>10</sub> & PM <sub>2.5</sub> ) | Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.   | Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze). |
| Sulfur Dioxide (SO <sub>2</sub> )                          | A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, metal processing facilities, locomotives, and ships. | Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility.   |

Source: CAPCOA 2011

### Ambient Air Quality

The US Environmental Protection Agency (EPA) and the state of California have established health-based ambient air quality standards for the criteria pollutants described above, as well as for lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Air quality standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Areas with air quality that exceeds adopted air quality standards are designated as nonattainment areas for the relevant air pollutants, while areas that comply with air quality standards are designated as attainment areas. The SFBAAB’s current attainment status regarding federal and state ambient air quality standards is summarized in **Table 2**. The region is nonattainment for federal ozone and PM<sub>2.5</sub> standards, as well as for state ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> standards (BAAQMD 2017a).

**TABLE 2  
FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS FOR THE  
SAN FRANCISCO BAY AREA AIR BASIN**

| Pollutant                           | Averaging Time         | California Standards                  |                   | National Standards                    |                   |
|-------------------------------------|------------------------|---------------------------------------|-------------------|---------------------------------------|-------------------|
|                                     |                        | Concentration                         | Attainment Status | Concentration                         | Attainment Status |
| Ozone (O <sub>3</sub> )             | 8 Hours                | 0.070 ppm<br>(137 μg/m <sup>3</sup> ) | N                 | 0.070 ppm                             | N                 |
|                                     | 1 Hour                 | 0.09 ppm<br>(180 μg/m <sup>3</sup> )  | N                 | No standard                           | —                 |
| Carbon Monoxide (CO)                | 8 Hours                | 9.0 ppm<br>(10 mg/m <sup>3</sup> )    | A                 | 9 ppm<br>(10 mg/m <sup>3</sup> )      | A                 |
|                                     | 1 Hour                 | 20 ppm<br>(23 mg/m <sup>3</sup> )     | A                 | 35 ppm<br>(40 mg/m <sup>3</sup> )     | A                 |
| Nitrogen Dioxide (NO <sub>2</sub> ) | 1 Hour                 | 0.18 ppm<br>(339 μg/m <sup>3</sup> )  | A                 | 0.100 ppm                             | U                 |
|                                     | Annual Arithmetic Mean | 0.030 ppm<br>(57 μg/m <sup>3</sup> )  |                   | 0.053 ppm<br>(100 μg/m <sup>3</sup> ) | A                 |

| Pollutant                                      | Averaging Time                  | California Standards                 |                          | National Standards                    |                   |
|--|---------------------------------|--------------------------------------|--------------------------|---------------------------------------|-------------------|
|  |                                 | Concentration                        | Attainment Status        | Concentration                         | Attainment Status |
| Sulfur Dioxide (SO <sub>2</sub> )              | 24 Hours                        | 0.04 ppm<br>(105 µg/m <sup>3</sup> ) | A                        | 0.14 ppm<br>(365/µg/m <sup>3</sup> )  | —                 |
|  | 1 Hour                          | 0.25 ppm<br>(665 µg/m <sup>3</sup> ) | A                        | 0.075 ppm<br>(196/µg/m <sup>3</sup> ) | —                 |
|  | Annual Arithmetic Mean          |                                      |                          | 0.030 ppm<br>(80/µg/m <sup>3</sup> )  | —                 |
| Particulate Matter (PM <sub>10</sub> )         | Annual Arithmetic Mean          | 20 µg/m <sup>3</sup>                 | N                        | No standard                           | —                 |
|  | 24 Hours                        | 50 µg/m <sup>3</sup>                 | N                        | 150 µg/m <sup>3</sup>                 | U                 |
| Particulate Matter – Fine (PM <sub>2.5</sub> ) | Annual Arithmetic Mean          | 12 µg/m <sup>3</sup>                 | N                        | 15 µg/m <sup>3</sup>                  | A                 |
|  | 24 Hours                        |                                      |                          | 35 µg/m <sup>3</sup>                  | N                 |
| Sulfates                                       | 24 Hours                        | 25 µg/m <sup>3</sup>                 | A                        | —                                     | —                 |
| Lead   | 30-Day Average                  | 1.5 µg/m <sup>3</sup>                |                          | —                                     | A                 |
|  | Calendar Quarter                | —                                    | —                        | 1.5 µg/m <sup>3</sup>                 | A                 |
|  | Rolling 3-Month Average         | —                                    | —                        | 0.15 µg/m <sup>3</sup>                | —                 |
| Hydrogen Sulfide                               | 1 Hour                          | 0.03 ppm<br>(42 µg/m <sup>3</sup> )  | U                        | —                                     | —                 |
| Vinyl Chloride (chloroethene)                  | 24 Hours                        | 0.01 ppm<br>(26 µg/m <sup>3</sup> )  | No information available | —                                     | —                 |
| Visibility-Reducing Particles                  | 8 Hours<br>(10:00 to 18:00 PST) | —                                    | U                        | —                                     | —                 |

Source: BAAQMD 2017a

Notes: A = attainment; N = nonattainment; U = unclassified; mg/m<sup>3</sup> = milligrams per cubic meter; ppm = parts per million; ppb = parts per billion; µg/m<sup>3</sup> = micrograms per cubic meter; — = attainment status not established /or not required

Based on the nonattainment status, ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> are the pollutants of concern in the SFBAAB. Ambient concentrations of these pollutants vary with localized variations in emission sources and climate. Concentrations near the project site can be inferred from measurements conducted by the BAAQMD at nearby monitoring stations. The Redwood City air quality monitoring station is the closest to the project site, approximately 6.9 miles to the north. **Table 3** summarizes the data collected at this station for 2015 through 2017. There are no PM<sub>10</sub> data from area monitoring stations.

TABLE 3  
SUMMARY OF AMBIENT AIR QUALITY DATA, 2015-2017

| Pollutant Standards  | 2015  | 2016  | 2017  |
|--|-------|-------|-------|
| <b>Ozone</b>   |       |       |       |
| Max 1-hour concentration (ppm) state   | 0.086 | 0.075 | 0.115 |
| Number of days above state 1-hour standard (0.090 ppm)   | 0     | 0     | 2     |
| Max 8-hour concentration (ppm) state   | 0.071 | 0.061 | 0.087 |
| Number of days above state 8-hour standard (0.070 ppm)   | 1     | 0     | 2     |
| Max 8-hour concentration (ppm) federal   | 0.071 | 0.060 | 0.086 |
| Number of days above federal 8-hour 2015 standard (0.070 ppm)                                  | 1     | 0     | 2     |
| <b>Respirable Particulate Matter (PM<sub>10</sub>)</b>   |       |       |       |
| Max 24-hour concentration ( $\mu\text{g}/\text{m}^3$ )   | *     | *     | *     |
| Number of days above standard ( $50 \mu\text{g}/\text{m}^3$ )                                  | *     | *     | *     |
| <b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>  |       |       |       |
| Max 24-hour concentration ( $\mu\text{g}/\text{m}^3$ ) federal ( $35 \mu\text{g}/\text{m}^3$ ) | 34.6  | 19.5  | 60.8  |
| Number of days above federal standard  | 0     | 0     | 6     |

Source: CARB 2018

Notes:  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter; ppm = parts per million; \* = No data is currently available from CARB to determine the value.

### Air Quality Attainment Plan

The BAAQMD is responsible for preparing plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard, both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments.

The BAAQMD adopted the Bay Area 2017 Clean Air Plan in April 2017. The plan addresses nonattainment of the national 1-hour ozone standard in the SFBAAB. The Clean Air Plan establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving California and national air quality standards. The plan’s pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and vehicle miles traveled (VMT) projections for the region. The Clean Air Plan defines a strategy to (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas emissions. The Clean Air Plan addresses four categories of pollutants (BAAQMD 2017a):

- Ground-level ozone and its key precursors, ROG and NOx
- Particulate matter: primary PM<sub>2.5</sub>, as well as precursors to secondary PM<sub>2.5</sub>

- Air toxics
- Greenhouse gases

The Clean Air Plan includes local guidance for the State Implementation Plan, which includes the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards.

### ***Toxic Air Contaminants***

Toxic air contaminants (TACs), or hazardous air pollutants, can result in adverse community health effects. The California Air Resources Board (CARB) has designated over 240 compounds as TACs. Many TACs are confirmed or suspected carcinogens or are known or suspected to cause birth defects or neurological damage. Many TACs can be toxic at very low concentrations. For some chemicals, such as carcinogens, there are no thresholds below which exposure can be considered risk-free.

CARB identifies diesel particulate matter (diesel PM) as a TAC. Diesel PM differs from other TACs, as it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. Diesel PM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. Diesel PM includes the particle-phase constituents in diesel exhaust.

### ***Sensitive Receptors***

Some land uses are considered more sensitive to air pollution than others because of the types of population groups or activities involved. Sensitive population groups include fetuses (generally starting with third trimester), infants and children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are considered sensitive receptors because residents (assumed to include all sensitive population groups) tend to be at home for extended periods, resulting in sustained exposure. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. The closest existing sensitive receptors to the project site are a single-family residence approximately 230 feet to the northwest, across Alpine Road, and three single-family residences approximately 330 feet to the southwest, across Arastradero Road.

### ***Odors***

The land uses identified by the BAAQMD as sources of odors include wastewater treatment plants, wastewater pumping facilities, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing and fiberglass manufacturing facilities, painting/coating operations, rendering plants, coffee roasters, food processing facilities, confined animal facilities, feedlots, dairies, green waste and recycling operations, and metal smelting plants.

## DISCUSSION OF IMPACTS

The following addresses potential environmental impacts of construction. Post-construction or operational impacts are not evaluated because the project would not increase the capacity of Arastradero Road and the retaining wall would require very little, if any, maintenance that would generate additional emissions.

a) *Less Than Significant Impact.* The applicable air quality plan is the BAAQMD Bay Area 2017 Clean Air Plan. Criteria for determining consistency with the Clean Air Plan are:

- The project supports the primary goals of the Clean Air Plan.
- The project conforms to applicable control measures from the plan and does not disrupt or hinder the implementation of any Clean Air Plan control measures.

The primary goals of the Clean Air Plan are compliance with state and national ambient air quality standards.

BAAQMD air quality planning control measures are developed, in part, based on the emissions inventories contained in the Clean Air Plan, which are derived from projected population growth and VMT for the region. These inventories are largely based on the predicted growth identified in regional and community general plans, including associated development projects. Projects that result in an increase in population or employment growth beyond that identified in regional or community plans could result in increases in VMT and subsequently increase mobile source emissions. These increases would not have been accounted for in the BAAQMD's air quality plans, making those projects inconsistent with the Clean Air Plan. The proposed project is a roadway repair project that would not increase the population or induce growth in the region, nor would the project alter regional VMT. As discussed below in checklist item b, the project's emissions would be below all of the thresholds of significance listed in Table 2-1 of the BAAQMD's (2017b) California Environmental Quality Act (CEQA) Guidelines for short-term construction emissions. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant.

b) *Less Than Significant Impact with Mitigation.* Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. CalEEMod uses default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by California's air districts to account for local requirements and conditions and/or user-defined inputs. The calculation methodology and input data are described in the CalEEMod User's Guide Appendices A, D, and E (CAPCOA 2017). See **Appendix A** for the project model output files and site/project-specific assumptions used in the model.

Construction would generate short-term criteria air pollutant and ozone precursor emissions, including from fugitive dust, fuel combustion from mobile heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust—the predominant source of PM<sub>10</sub> and PM<sub>2.5</sub>

emissions—would be generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Off-road construction equipment is often diesel-powered and can be a substantial source of NO<sub>x</sub> emissions, in addition to exhaust PM<sub>10</sub> and exhaust PM<sub>2.5</sub> emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

The BAAQMD recommends implementation of the Basic Construction Mitigation Measures (BAAQMD 2017a: Table 8-2) as mitigation for dust and exhaust construction impacts for all projects, regardless of whether construction emissions thresholds would be exceeded. Mitigation measure AQ-1 would require implementation of the BAAQMD Basic Construction Mitigation Measures.

Predicted maximum daily construction-related emissions for the project are summarized in **Table 4**. The construction emissions model assumes a four-week duration, removal of riprap and other debris, and localized excavation, including material removed during boring of holes for piling footings and in locations where the retaining wall meets the roadway embankment. The emissions estimates presented in **Table 4** assume implementation of BAAQMD Basic Construction Mitigation Measures (mitigation measure AQ-1).

**TABLE 4**  
**CONSTRUCTION-RELATED EMISSIONS**

|   | Criteria Pollutant and Precursor Emissions (pound per day) |                 |                          |                           |  |  |
|---|--|-----------------|--------------------------|---------------------------|--|--|
|   | ROG  | NO <sub>x</sub> | Exhaust PM <sub>10</sub> | Exhaust PM <sub>2.5</sub> | Fugitive Dust PM <sub>10</sub>         | Fugitive Dust PM <sub>2.5</sub>        |
| Maximum Daily Emissions                         | 1.3  | 11.9            | 0.6                      | 0.8                       | 0.5                                    | 0.2                                    |
| BAAQMD Potentially Significant Impact Threshold | 54   | 54              | 82                       | 54                        | Basic Construction Mitigation Measures | Basic Construction Mitigation Measures |
| <b>Exceed BAAQMD Threshold?</b>                 | <b>No</b>  | <b>No</b>       | <b>No</b>                | <b>No</b>                 | <b>No</b>                              | <b>No</b>                              |

Source: CalEEMod version 2016.3.2. See **Appendix A** for emission model outputs.

Notes: 1. Project construction activities are assumed to occur over a four-week period. 2. Emissions estimates account for the quantifiable components of the BAAQMD’s Basic Construction Mitigation Measures, specifically watering unpaved portions of the construction site twice daily, limiting off-road equipment to speeds of 15 mph, and removing dirt track-out on adjacent public roads with a wet power vacuum once daily.

As shown in **Table 4**, construction-related criteria pollutant and precursor emissions would not exceed the BAAQMD thresholds. Therefore, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. With mitigation measure AQ-1, this impact would be less than significant.

- c) *Less Than Significant Impact.* Past, present, and future development projects contribute to the region’s cumulative adverse air quality impacts. According to the BAAQMD, no single project would result in nonattainment of ambient air quality standards. Instead, a project’s individual emissions contribute to existing cumulatively significant adverse air

quality impacts. In developing thresholds of significance for air pollutants, the BAAQMD considered the emissions levels for which a project's individual emissions would be cumulatively considerable. As mentioned, no operational emissions would occur; and as discussed in checklist item b, the project's construction emissions would be below the BAAQMD thresholds. Therefore, the project would not result in a cumulatively considerable net increase of criteria pollutants and this impact would be less than cumulatively considerable.

- d) *Less Than Significant Impact.* The project site is located adjacent to low-density rural residential neighborhoods, with the closest primary outdoor area of a residence approximately 230 feet to the northwest. Project construction would generate diesel PM emissions from the use of off-road diesel equipment. Diesel PM is the primary TAC that would be emitted during construction. Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated cancer risk. Exposure, which is a function of concentration and duration of exposure, is the primary factor used to determine health risk.

According to the BAAQMD (2017a):

*Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk.*

The California Office of Environmental Health Hazard Assessment (OEHHA) has developed risk assessment guidelines as part of the Air Toxics Hot Spots Program to meet the regulatory requirements for permitting of stationary sources of some pollutants subject to the Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588). The construction activities associated with the proposed project are not a stationary source of pollutants subject to AB 2588 reporting or health risk assessment requirements. The OEHHA has recognized that the tools and guidelines developed for the Hot Spots program are sometimes used for short-term projects and has included guidance regarding short-term exposure. However, the OEHHA acknowledges that cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent, and there is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015). For projects lasting less than two months, the OEHHA recommends not quantifying health risks. The County estimates that construction of the retaining wall would require approximately four weeks. For these reasons and because diesel exhaust disperses rapidly over relatively short distances, diesel PM generated during construction

would not result in adverse community health risks. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations and this impact would be less than significant.

- e) *Less Than Significant Impact.* The BAAQMD does not have a recommended odor threshold for construction activities because, although heavy-duty construction equipment would emit odors, those odors would primarily be from diesel exhaust, which dissipates quickly. Construction activities would be short term and intermittent. For these reasons, construction-related odors associated with the project would not create objectionable odors affecting a substantial number of people. This impact would be less than significant.

**MITIGATION:**

**AQ-1** During construction activities, the County and/or its contractor would ensure that the Bay Area Air Quality Management District’s Basic Construction Mitigation Measures are implemented. The County would ensure that the design drawings include the relevant requirements prior to initiating construction and would monitor compliance during construction through site inspection(s).

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site will be covered.
3. All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads will be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations). Clear signage will be provided for construction workers at all access points.
7. All construction equipment will be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment will be checked by a certified visible emissions evaluator.



8. Publicly visible signs will be posted with the telephone number and person to contact regarding dust complaints. This person will respond and take corrective action within 48 hours. The air district's phone number will also be visible to ensure compliance with applicable regulations.

| <b>D. BIOLOGICAL RESOURCES</b>   |                                       |   |                                     |                                     |                                  |
|--|---------------------------------------|---|-------------------------------------|-------------------------------------|----------------------------------|
| <b>WOULD THE PROJECT:</b>  | <b>IMPACT</b>                         |   |                                     |                                     | <b>SOURCES</b>                   |
|  | <b>YES</b>                            |   |                                     | <b>NO</b>                           |                                  |
|  | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>                    |                                  |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?   | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 1, 7, 17b, 17o                   |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?   | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 3, 7, 8a, 17b, 17e, 22d, 22e, 33 |
| c) Have a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) or tributary to an already impaired water body, as defined by section 303(d) of the Clean Water Act through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 3, 7, 17n, 33                    |
| d) Have a substantial adverse effect on oak woodland habitat as defined by Oak Woodlands Conservation Law (conversion/loss of oak woodlands) – Public Resource Code 21083.4?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 3, 31, 32                     |
| e) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 7, 17b, 17o                   |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 4, 17l                        |

**DISCUSSION:**

Setting

The project site is located directly adjacent to Arastradero Road in Portola Valley, Santa Clara County, California (see **Figure 7**). The project site consists of the westbound portion of Arastradero Road and an immediately adjacent section of Los Trancos Creek where erosion damage has occurred.

Los Trancos Creek is a tributary of San Francisquito Creek and the site is just upstream of the Stanford University campus. San Francisquito Creek supports steelhead trout; Stanford has removed some fish migration obstacles and, several years ago, replaced a steelhead fish ladder on Los Trancos Creek downstream of the project site. Based on the presence of the fish ladder and review of the Stanford University Habitat Conservation Plan, Los Trancos Creek may provide habitat for migrating steelhead and the area may provide upland habitat for California red-legged frog.

The project area, shown in **Figure 10**, includes a short reach of Los Trancos Creek, the creek bed, and creek banks directly upstream and downstream of the eroded area that requires permanent repair. Figure 10 depicts the project site after the temporary repair was completed in October 2017 using riprap to stabilize the roadway embankment and reduce the flow velocity of storm flows in Los Trancos Creek. The emergency repair also relocated the creek channel away from Arastradero Road.

The proposed permanent repair would remove the riprap and install a soldier pile retaining wall with concrete facing. The wall would affect the area currently filled with riprap and would be subject to federal regulation including the Clean Water Act, Sections 404 and 401, and California Fish and Game Code. The County will apply for Section 404 Nationwide Permits, Water Quality Certification, and a Streambed Alteration Agreement. The Clean Water Act permitting process requires consultation with the federal natural resource agencies regarding potential effects on special-status species.



**FIGURE 10. RIPRAP INSTALLED ADJACENT TO ARASTRADERO ROAD DURING EMERGENCY REPAIR**

### ***Site Habitats***

The habitat descriptions below are based on and/or taken directly from information prepared by H.T. Harvey & Associates (2017) (**Appendix B**) for Santa Clara County in support of the 2017 emergency roadway repair. The habitat types in the immediate project area include open water, white alder riparian forest, and mixed oak forest (see Appendix B, Figure 3).

### ***Open Water***

This habitat consists of the flowing channel of Los Trancos Creek, which flows from the Santa Cruz Mountains, under Arastradero Road, past the site of the required roadway repair, and downstream to its confluence with San Francisquito Creek. Adjacent to Arastradero Road, the stream gradient is mild, with a gravel bar, rocks, woody debris, and downed trees. The creek flows in an S shape away from Arastradero Road, and then back toward Arastradero Road and around a gravel bar where it scours the roadway embankment and exposed underground utilities. Upstream and downstream of the damage, Los Trancos Creek has steep banks that range from 2 to 10 feet above the creek bed.

During a July 2017 survey, the area adjacent to the damaged roadway contained small gravel bars, riffles, and pools. The waterway ranged from approximately 2 to 18 inches deep and 2 to 15 feet wide. Directly adjacent to the scoured roadway embankment, the channel was approximately 5 inches deep and 5 feet wide. The ordinary high-water mark (OHWM) was measured based on field observations. The area mapped as aquatic habitat (Appendix B, Figure 3) included riparian forest canopy.

Los Trancos Creek supports native fish species such as the California roach (*Hesperoleucus symmetricus*), hardhead (*Mylopharodon conocephalus*), and threespine stickleback (*Gasterosteus aculeatus*). In addition, the federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) has been documented in Los Trancos Creek. The creek also supports Sierran chorus frogs (*Pseudacris sierra*), California newts (*Taricha torosa*), non-native bullfrogs (*Lithobates catesbeianus*), and crayfish. Bats, including Yuma bats (*Yuma myotis*) and Mexican free-tailed bats (*Tadarida brasiliensis*), forage aerially on insects over Los Trancos Creek.

### **White Alder Riparian Forest**

The area between the banks of Los Trancos Creek includes white alder riparian forest habitat. The creek's banks are steep, unstable, and densely vegetated. The overstory is dominated by tall (approximately 30 to 50 feet) white alder (*Alnus rhombifolia*), black walnut (*Juglans hindsii*), California bay (*Umbellularia californica*), coast live oak (*Quercus agrifolia*), and California buckeye (*Aesculus californica*). The banks of the creek also support arroyo willow (*Salix lasiolepis*) and forbs, such as Himalayan blackberry (*Rubus armeniacus*), bigleaf periwinkle (*Vinca major*), poison oak (*Toxicodendron diversilobum*), watercress (*Nasturtium officinale*), and stinging nettle (*Urtica dioica*).

Common species nesting and foraging primarily in the riparian tree canopy include the chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*), and downy woodpecker (*Picoides pubescens*). Other resident species include Bewick's wren (*Thryomanes bewickii*), spotted towhee (*Pipilo maculatus*), and song sparrow (*Melospiza melodia*). Raptors, such as red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk (*Accipiter cooperii*), may nest within the riparian corridor and forage in adjacent habitats.

Reptiles and amphibians in riparian corridors may include salamanders, newts, toads, frogs, and lizards. Small mammals may include shrews, voles, squirrel, raccoon, skunk, and opossum.

### **Mixed Oak Forest**

Outside Los Trancos Creek, forested habitat is mixed oak forest dominated by coast live oak, valley oak (*Quercus lobata*), black walnut, California buckeye, eucalyptus (*Eucalyptus* sp.), and California bay.

Dominant species include birds and mammals. Notably, bats such as the California myotis (*Myotis californicus*) may roost in older oaks. During the 2017 survey, nests of San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) were observed approximately 50 feet from the project site in areas where dense understory vegetation provided adequate cover.

### ***Special-Status Species***

Based on review of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database and site reconnaissance conducted by H.T. Harvey (2017), and an evaluation of the potential effects of installing the soldier pile retaining wall, the project has a very low potential to affect protected plant species but could affect the following special-status wildlife species:

- the federally threatened Central California Coast steelhead
- the federally threatened California red-legged frog (*Rana draytonii*), also a California species of special concern
- the western pond turtle (*Actinemys marmorata*), a California species of special concern
- the San Francisco dusky-footed woodrat, a California species of special concern

#### **Central California Coast steelhead**

The Central California Coast steelhead, federally listed as threatened, potentially occurs in Los Trancos Creek within the study area (Leidy et al. 2005), and critical habitat for steelhead is present in Los Trancos Creek (National Marine Fisheries Service 2005). Published reports (Leidy et al. 2005, Jones & Stokes 2006) document the historical and recent occurrence of rainbow trout. Steelhead were not observed during the July 2017 field reconnaissance; however, creek habitat in the area near the roadway repair was in good condition and steelhead could occur.

#### **California red-legged frog**

The California red-legged frog was listed as threatened by the U.S. Fish and Wildlife Service (USFWS) in June 1996 and is a California species of special concern. This frog inhabits lowlands and foothills in or near permanent or semi-permanent waters, such as lakes, stock ponds, and slow-moving streams with deep pools and dense shrubs or emergent aquatic vegetation. Where water sources are not permanent, California red-legged frog requires access to dry-season upland aestivation habitat in the form of mammal burrows. It requires at least 11 weeks of permanent water after egg laying for larval development. This species has been recorded along Matadero Creek approximately 1.8 miles northeast of the project site and along San Francisquito Creek. Los Trancos Creek at the roadway repair site does not support breeding habitat because of the absence of deep, relatively slow-moving pools with emergent vegetation. However, the area provides potential foraging and dispersal habitat.

#### **Western pond turtle**

The western pond turtle, a species of special concern, occurs across Northern California including the San Francisco Bay Area, the Sacramento Valley, and the western slope of Sierra Nevada. It prefers ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies or other aquatic vegetation in woodlands, grasslands, and open forests.

**San Francisco dusky-footed woodrat**

The San Francisco dusky-footed woodrat, a species of special concern, is found on the San Francisco Peninsula south to Santa Cruz County and in the East Bay hills. This woodrat prefers brushy riparian habitats, coast live oak woodland, and dense scrub communities, and lives in stick houses that are 3 feet tall or larger. Its houses typically are built against or straddling a log or exposed roots of a standing tree in dense brush. Nests also are placed in the crotches and cavities of trees and in hollow logs. Suitable habitat for this species at the project site includes adjacent wooded areas. During the 2017 field survey, woodrat middens were observed approximately 50 feet from the project site; therefore, woodrats are likely present in the area.

**Special-Status Bats**

Bats are classified as non-game mammals and are afforded protection under various sections of the following: (1) the California Fish and Game Code, including Sections 86, 2000, 2014, 3007, and 4150; (2) Title 14 of the California Code of Regulations, including Section 251.1, Article 20, Section 15380 and 15382; and (3) the California Public Resources Code, Division 13. Bat species present in the area may include species such as pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillii*). Pallid bat is found in a variety of low elevation habitats throughout California. Roosts generally include rock outcrops, hollow trees, caves, mines, buildings, and bridges. Pallid bats are sensitive to roost disturbance. The species preys primarily on large ground-dwelling arthropods. Western red bat typically roosts in areas such as the foliage of trees or shrubs.

**Regulatory Setting****Federal****U.S. Army Corps of Engineers**

Section 404 of the Clean Water Act (CWA) of 1972—Section 404 of the CWA (33 U.S. Code [USC] 1344) regulates activities that result in the discharge of dredged or fill material into waters of the U.S., including wetlands. Under Section 404, projects may be authorized under existing general permits (a nationwide permit) or may require an individual permit. A nationwide permit is a more streamlined permit process than an individual permit, although other federal regulations, such as the federal Endangered Species Act (ESA), apply regardless of permit type.

Section 10 of the Rivers and Harbors Act of 1899—Section 10 of the Rivers and Harbors Act (33 USC 201, et seq.) authorizes the U.S. Army Corps of Engineers (USACE) to regulate dredging, filling, and construction activities in navigable waters. The Rivers and Harbors Act prohibits discharges into the navigable waters of the U.S. and excavation, fill, or alteration of any port, harbor, or channel.

Executive Order 11990, Protection of Wetlands—Executive Order 11990, enacted in May 1977, directs federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative (42 Federal Register 26961).

**U.S. Fish and Wildlife Service**

Federal Endangered Species Act—Section 9 of the ESA (16 USC 1531, et seq.; 50 Code of Federal Regulations [CFR] Parts 17 and 222) prohibits the “take” of federally listed endangered species of fish or wildlife and many plant species (16 USC 1538[a][1][B]). The ESA defines take as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct” (16 USC 1532[19]). Section 7(a)(2) requires that actions authorized, funded, or carried out by federal agencies (i.e., issuing a permit pursuant to the CWA) do not “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification” of lands determined by the USFWS to be “critical habitat” for such species (16 USC 1536[a][2], and 16 USC 1532[5]). If a federal agency determines that a proposed federal action “may affect” a listed species and/or designated critical habitat, the agency must consult with the USFWS and/or the National Marine Fisheries Service in accordance with Section 7 of the ESA. If take of a federally listed species may occur, the action may require an incidental take permit from the USFWS. This permit allows take of federally listed species if the take is “incidental to and not the purpose of, the carrying out of an otherwise lawful activity” (16 USC 1539[a][1][B]).

Migratory Bird Treaty Act—The Migratory Bird Treaty Act (16 USC 703–711; 50 CFR Subchapter B) includes provisions for the protection of migratory birds, and it prohibits unauthorized take that is not authorized by federal regulation.

**State****California Department of Fish and Wildlife**

California Fish and Game Code—The CDFW enforces the California Fish and Game Code, which provides protection for “fully protected birds” (Section 3511), “fully protected mammals” (Section 4700), “fully protected reptiles and amphibians” (Section 5050), and “fully protected fish” (Section 5515). With the exception of permitted scientific research, the agency cannot issue permits for take of any fully protected species.

California Endangered Species Act of 1984 (California Fish and Game Code Sections 2050 through 2085)—The California Endangered Species Act includes provisions for the protection and management of species listed as endangered, threatened, or designated as candidates for such listing. The act requires consultation “*to ensure that any action authorized by a State lead agency is not likely to jeopardize the continued existence of any endangered or threatened species ... or results in the destruction or adverse modification of habitat essential to the continued existence of the species*” (Section 2053). California’s protected plants and animals are listed under Title 14, Sections 670.2 and 670.5 of the California Code of Regulations [CCR], respectively. The state prohibits the take of protected amphibians (14 CCR 41), protected reptiles (14 CCR 42), and protected furbearers (14 CCR 460). The CDFW also may authorize take under Section 2081[b].

Native Plant Protection Act—The CDFW administers Sections 1900–1913 of the California Fish and Game Code, the Native Plant Protection Act. This act allows the California Fish and Game Commission to designate rare and endangered rare plant species, and to notify landowners of the presence of such species. Section 1907 also allows the commission to regulate the “*taking*,

*possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants.”*

Lake and Streambed Alteration Agreement—The CDFW administers Sections 1600 through 1616 of the California Fish and Game Code, the Lake and Streambed Alteration Agreement. These sections address any project that would “(1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department [CDFW] in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, (2) use materials from the streambeds designated by the department, or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass in to any river, stream, or lake designated by the department” (Section 1601). Regional/Local

Santa Clara County General Plan—The Resource Conservation Element of the Santa Clara County General Plan (Santa Clara County 1994) contains policies and goals for protection of biological resources, including the following:

R-RC 2. The County shall provide leadership in protecting and restoring valuable natural resources, such as wetlands, riparian areas, and woodlands, and others, for County-owned lands and by means of multi-jurisdictional endeavors.

R-RC 19. Habitat types and biodiversity within Santa Clara County and the region should be maintained and enhanced for their ecological, functional, aesthetic, educational, medicinal, and recreational importance.

R-RC 20. Strategies and policies for maintaining and enhancing habitat and biodiversity should include the following:

- Improve current knowledge and awareness of habitats and natural areas;
- Protect the biological integrity of critical habitat areas;
- Encourage habitat restoration wherever possible;
- Evaluate the effectiveness of project mitigations as required under CEQA.

R-RC 26. Within wetlands areas, allowable uses shall be limited to those which cause little or no adverse impacts, possibly including: a. natural ecological functions, such as bay waters, sloughs, marshes and flats, preserved in open space; b. salt ponds; c. small piers, walkways, and wildlife observation areas; d. trail-related uses, such as walking, bicycling, and, horseback riding as compatible with resource preservation; e. fishing, boating, swimming, and limited hunting; f. aquaculture; g. marinas; and h. nature centers or other facilities for the study and appreciation of natural resources.

R-RC 27. There shall be no filling or alteration of wetlands areas except for such alterations which enhance habitat resources. Construction of small levees, piers, or walkways for public use and education may be allowed. If construction of any type will result in significant loss of habitat or alteration of wetlands hydrology, mitigations shall be required.



R-RC 31. Natural streams, riparian areas, and freshwater marshes shall be left in their natural state providing for percolation and water quality, fisheries, wildlife habitat, aesthetic relief, and educational or recreational uses that are environmentally compatible. Streams which may still provide spawning areas for anadromous fish species should be protected from pollution and development impacts which would degrade the quality of the stream environment.

R-RC 32. Riparian and freshwater habitats shall be protected through the following general means:

- Setback of development from the top of the bank;
- Regulation of tree and vegetation removal;
- Reducing or eliminating use of herbicides, pesticides, and fertilizers by public agencies;
- Control and design of grading, road construction, and bridges to minimize environmental impacts and avoid alteration of the streambed and stream banks (freeway bridges and arch culverts, for example); and e. protection of endemic, native vegetation.

R-RC 37. Lands near creeks, streams, and freshwater marshes shall be considered to be in a protected buffer area, consisting of the following:

- 150 feet from the top bank on both sides where the creek or stream is predominantly in its natural state;
- 100 feet from the top bank on both sides of the waterway where the creek or stream has had major alterations; and 3. In the case that neither (1) nor (2) are applicable, an area sufficient to protect the stream environment from adverse impacts of adjacent development, including impacts upon habitat, from sedimentation, biochemical, thermal and aesthetic impacts.

R-RC 38. Within the aforementioned buffer areas, the following restrictions and requirements shall apply to public projects, residential subdivisions, and other private nonresidential development:

- No building, structure or parking lots are allowed, exceptions being those minor structures required as part of flood control projects;
- No despoiling or polluting actions shall be allowed, including grubbing, clearing, unrestricted grazing, tree cutting, grading, or debris or organic waste disposal, except for actions such as those necessary for fire suppression, maintenance of flood control channels, or removal of dead or diseased vegetation, so long as it will not adversely impact habitat value. c. Endangered plant and animal species shall be protected within the area.

R-RC 43. Large scale grading and clearing of land should not be allowed if it will significantly degrade valuable habitat or impair surface water quality.

R-RC 49. Retention and planting of native plant species shall be encouraged, especially for landscape uses.

R-RC 53. Restoration of habitats should be encouraged and utilized wherever feasible, especially in cases where habitat preservation and flood control, water quality, or other objectives can be successfully combined.

## DISCUSSION OF IMPACTS

- a) *Less Than Significant Impact with Mitigation.* The project would include construction in waters of the U.S., including temporary operation of heavy equipment and workers in the creek channel and adjacent areas. Based on previous evaluations completed for the County on the October 2017 emergency roadway repair (H.T. Harvey & Associates 2017), this work could affect special-status species in the creek and adjacent wooded areas. Therefore, the County would implement mitigation measures BIO-1 and BIO-2 for biological monitoring and worker education. This measure would reduce potentially significant impacts on special-status wildlife species to less than significant by increasing construction worker awareness and through daily monitoring.

These measures would inform workers regarding effects on potential species and would require routine monitoring of the construction site. The following sections address potential impacts on steelhead, California red-legged frog, western pond turtle, and San Francisco dusky-footed woodrat, and outline species-specific mitigation measures.

### *Steelhead*

Project construction could have direct impacts on steelhead if they are present when the construction contractor lowers equipment into the creek, removes riprap, and installs the soldier pile retaining wall. These activities could result in steelhead injury or mortality. Therefore, the County would implement mitigation measures BIO-3, BIO-4, and BIO-5. These measures would reduce potentially significant impacts on steelhead to less than significant by completing the installation of the retaining wall during the summer work window and removing steelhead and other salmonids from the construction area.

### *California red-legged frog*

Project construction could have direct impacts on California red-legged frog if they are present when the construction contractor lowers equipment into the creek, removes riprap, and installs the soldier pile retaining wall. These activities could result in frog injury or mortality. Therefore, the County would implement mitigation measure BIO-6. This measure would reduce potentially significant impacts on California red-legged frog to less than significant by completing the installation of the retaining wall during the summer work window and moving any frogs away from the construction area.

### *Western pond turtle*

Project construction could have direct impacts on western pond turtle if they are present when the construction contractor lowers equipment into the creek, removes riprap, and installs the soldier pile retaining wall. These activities could result in turtle injury or mortality. Therefore, some of the mitigation measures described above for steelhead and California red-legged frog—namely, BIO-1, -2, -5, and -6—would be applied. In

addition, the County would implement mitigation measure BIO-7 for western pond turtle. This measure would reduce potential impacts on western pond turtle to less than significant by completing the installation of the retaining wall during the summer work window and moving any turtles away from the construction area. This measure is likely to be very similar to the permit conditions in the project's CDFG Section 1602 Lake and Streambed Alteration Program Agreement.

*San Francisco dusky-footed woodrat*

This species was identified in the project area during the 2017 reconnaissance survey and could be affected by installation of the soldier pile retaining wall, which could disturb woodrat middens. Therefore, the County would implement mitigation measure BIO-8. This measure would reduce potentially significant impacts on San Francisco dusky-footed woodrat to less than significant by removing middens prior to construction. This measure is likely to be very similar to the permit conditions in the project's CDFG Section 1602 Lake and Streambed Alteration Program Agreement.

*Nesting Migratory Birds*

As described above, several species of common native birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code may nest in trees and shrubs near the site. Construction-related disturbance during the breeding season (i.e., February 1 through August 31) could result in nest failure. This would be a significant impact and the County would implement mitigation measure BIO-9 to ensure that project activities do not violate the MBTA and the California Fish and Game Code. This mitigation measure requires pre-construction surveys and monitoring of nests. Mitigation measure BIO-9 would reduce potential impacts on nesting birds to less than significant.

*Special-Status Bats*

Project construction could affect special-status bat species if construction requires pruning of trees that provide suitable roosting habitat for special-status bat species or that are occupied by roosting bats. Bats could abandon their nests if these impacts occurred during seasonal periods of activity (about February 15 through April 15 and August 15 through October 30). Project construction could result in a permanent loss of suitable or occupied habitat for special-status bat species and would thus be a potentially significant impact. Therefore, the County would implement mitigation measure BIO-10. This measure would reduce potential impacts on special-status bat species to less than significant through preconstruction surveys and avoiding direct disturbance of roosting bats. This measure is likely to be very similar to those requested by the CDFW as part its review of the project, pursuant to CEQA.

- b) *Less Than Significant Impact with Mitigation.* Construction of the soldier pile retaining wall would have direct impacts on riparian habitat in Los Trancos Creek during removal of the existing riprap installed as an emergency repair for Arastradero Road and by installing the retaining wall, which would be keyed into the banks upstream and downstream of the repair area. Riparian habitat would be permanently affected by the retaining wall. Because riparian habitat is a sensitive natural community that provides

valuable habitat benefits, impacts on riparian habitat along approximately 100 linear feet of Los Trancos Creek would be a potentially significant impact and Santa Clara County would implement mitigation measure BIO-11.

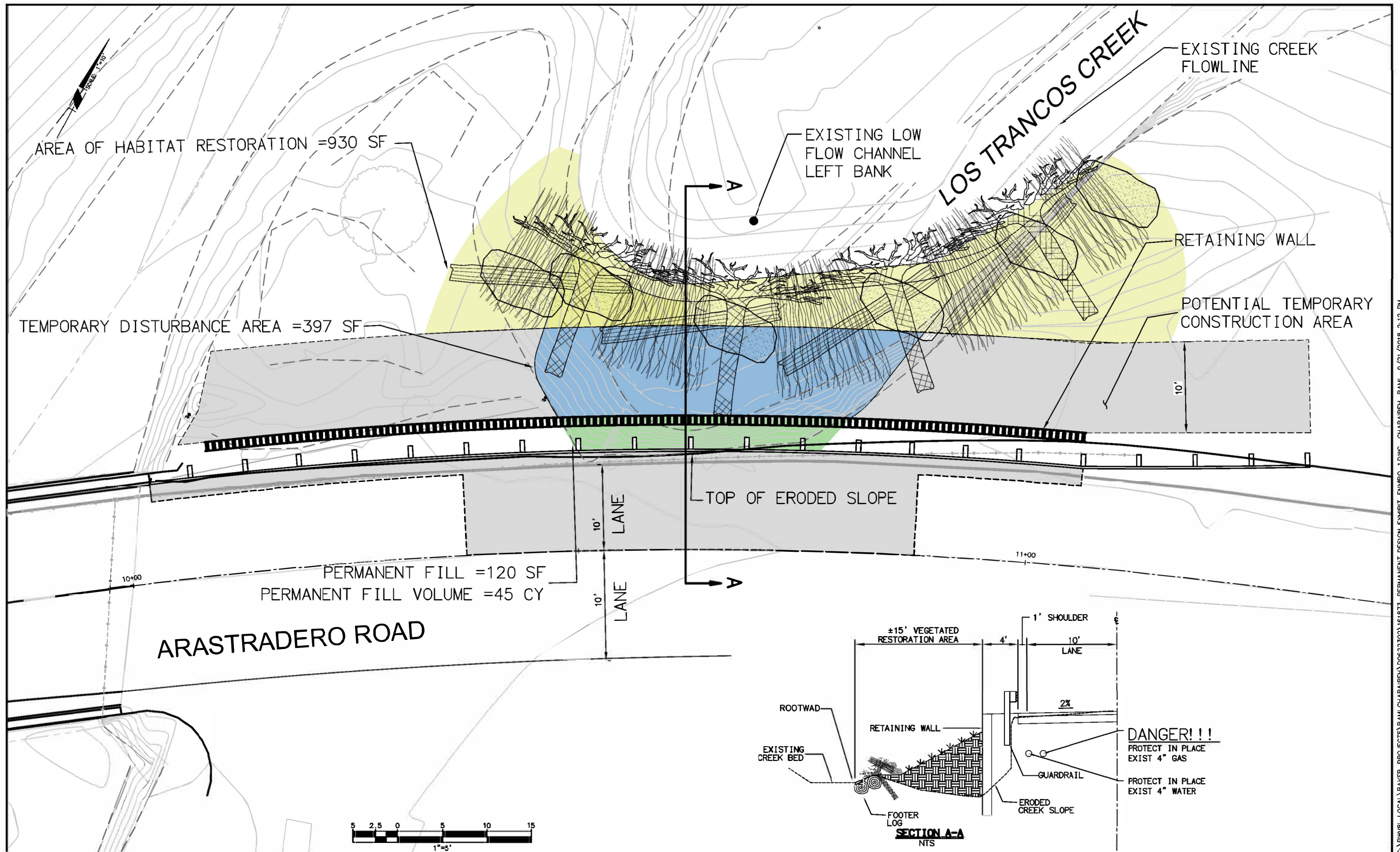
By replacing riparian habitat lost during construction, as required under BIO-11, implementation of this mitigation measure would reduce these impacts to less than significant. In addition, the County would be required to obtain permits under Sections 404 and 401 of the CWA and Section 1600, et seq., of the California Fish and Game Code. Complying with state and federal permit requirements would also address impacts on riparian areas.

- c) *Less Than Significant Impact with Mitigation.* Construction would result in temporary and permanent impacts on waters of the U.S. subject to USACE jurisdiction. This includes the bed of Los Trancos Creek, which would be permanently affected by installing the soldier pile retaining wall. The project would permanently fill approximately 120 square feet of the creek. **Figure 11** depicts the affected area of Los Trancos Creek and shows the location of the retaining wall, the embankment armored with riprap, habitat mitigation areas, and the existing creek channel (ordinary high water mark).

**Table 5** presents a summary of impacts on federally regulated habitat. Construction would permanently impact approximately 120 square feet (0.003 acres) of waters of the U.S. through drilling the soldier piles, installing the retaining wall, placing backfill between the pilings and the roadway, and the new embankment and riprap armor. Construction would also temporarily affect approximately 400 square feet (0.01 acres) during removal of the riprap and during temporary use by construction workers and small equipment. This impact would be potentially significant and would require mitigation.

**TABLE 5  
SUMMARY OF WETLAND IMPACTS – ARASTRADERO ROAD REPAIR PROJECT**

|  | Streambed impacts (sf/ac) | Streambank (linear feet) |
|--|---------------------------|--------------------------|
| Temporary impacts from riprap removal            | 400/0.01                  | 100                      |
| Temporary impacts from In-stream work surfaces   | 400/0.01                  | -                        |
| Permanent impacts of soldier pile retaining wall | 120/0.003                 | 40                       |



C:\P\WB\LOCAL\BAKER\_PROJECTS\RAMI.GHARAIBEH\0622302\161873-PERMANENT DESIGN EXHIBIT\_ENVR0\_1.DWG GHARAIBEH, RAMI 9/21/2018 2:12 PM

| NO. | REVISIONS | APP'D | DATE |
|-----|-----------|-------|------|
|     |           |       |      |
|     |           |       |      |
|     |           |       |      |



County of Santa Clara  
**Roads and Airports Department**

|              |        |
|--------------|--------|
| MBI JOB NO:  | 161873 |
| DRAWN BY:    | DATE   |
| DESIGNED BY: | DATE   |
| CHECKED BY:  | DATE   |

PLANS PREPARED BY  
**Michael Baker**  
**INTERNATIONAL**  
 500 Ygnacio Valley Road, Suite 300  
 Walnut Creek, CA 94596  
 Phone: (925) 906-1460 M.BAKER@INTL.COM

|  |  |              |
|--|--|--------------|
| ARASTRADERO ROAD<br>STORM DAMAGE IMPROVEMENTS    |  | <b>SHEET</b> |
| <b>FIGURE 11. - LOS TRANCOS CREEK MITIGATION</b> |  |              |

This page intentionally left blank.



To mitigate for permanent impacts on the bed and banks of Los Trancos Creek, the County proposes to create or restore habitat on-site as described in mitigation measure BIO-12. Through implementation of mitigation measure BIO-12, the County would reduce wetland impacts to less than significant. The County would also be required to obtain permits under Sections 404 and 401 of the CWA and Section 1600, et seq., of the California Fish and Game Code. Complying with these state and federal permit requirements would also address the wetland impacts described above by requiring avoidance and minimization measures and compensatory mitigation.

d) *No Impact.* The Santa Clara County General Plan contains policies limiting the removal of heritage trees, old growth trees, oak woodlands, and redwoods, including the County’s Oak Woodland Impact Guidelines (Santa Clara County 2010). However, the proposed roadway repair would not remove trees. The project would have no impact on tree preservation policies and ordinances.

e) *Less Than Significant.* The project would affect only a small area directly adjacent to Arastradero Road that sustained storm damage during the 2016-2017 rainy season. Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas, such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors, allowing animals to move between various locations within their range.

Los Trancos Creek supports steelhead trout, which are migratory fish that enter San Francisco Bay tributaries to access spawning habitat; placing fill in Los Trancos Creek would be a potentially significant impact. However, the retaining wall would be installed during the summer low-flow work window (BIO-3) and would minimize fill by only filling the area directly adjacent to Arastradero Road (BIO-4). Thus, the project would not impede fish passage and implementation of these mitigation measures would reduce any impacts on migratory fish and other wildlife species to less than significant.

f) *No Impact.* A Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP) has been prepared and implemented for Santa Clara Valley. However, the project site is not within the boundaries of the Santa Clara Valley HCP/NCCP. The proposed project’s stream restoration activities generally would be consistent with the goals of those conservation plans by restoring habitat. Thus, no conflicts with regional conservation plans would occur and there would be no impact.

**MITIGATION:**

**Mitigation Measure BIO-1. Worker Environmental Awareness Program.** Before any construction activities begin, a qualified biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the site’s habitat and potential special-status species, including California Central Coast steelhead, California red-legged frog, western pond turtle, and San Francisco dusky-footed woodrat. This training will

address their habitat, the importance of the species, the project mitigation measures, and permit conditions that are being implemented by the County.

**Mitigation Measure BIO-2. Biological Monitoring.** Before the start of each day, a qualified biological monitor will check the construction site for steelhead, California red-legged frogs, and western pond turtles. If any of these species are found, the biologist will direct the construction contractor to stop all work until the qualified biologist has moved the individual out of the construction area and notified the appropriate agency. The biologist will be on-site at 7:00 a.m. every morning to survey for steelhead, California red-legged frog, and western pond turtle prior to work.

**Mitigation Measure BIO-3. In-Channel Work Window.** Construction of the soldier pile retaining wall in the channel will be completed between June 15 and October 15 and the construction contractor will remove all construction equipment and in-channel erosion control measures by October 31.

**Mitigation Measure BIO-4. Minimize Fill.** The County will minimize the amount of fill placed in waters of the U.S. by constructing a soldier pile retaining wall. This construction technique will avoid the need for cofferdams, temporary earthen fill, or other diversion structures that could impede fish passage or degrade water quality.

**Mitigation Measure BIO-5. Exclude Steelhead and Other Salmonid Fish During Retaining Wall Installation.** Before commencing drilling and installation of pilings, the County will place block nets in the stream 36 meters upstream and downstream of the project site to exclude immigration of steelhead and other salmonids to the adjacent stream reach. After the block nets are in place and before the start of construction, the County's biologist will capture any steelhead and other salmonids between the two block nets and relocate them to a suitable preselected site in Los Trancos Creek.

**Mitigation Measure BIO-6. Avoid Construction Impacts on California Red-Legged Frog.**

*Dewatering* - During dewatering, pump intakes will be completely screened with wire mesh not larger than 5 millimeters to prevent California red-legged frogs from entering the pump system.

*Determination Appropriate Relocation Site* - Prior to construction, a qualified biologist will determine appropriate relocation sites for any California red-legged frogs observed during preconstruction surveys.

*Conduct Preconstruction Survey* - A qualified biologist will survey the work site within 48 hours of the initiation of construction activities. If California red-legged frogs of any life stage are found, the animals will not be handled and will instead be allowed to leave the site on their own. If needed, the U.S. Fish and Wildlife Service (USFWS) will be contacted for permission to relocate the individual.

*Biological Monitoring* - A qualified biologist will survey the site at the beginning of each day to ensure no California red-legged frogs are present in the work area. The biologist will monitor all active construction to avoid take of California red-legged frogs. If California red-legged frog are



detected on the site, construction that could harm the frog will cease until the individual has moved away from the construction area. If frogs are observed, a USFWS-permitted biologist will remove them from the construction site and relocate them to nearby suitable aquatic habitat.

The biologist will contact the USFWS within 24 hours to report the observation and whether any frogs are killed or injured.

*Prevention of Entrapment* - To prevent the inadvertent entrapment of California red-legged frogs, any excavated, steep-walled holes or trenches will be covered at the end of each work day with plywood or similar materials. If coverings are not practicable, one or more escape ramps constructed of earthen fill or wooden planks will be placed to allow escape. Before such holes or trenches are filled, they will be thoroughly inspected for any animals. Any California red-legged frogs found will be relocated to the preapproved relocation site.

*Removal of Nonnative Species* - A qualified biologist shall permanently remove, from within the project area, any individuals of nonnative species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent practicable.

**Mitigation Measure BIO-7. Avoid Construction Impacts on Western Pond Turtle.** Any western pond turtles found during preconstruction surveys and biological monitoring will be relocated in coordination with the California Department of Fish and Wildlife (CDFW). If western pond turtles are observed, a biologist with a CDFW scientific collecting permit will relocate them to nearby suitable aquatic habitat. If preconstruction surveys identify active nests, the biologist will establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The fencing will allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion will be determined in consultation with the CDFW. The buffer zones and fencing will remain in place until the young have left the nest, as determined by the qualified biologist.

**Mitigation Measure BIO-8. Avoid Construction Impacts on San Francisco Dusky-Footed Woodrat.** The qualified biologist will conduct a preconstruction survey for woodrat middens (nests). If the middens are found within the breeding season (December 1 to August 31), the biologist will place orange construction fencing a minimum of 5 feet away from and along the construction side of the middens to protect them from construction activities. If the surveys find middens during the non-breeding season (September 1 through November 30), the biologist will disassemble the middens by hand and dispose of the midden materials (i.e., sticks) off-site to discourage woodrats from rebuilding middens in the work area.

During the breeding season (December 1 to August 31), if the minimum distance cannot be achieved and the middens cannot be protected and avoided, a qualified biologist will trap and relocate woodrats out of the construction area (using live traps) prior to the start of construction. In addition, the biologist will attempt to relocate the midden materials to the same area where the woodrats are released. The location for release of woodrats and placement of midden materials shall be determined in consultation with the CDFW.

**Mitigation Measure BIO-9. Preconstruction Survey and Monitoring for Nesting Migratory Birds.** To the extent practicable, construction will be scheduled and conducted to minimize impacts on nesting migratory birds. The nesting season for most birds in the South San Francisco Bay Area extends from February 1 through August 31. The County will prune the trees adjacent to the construction area outside of the nesting season to minimize nesting opportunities. If construction begins before September 1, a preconstruction survey will be completed by the biologist no more than seven days prior to initiating construction. If nesting birds are present, the biologist will erect construction fencing, work with the construction contractor to minimize impacts, and monitor the nest throughout construction.

The County will use drilling and vibratory equipment to install the retaining wall to the extent practicable. If an impact hammer is used, or if the piles are 12 inches in diameter or larger, the construction contractor will use a wooden block and/or other accepted methods (e.g., noise barriers) to reduce the impact of noise and vibration on wildlife.

**Mitigation Measure BIO-10. Avoid Construction Impacts on Bats.** The County will prune the trees adjacent to the construction area outside periods of elevated bat activity (about February 15 through April 15 and August 15 through October 30) to minimize nesting opportunities adjacent to the construction site. Prior to the removal or pruning of suitable roosting trees, the biologist will assess the presence of suitable bat roosting habitat. No more than 30 days before removal of any large tree or snag, a bat biologist will conduct a preconstruction survey for signs of bat activity. If the biologist detects no nesting or breeding activity, work may proceed without restrictions. If evidence of roosting bats is found, the County will consult with the CDFW regarding appropriate protective measures, which may include exclusion or eviction.

**Mitigation Measure BIO-11. Riparian Habitat Restoration.** Santa Clara County will mitigate for the loss of approximately 100 linear feet of riparian habitat by restoring habitat in and along Los Trancos Creek. This mitigation will include installing rock as armoring for the retaining wall, willows, boulders, and gravel. Restoring vegetation would including hand planting of woody riparian vegetation, as well as seeding for understory riparian vegetation.

**Mitigation Measure BIO-12. Wetland Restoration.** Santa Clara County will provide mitigation for approximately 120 square feet of permanent impacts on Los Trancos Creek by restoring habitat on-site. This will include placing interwoven live logs, root wads, boulders, woody debris, willow and other plantings adjacent to the existing creek channel. The mitigation area will encompass approximately 930 square feet along the channel and in the area where the County will remove the riprap placed during the emergency repair. These features will provide habitat and erosion control, while plantings will provide vegetation and shade.

| E. CULTURAL RESOURCES   |                                |  |                              |                                     |                   |
|---|--------------------------------|--|------------------------------|-------------------------------------|-------------------|
| WOULD THE PROJECT   | IMPACT                         |  |                              |                                     | SOURCE            |
|   | YES                            |  |                              | NO                                  |                   |
|   | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |                   |
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of the CEQA Guidelines, or the County's Historic Preservation Ordinance (Section 17 of County Ordinance Code) – i.e. relocation, alterations or demolition of historic resources? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 3, 16, 19, 40, 41 |
| b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5 of the CEQA Guidelines?  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            | 3, 19, 40, 41     |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?   | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            | 2, 3, 4, 40, 41   |
| d) Disturb any human remains, including those interred outside of formal cemeteries?  | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/>            | 2, 40, 41         |

**DISCUSSION:**

The setting and impact analysis in this subsection are based on a records search conducted at the Northwest Information Center (NWIC), map review, historical society consultation, Native American Heritage Commission Sacred Lands File search, and field survey. A cultural resources technical study was prepared for the project (see **Appendix C**) which describes the area's prehistoric background, ethnography, and historical background. No cultural resources were identified during field surveys of the project area.

*Cultural resources* include historical resources and archaeological resources (as defined in Public Resources Code Section 15064.5). Cultural resources are any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource is considered by the lead agency to be historically significant if the resource meets the criteria for listing in the California Register of Historical Resources (California Register; California Code of Regulations Title 14(3) Section 15064.5(a)(3)).

Michael Baker staff conducted a records search (#18-0048) of the project area at the NWIC on July 10, 2018. As part of the records search, the following federal and state of California inventories were reviewed:

- California Inventory of Historic Resources
- California Points of Historical Interest
- California Historical Landmarks

- Archaeological Determinations of Eligibility The directory includes determinations for eligibility for archaeological resources in Santa Clara County.
- Directory of Properties in the Historic Property Data (HPD) File. The directory includes the listings of the National Register of Historic Places (National Register), National Historic Landmarks, the California Register, California Historical Landmarks, and California Points of Historical Interest in Santa Clara County.

No cultural resources were identified at the project site. Three cultural resources were identified within a quarter-mile radius of the site, as shown in **Table 6**.

**TABLE 6.**  
**CULTURAL RESOURCES WITHIN A QUARTER-MILE RADIUS**

| Resource Name/#   | Description      | OHP Status Code   | Distance from APE |
|---|------------------|---|-------------------|
| Alpine Inn/ Casa de Tableta/ Buelna's Roadhouse/ Chapete's Place/ The Wunder<br>P-41-000177<br>SHL-0825 | 3915 Alpine Road | 1S, 1CL – Listed in National Register and California Register | 300 feet          |
| Los Trancos Site<br>P-43-000557/ CA-SCL-562   | Prehistoric site | N/A   | 700 feet          |
| P-43-000577/ CA-SCL-582   | Bedrock mortar   | N/A   | 400 feet          |

One previous cultural resources study was completed by Basin Research Associates in connection with a Stanford University fish habitat improvement project. This study evaluated one prehistoric site for eligibility to the National Register. However, the site was more than one quarter of a mile from the project site.

Four studies were identified within the quarter-mile search radius of the APE, as identified below, in **Table 7**.

**TABLE 7.**  
**PREVIOUS CULTURAL RESOURCES STUDIES IN THE PROJECT VICINITY**

| Author                             | Date | Title  |
|------------------------------------|------|--|
| Steven Wilson and Stephen A. Dietz | 1976 | <i>Report of the Archaeological Reconnaissance of the Proposed "The Foothills" Developments, Santa Clara County, California.</i> Archaeological Consulting & Research Services, Inc. |
| Paul Hampson and Gary S. Breschini | 1981 | <i>Preliminary archaeological reconnaissance of a parcel near Arastradero and Alpine Roads, south of Highway 280, Santa Clara County, CA.</i> Archaeological Consulting.             |
| Archaeological Resource Management | 1991 | <i>Cultural Resource Evaluation of AKA Construction Project, County of Santa Clara.</i>  |
| Robert Cartier                     | 2006 | <i>Cultural Resource Evaluation of Property at 18 Arastradero Road in the County of Santa Clara.</i> Archaeological Resource Management.   |

- a) *No Impact.* The impact evaluation included review of publications, maps, and websites for historical information for the project site and area. No features are depicted at the

project site in historic maps. Alpine and Arastradero Roads are depicted by at least 1876. In 1890, Alpine Road was known as the Menlo Park and Santa Cruz Turnpike, and Arastradero Road was known as Searsville Road. The first depiction of Alpine Inn (P-41-000177/CA-SMA-177H) was in 1894. By 1899, the bridge crossing Los Trancos Creek and two buildings are depicted at the southwest corner of Alpine and Arastradero Roads. However, these structures would not be affected by construction and the project would have no impact.

- b) *Less Than Significant Impact with Mitigation.* The evaluation of archaeological impacts included review of publications, maps, and websites for archaeological and ethnographic information on the project site and area. The evaluation also included sending a letter to the Native American Heritage Commission (NAHC). The NAHC responded that no sacred lands occur at the project site. A field survey was completed on July 10, 2018, including an intensive pedestrian survey. No archaeological deposits were identified; however, ground-disturbing activity could uncover archaeological resources and this impact would be potentially significant. Therefore, the County would implement mitigation measure CUL-1, which requires notifying the County planning department regarding any resources found during construction to evaluate the find and determine appropriate steps. With implementation of mitigation measure CUL-1, this impact would be reduced to less than significant.
- c) *Less Than Significant Impact with Mitigation.* Geologic deposits at the surface in the project area include marine sedimentary rock consisting mainly of Paleocene- to Oligocene-aged mudstone and sandstone. Fossils may be present in this type of rock. The project would require only minor excavation in the streambed and ground disturbance upstream and downstream of the storm-damaged area where the soldier pile retaining wall would be keyed into the streambank. Because of past disturbance, including construction of Arastradero Road, the potential to discover intact fossils is low. However, should any paleontological resources be discovered during construction, this would be a potentially significant impact and the County would implement mitigation measure CUL-2. With implementation of mitigation measure CUL-2, which requires consulting a paleontologist in the event of a discovery, this impact would be reduced to less than significant.
- d) *Less Than Significant Impact with Mitigation.* The project would require only minor excavation in the streambed and ground disturbance upstream and downstream of the storm-damaged area where the soldier pile retaining wall would be keyed into the streambank. Because of past disturbance, including construction of Arastradero Road, the potential to discover human remains is low. However, should any human remains be discovered during construction, this would be a potentially significant impact and the County would implement mitigation measure CUL-3. With implementation of mitigation measure CUL-3, which requires contacting the coroner, NAHC, and potential Native American descendants, this impact would be reduced to less than significant.

**MITIGATION:**

**Mitigation Measure CUL-1. Archaeological Resources.** In the event that any historical surface or subsurface archaeological features or deposits, including locally darkened soil indicative of an archaeological midden that could conceal cultural deposits, animal bone, shell, obsidian, mortars, or human remains, are uncovered during on-site or off-site construction, all work within 100 feet of the find shall cease and the construction contractor will notify the County. An archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards shall be contacted to determine if the resource is significant and to determine appropriate mitigation. Any artifacts uncovered shall be recorded and removed to a location to be determined by the archaeologist.

**Mitigation Measure CUL-2. Paleontological Resources.** In the event of discovery of fossils during excavation, the construction contractor will notify the County and immediately cease work in the area of the find. The contractor will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan for immediate implementation, including field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the County to be necessary and feasible will be implemented before construction activities resume in the area where the paleontological resources were discovered.

**Mitigation Measure CUL-3. Human Remains.** The discovery of human remains shall be reported to the county coroner, in accordance with Section 7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (NAHC) for further investigation. If the remains are determined to be Native American, the NAHC shall inform the most likely descendant and will determine the appropriate disposition of the remains and grave goods.

| F. GEOLOGY AND SOILS   |                                |  |                                     |                                     |                       |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|-----------------------|
| WOULD THE PROJECT:   | IMPACT                         |  |                                     |                                     | SOURCE                |
|  | YES                            |  |                                     | NO                                  |                       |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |                       |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:   |                                |  |                                     |                                     |                       |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 17c, 43            |
| ii) Strong seismic ground shaking?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 17c                |
| iii) Seismic-related ground failure, including liquefaction?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 17c, 17n, 18b      |
| iv) Landslides?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 17l, 18b           |
| b) Result in substantial soil erosion or the loss of topsoil?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 14, 23, 24         |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 2, 3, 17c, 23, 24, 42 |
| d) Be located on expansive soil, as defined in the report, <i>Soils of Santa Clara County</i> , creating substantial risks to life or property?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 14, 23, 24            |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 6, 23, 24          |
| f) Cause substantial compaction or over-covering of soil either on-site or off-site?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 3, 6                  |
| g) Cause substantial change in topography or unstable soil conditions from excavation, grading, or fill?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 2, 3, 6, 17j, 42      |

**DISCUSSION:**

Setting

***Geology and Seismicity***

The project is located in an area of considerable seismic activity; however, the County’s seismic stability maps (Santa Clara County 2012) do not show that any County fault rupture, liquefaction, or landslide geologic hazard zones exist at or near the roadway repair site.

### **Surface Soils**

The project site is underlain by Flaskan sandy clay loam composed of well-drained alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics. Flaskan sandy clay loam is typically located on alluvial fans and stream terraces and consists of sandy clay loam at depths up to 30 inches (NRCS 2017).

The project would be subject to Santa Clara County's erosion control standards. Pursuant to its policies, the County will verify that all geologic investigations have been performed before approval. Any minor grading would be completed in a manner consistent with the County grading ordinance to minimize erosion.

### **DISCUSSION OF IMPACTS**

- a) *Less Than Significant Impact.* The project would consist of restoring a roadway embankment and the immediately adjacent portion of Los Trancos Creek. The proposed soldier pile retaining wall would be at and below the elevation of the existing roadway and would not have a role in protecting downstream residences or other structures from the consequences of seismic events. Furthermore, the project site is not in an area with mapped geological hazards. Therefore, the proposed retaining wall would be subject to ground shaking but if damaged would not expose people or structures to substantial hazards. Furthermore, the retaining wall design would incorporate the recommendations of the geotechnical report. The retaining wall would support Arastradero Road while minimizing construction impacts on Los Trancos Creek and would not subject people or structures to loss of life or property. Compliance with existing standards would reduce any impacts from seismic events to less than significant.
- b) *Less Than Significant Impact.* Project construction would have a very low potential for soil erosion because little or no grading or soil excavation would be required. The project work area would primarily consist of the surface of Arastradero Road and a graveled area that would be used for staging. The only ground disturbance would include removal of riprap, installation of the retaining wall and riprap along its water-facing side and placing stream restoration features. These activities would occur in Los Trancos Creek sediments that would be contained by sandbags and would not affect surface soils or topsoil. Construction would also disturb soil on the creek banks that could be subject to erosion. Best management practices (BMP) would be used to minimize sediment suspension and downstream deposition; however, the project would not disturb soils or expose topsoil to wind or water erosion. This impact would be less than significant.
- c) *Less Than Significant Impact.* As described above and in the geotechnical report (Cal Engineering & Geology 2017), the project site is not in an area with identified geologic hazards. The project site is in a low-lying area that is not subject to landslides; however, the banks could be subject to liquefaction, spreading, or slumping. The purpose of the project is to restore the stability of the roadway embankment and the bank of Los Trancos Creek. The retaining wall would not cause the site to become unstable and would protect the banks and roadway from the erosive forces of future storms. Therefore, this impact would be less than significant.



- d) *No Impact.* As described in the geotechnical report (Cal Engineering & Geology 2017), the project site is not located on expansive soils. The soils at the project site would not be subject to substantial changes in volume or moisture content. Installation of the retaining wall would not require measures such as overexcavation and backfill. The project does not include homes or other structures that would be occupied and that could be affected by expansive soils. Thus, there would be no resulting risk to life or property and there would be no impact.
- e) *No Impact.* The project would not construct homes or other occupied structures that would require wastewater disposal. The project would not require a septic tank or alternative disposal system and there would be no impact.
- f) *Less Than Significant Impact.* The project would install a soldier pile retaining wall directly adjacent to an existing roadway. The backfill placed in between the retaining wall and roadway would be compacted; however, the project would not require soil compaction or overcovering over a substantial area either on-site or off-site. This impact would be less than significant.
- g) *Less Than Significant Impact.* The project would not require substantial excavation, grading, or fill. The only areas requiring such ground-disturbing activity would be the area that the retaining wall would occupy, including the Los Trancos Creek streambed and banks. Little grading would be required to construct the retaining wall and, therefore, the project would not cause a substantial change in topography. The project would repair an area where unstable soil conditions have existed since Los Trancos Creek eroded a portion of the roadway embankment during the winter of 2016-2017 and would protect the roadway embankment in an area where more erosion could occur. Therefore, this impact would be less than significant.

**MITIGATION:**

None required.

| G. GREENHOUSE GAS EMISSIONS  |                                |  |                                     |                                     |        |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|--------|
| WOULD THE PROJECT  | IMPACT                         |  |                                     |                                     | SOURCE |
|  | YES                            |  |                                     | NO                                  |        |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |        |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?                    | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |        |
| b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |        |

**DISCUSSION:**

Setting

Greenhouse gases (GHGs) are released as by-products of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities, as well as many natural processes. This release of gases, such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. **Table 8** describes the primary GHGs attributed to global climate change, including a description of their physical properties and primary sources.

**TABLE 8  
GREENHOUSE GASES**

| Greenhouse Gas                    | Description  |
|-----------------------------------|--|
| Carbon dioxide (CO <sub>2</sub> ) | CO <sub>2</sub> is a colorless, odorless gas and is emitted in a number of ways, both naturally and through human activities. The largest source of CO <sub>2</sub> emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. The atmospheric lifetime of CO <sub>2</sub> is variable because it is so readily exchanged in the atmosphere. <sup>1</sup> |
| Methane (CH <sub>4</sub> )        | CH <sub>4</sub> is a colorless, odorless gas that is not flammable under most circumstances. CH <sub>4</sub> is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. CH <sub>4</sub> is emitted from both human-related and natural sources. Methane’s atmospheric lifetime is about 12 years. <sup>2</sup>                   |
| Nitrous oxide (N <sub>2</sub> O)  | N <sub>2</sub> O is a clear, colorless gas with a slightly sweet odor. N <sub>2</sub> O is produced by natural and human-related sources. Primary human-related sources are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. The atmospheric lifetime of N <sub>2</sub> O is approximately 120 years. <sup>3</sup>      |

Sources: <sup>1</sup>EPA 2016a; <sup>2</sup>EPA 2016b; <sup>3</sup>EPA 2016c

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Estimates of GHG emissions are commonly

presented in carbon dioxide equivalents (CO<sub>2</sub>e), which weigh each gas by its global warming potential. Expressing GHG emissions in CO<sub>2</sub>e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the warming potential of CO<sub>2</sub>. GHG emissions quantities in this analysis are presented in metric tons (MT) of CO<sub>2</sub>e.

GHG emissions contribute to an existing, significant, adverse cumulative impact. While no single project could generate enough GHG emissions to noticeably change the global average temperature, the combination of GHG emissions from past, present, and reasonably foreseeable future projects contributes substantially to global climate change and its associated environmental impacts. As such, GHGs emissions are addressed only as a cumulative impact.

The state of California has adopted various administrative initiatives and legislation related to climate change, much of which sets aggressive goals for GHG emissions reductions in the state. These guidelines are summarized below.

### ***California Global Warming Solutions Act (Assembly Bill 32)***

The primary acts that have driven GHG regulation and analysis in California include the California Global Warming Solutions Act of 2006 (AB 32) (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), which instructs CARB to develop and enforce regulations for reporting and verifying statewide GHG emissions. AB 32 directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020.

### ***Senate Bill 32***

In August 2016, Governor Brown signed Senate Bill (SB) 32 (Amendments to California Global Warming Solutions Action of 2006), which extends California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which authorizes CARB to achieve a statewide GHG emissions reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by Executive Order B-30-15 for 2030, which set the next interim step in the state's continuing efforts to pursue the long-term target, expressed in Executive Orders S-3-05 and B-30-15, of 80 percent below 1990 emissions levels by 2050.

### ***Climate Change Scoping Plan***

AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts on California and the GHG reductions necessary to avoid or minimize its effects. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. After the 2016 enactment of SB 32, CARB approved an updated Scoping Plan on December 14, 2017, outlining actions to achieve the goals it set.

### ***California Executive Orders***

California Executive Order S-3-05 (2005) and Executive Order B-30-15 (2015) highlight GHG emissions reduction targets. Specifically, Executive Order S-3-05 seeks to achieve a reduction of GHG emissions of 80 percent below 1990 levels by 2050, and Executive Order B-30-15 seeks to achieve a reduction of GHG emissions of 40 percent below 1990 levels by 2030. The executive orders are not laws but do provide the governor's direction to state agencies in their actions to reinforce existing laws.

### ***Bay Area Air Quality Management District***

The BAAQMD provides direction and recommendations for evaluation of GHG impacts and approaches to mitigation in its CEQA Guidelines. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, the BAAQMD recommends quantification and disclosure of GHG emissions that would occur during construction. This BAAQMD guidance was used to prepare this analysis. The project would not result in operational emissions that require consideration under the BAAQMD's (2017b) CEQA Guidelines criteria.

### ***Plan Bay Area 2040***

As required by the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the Association of Bay Area Governments and the Metropolitan Transportation Commission have developed a Sustainable Communities Strategy as a component of Plan Bay Area 2040 (MTC and ABAG 2017). This plan seeks to reduce GHG and other mobile source emissions through coordinated transportation and land use planning to reduce VMT.

### ***County of Santa Clara Climate Action Plan for Operations and Facilities***

The County adopted a Climate Action Plan which focuses on County operations, facilities, and employee actions to reduce not only GHG emissions but also energy and water consumption, solid waste, and fuel consumption (Santa Clara County 2009).

## **DISCUSSION OF IMPACTS**

- a) *Less Than Significant Impact.* Construction GHG emissions were estimated using CalEEMod version 2016.3.2. **Appendix A** presents the assumptions used in the model and the results. The projected annual GHG emissions generated during project construction is 10.8 metric tons of CO<sub>2</sub>e. The only source of project-generated GHG emissions would be during construction, which would last approximately 4 weeks. The GHG emissions generated during construction would not be cumulatively considerable when viewed in the context of AB 32 or SB 32 reduction goals.
- b) *No Impact.* The project would not increase the county's population or employment, nor would the project change the regional VMT. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. There would be no impact.

### **MITIGATION:**

None required.

| <b>H. HAZARDS &amp; HAZARDOUS MATERIALS</b>  |                                       |   |                                     |                                     |               |
|--|---------------------------------------|---|-------------------------------------|-------------------------------------|---------------|
| <b>WOULD THE PROJECT</b>   | <b>IMPACT</b>                         |   |                                     | <b>NO</b>                           | <b>SOURCE</b> |
|  | <b>YES</b>                            |   |                                     | <b>No Impact</b>                    |               |
|  | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> |                                     |               |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 3, 4, 5    |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 2, 3, 5       |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 46            |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 47            |
| e) For a project located within an airport land use plan referral area or, where such a plan has not been adopted, within two miles of a public airport or public use airport, or in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 22a        |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 5, 48         |
| g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 4, 17g        |

**DISCUSSION:**

Setting

***Hazardous Materials Sites***

Under Government Code Section 65962.5, both the State Water Resources Control Board (SWRCB) and the California Department of Toxic Substances Control (DTSC) are required to maintain databases of sites known to have hazardous substances present in the environment. Both agencies maintain such databases on their websites, known as GeoTracker and EnviroStor, respectively. A search of these databases revealed no active hazardous waste sites in the project area.

**Airports**

There are no public or private airports within 2 miles of the project site. The nearest airfields are Moffett Field and municipal airports in San Jose and Palo Alto.

**Emergency Planning**

The County of Santa Clara Emergency Operations Plan (EOP) (Santa Clara County 2017) addresses emergency response for events that require an interagency response, including flood, earthquakes, wildfires, and other natural disasters.

**Wildland Fire**

According to the California Department of Forestry and Fire Protection's (2008) Fire Hazard Severity Zones in LRA map, the project site is identified as a Local Responsibility Area (LRA) Non-VHFHSZ (Very High Fire Hazard Severity Zone).

**Regulatory Setting**

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. California's municipalities address impacts from hazardous waste under a Certified Unified Program Agency to manage commercial and household waste, accidental release of hazardous substances, and underground storage tank regulations.

Both the EPA and the US Department of Transportation (DOT) regulate the transport of hazardous waste and materials, including transport via highways. The EPA administers permitting, tracking, reporting, and operations requirements established by the Resource Conservation and Recovery Act. The DOT regulates the transportation of hazardous materials through implementation of the Hazardous Materials Transportation Act. This act administers requirements for container design and labeling, as well as for driver training. The established regulations are intended to track and manage the safe interstate transportation of hazardous materials and waste. Additionally, state and local agencies enforce the application of these acts and provide coordination of safety and mitigation responses in the case that accidents involving hazardous materials occur.

The County Department of Environmental Health, Hazardous Materials Division, is the Certified Unified Program Agency for oversight of hazardous materials storage and cleanup of underground fuel leaks in the county.

**DISCUSSION OF IMPACTS**

- a) *Less Than Significant Impact.* Project construction would not require handling of substantial volumes of hazardous materials on-site. Potential hazardous materials may include fuels and lubricants, which could lead to minor fuel and oil spills. The use and handling of hazardous materials during construction would be conducted in compliance with applicable federal, state, and local laws, including California Occupational Health and Safety Administration requirements. In addition, the County would complete the roadway repair consistent with General Plan Policy C-RC 20, which requires safeguards

for water resources and habitats from hazardous wastes and chemicals and nonpoint sources. Furthermore, the County would employ construction BMPs to minimize the potential for spills. Because of the small scale of the project and the short construction period, and through compliance with existing regulations, any hazards from the transport, use, or disposal of hazardous materials would be less than significant.

- b) *Less Than Significant Impact.* The project would not use materials that could cause upset conditions or create a facility that could result in upset or accident conditions involving the release of hazardous materials. The project would use only small volumes of hazardous materials and would employ BMPs and procedures during construction to minimize the potential for accidents that could result in spills. The construction contractor would be required to prepare and implement a construction traffic management plan to minimize the potential for collisions between cars and construction equipment and would use silt fences and sandbags to protect Los Trancos Creek and minimize potential impacts. Given the small volumes of hazardous materials required for construction, the project would be unlikely to result in upset or accident conditions and this impact would be less than significant.
- c) *No Impact.* The project would not emit acutely hazardous materials within 0.25 mile of a school. The closest school is the Ormondale Elementary School at 200 Shawnee Pass, in Portola Valley, approximately 1.3 miles of the project site. There would be no impact.
- d) *No Impact.* The project site is not included on the list of hazardous waste sites (Cortese List) compiled by the DTSC pursuant to Government Code Section 65962.5. As such, the project would not create a significant environmental hazard to the environment or the public there would be no impact.
- e) *No Impact.* The project site is not located within 2 miles of a public or private airstrip and there would be no impact.
- f) *Less Than Significant Impact.* The project requires short-term lane closures on Arastradero Road but would not conflict with implementation of the County's Emergency Operations Plan and would not require any road closures during construction. Therefore, the project would not physically interfere with emergency response or evacuation or the provisions of an adopted emergency response plan or emergency evacuation plan. This impact would be less than significant.
- g) *Less Than Significant Impact.* The project site is not located in an area designated by the California Department of Forestry and Fire Protection (2008) as a VHFHSZ and is not in a wildland area. The project site is in an urbanized area with access to roadways and highways. In addition, the project would not be constructed in an area with large areas of dry vegetation. Moreover, the construction contractor would employ measures to minimize the potential for fires. Therefore, the project would not expose people or structures to significant risks from wildland fires and any impact would be less than significant.

**MITIGATION:**

None required.

| <b>I. HYDROLOGY AND WATER QUALITY</b> |   |                                       |   |                                     |                                     |                  |
|---------------------------------------|---|---------------------------------------|---|-------------------------------------|-------------------------------------|------------------|
| <b>WOULD THE PROJECT:</b>             |   | <b>IMPACT</b>                         |   |                                     | <b>SOURCE</b>                       |                  |
|                                       |   | <b>YES</b>                            |   | <b>NO</b>                           |                                     |                  |
|                                       |   | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>                    |                  |
| a)                                    | Violate any water quality standards or waste discharge requirements?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 34, 36           |
| b)                                    | Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?          | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 3, 4             |
| c)                                    | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 3, 17n           |
| d)                                    | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (Note policy regarding flood retention in watercourse and restoration of riparian vegetation for West Branch of the Llagas.) | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 3, 17p           |
| e)                                    | Create or contribute increased impervious surfaces and associated runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 3, 5, 21a, 36 |
| f)                                    | Otherwise substantially degrade water quality?  | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 1, 3, 5          |
| g)                                    | Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 17p, 18b, 18d |
| h)                                    | Place within a 100-year flood hazard area structures which would impede or redirect flood flows?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 3, 18b, 18d      |
| i)                                    | Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 2, 3, 4, 17p     |



**DISCUSSION:****Setting**

The project would be constructed in an area where Los Trancos Creek flows beneath Arastradero Road and then runs perpendicular to it. Los Trancos Creek has its headwaters in the Santa Cruz Mountains and flows east from the project site into San Francisquito Creek, which is a tributary of San Francisco Bay. After the creek flows under a bridge, it flows in an S shape where it flows back toward Arastradero Road. During heavy storms in 2016-2017, the creek scoured the roadway embankment, resulting in substantial erosion and utility exposure. The banks of Los Trancos Creek, particularly near the scoured embankment, are steeply sloped and unstable. There is a fish ladder located approximately 170 feet downstream of the scoured road embankment.

The project area receives approximately 25.5 inches of rain per year. The area has little stormwater infrastructure. Near the bridge crossing, there is a drainage channel and a culvert that flows into Los Trancos Creek.

The project site is underlain by Flaskan sandy clay loam, which is composed of well-drained, non-saline to very slightly saline alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics (NRCS 2017).

**Regulatory Setting**

This section describes the federal, state, and local regulatory requirements that form the basis for determining significance thresholds related to hydrology and water quality.

***Federal Regulations***

The federal agencies with jurisdiction over surface and subsurface hydrology and water quality include the EPA and the USACE. Specific applicable laws and regulations are described below.

**Clean Water Act**

Enacted in 1972, the CWA and subsequent amendments outline the basic protocol for regulating discharges of pollutants to waters of the U.S. It is the primary federal law regulating water quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. Enforced by the EPA, it was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA authorizes states to adopt water quality standards and includes programs addressing both point and non-point pollution sources. It established the National Pollutant Discharge Elimination System (NPDES) (see the discussion of CWA Section 402 below) and gives the EPA the authority to implement pollution control programs, such as setting wastewater standards for industry and water quality standards for surface waters. The EPA and other agencies have developed numeric and narrative water quality criteria to protect both aquatic life and aesthetic water quality. In California, enforcement of the CWA has been delegated to the SWRCB and its nine regional water quality control boards (RWQCBs). The following subsections describe the portions of the CWA applicable to the proposed project.

**Section 401 – Water Quality Certification**

Section 401 of the CWA requires that an applicant for a federal permit to conduct any activity that may result in discharge into navigable waters provide certification from the RWQCB that the discharge will comply with state water quality standards, including beneficial uses (23 CCR Section 3830 et seq.). Under California’s policy of no net loss of wetlands, the RWQCBs require mitigation for wetland impacts. Compliance with Section 401 is required for a USACE Nationwide or Individual Section 404 Permit.

**Section 402 – National Pollutant Discharge Elimination System**

In California, the NPDES program is implemented and enforced by the SWRCB and the RWQCBs. Issued in 1972, the NPDES regulations initially focused on municipal and industrial wastewater discharges, followed by stormwater discharges in 1990 (see state regulations below). NPDES permits for wastewater and industrial discharges specify discharge prohibitions, effluent limitations, monitoring, and reporting.

**Section 404 – Permits for Fill Placement in Waters and Wetlands**

Placement of fill or dredged material into surface waters can have significant impacts on surface water and groundwater, in terms of both hydrology and water quality. Thus, Section 404 of the CWA regulates the discharge of dredged and fill material into waters of the U.S., including wetlands. The term waters of the U.S. refers to oceans, bays, rivers, streams (including nonperennial streams with a defined bed and bank), lakes, ponds, and seasonal and perennial wetlands.

Project proponents must obtain a permit from USACE for all discharges of fill or dredged material. USACE may issue either an individual permit or a general permit. General permits are preauthorized at the regional or national level and are issued to cover activities expected to cause only minimal adverse environmental effects. A nationwide permit is a type of general permit issued to cover activities that USACE has determined to have minimal adverse effects, such as routine maintenance, minor road crossings, or utility line backfill and bedding. Each nationwide permit specifies particular conditions that must be implemented by the permittee.

Under Section 404(b)(1), no discharge of fill or dredged material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation’s waters would be significantly degraded.

**Section 10 – Rivers and Harbors Act**

Section 10 of the Rivers and Harbors Act governs the construction of any in-water structures on navigable waters, such as bridges, dams, piers, dikes, and jetties, or the discharge of fill into navigable waters. USACE holds review and permitting authority for all such structures. Criteria for evaluating projects in navigable waters include the public and private need for the activity; reasonable alternative locations and methods; and benefits and detriments to public and private uses.

**Federal Emergency Management Agency**

Under Executive Order 11988, FEMA is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., an event with a 1 percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. The project site does not fall within the 100-year floodplain delineated by FEMA (2012).

**State Regulations**

**Porter-Cologne Water Quality Control Act**

California’s surface water quality is regulated under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). This law established the SWRCB and the nine RWQCBs. As described above, the EPA has delegated the discharge permitting provisions of the federal CWA to the SWRCB and RWQCBs. The RWQCBs, therefore, have regulatory authority over construction in waters of the U.S. and waters of the state, including activities in wetlands, under both the CWA and the Porter-Cologne Act (California Water Code, Division 7). Under the CWA, the RWQCBs regulate actions in waters of the U.S. by issuing water quality certifications under Section 401 of the CWA, which are issued in conjunction with permits issued by USACE under Section 404 of the CWA. When an RWQCB issues Section 401 certifications, the project is also regulated under SWRCB Order No. 2003-0017-DWQ, “General Waste Discharge Requirements for Dredge and Fill Discharges that have Received State Water Quality Certification,” which requires compliance with all conditions of this water quality certification. Activities in areas that are outside of USACE jurisdiction (e.g., isolated wetlands, vernal pools, or stream banks above the ordinary high-water mark) are regulated by the RWQCB under the authority of the Porter-Cologne Act.

**DISCUSSION OF IMPACTS**

- a) *Less Than Significant Impact.* Project construction would include ground-disturbing activities that could affect water quality. Installing the soldier pile retaining wall would temporarily disturb creek sediments and bank soils and could result in downstream turbidity and sedimentation. Accordingly, the County would comply with its erosion control requirements and would install BMPs such as sandbags and erosion control fencing to minimize erosion and water quality impacts.

During construction, the County will employ standard construction BMPs to minimize water quality impacts. These measures include but are not limited to the following:

- No litter or debris will be dumped into storm drains. Trash and debris will be removed daily.
- Vehicles and equipment will only be driven within established roads and staging areas.
- Equipment staging and parking of vehicles will be in established staging and access points.

- No heavy equipment will operate in the portion of the streambed where water is flowing.
- Erosion control BMPs will be inspected daily and corrective action and repairs taken immediately for fence breaches and ineffective BMPs.
- Fueling, washing, and maintenance of equipment and vehicles will not occur adjacent to the stream channel or banks. Equipment will be regularly maintained to avoid fluid leaks. Any leaks will be captured in containers until equipment is moved to a repair location. Hazardous materials will be stored only in designated areas. Containment and cleanup plans will be prepared and implemented.
- All litter and construction debris will be disposed of off-site in accordance with state and local regulations. All trash and debris in the work area will be placed in containers with secure lids before the end of work each day to reduce the likelihood of attracting wildlife to discarded food or food wrapping material. If wildlife-proof containers are not available, all rubbish will be removed from the project site at the end of each work day.
- Absorbent materials designated for spill containment and cleanup activities shall be available on-site for use in an accidental spill.

By complying with the provisions of the County's NPDES permit requirements, constructing the project during the dry season, and installing and maintaining construction BMPs, the County would minimize construction impacts on water quality and any impacts would be less than significant.

- b) *Less Than Significant Impact.* The project would not install wells or otherwise use groundwater. The only dewatering, if required, would occur within shallow excavations or to construct the retaining wall footings. The surface of the retaining wall adjacent to Los Trancos Creek would be the only impervious surface created during construction as required to repair storm damage. Therefore, the project would not substantially deplete groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. This impact would be less than significant.
- c) *Less Than Significant Impact.* The project would install a soldier pile retaining wall to replace the roadway embankment that was severely eroded by winter storms. This feature would not alter drainage patterns and would not alter the course of a stream or river. The retaining wall would prevent Los Trancos Creek from further damaging Arastradero Road during future storms. Therefore, the retaining wall would not result in erosion but would prevent additional erosion of the roadway embankment and protect underground utilities. This impact would be less than significant.
- d) *Less Than Significant Impact.* The soldier pile retaining wall would not alter drainage patterns and would not alter the course of a stream or river. The retaining wall would prevent Los Trancos Creek from further damaging Arastradero Road during future storms and would have no effect on the rate or amount of surface runoff from the project site. Therefore, the retaining wall would have no effect on flooding and this impact would be less than significant.

- e) *Less Than Significant Impact.* The project site drains directly to Los Trancos Creek via overland runoff. The project would replace the roadway embankment and would not create additional runoff. Therefore, the project would not exceed the capacity of any stormwater drainage system and this impact would be less than significant.
- f) *Less Than Significant Impact with Mitigation.* The project would require removing the existing riprap, which would require some excavation below the existing streambed elevation. Because this excavation will fill with water, construction of the soldier pile retaining wall would require dewatering and discharge of the water to Los Trancos Creek. Because this discharge could degrade water quality, the construction contractor would implement mitigation measure **HYD-1**. This measure would require discharging the water at a rate that would not substantially degrade water quality. With implementation of mitigation measure **HYD-1**, this impact would be less than significant.
- g) *No Impact.* The project does not involve construction of housing; therefore, there would be no impact from placing housing within a 100-year flood hazard area.
- h) *Less Than Significant Impact.* The project would permanently repair a roadway embankment that sustained storm damage. To prevent further damage to Arastradero Road, the project would install a soldier pile retaining wall. However, this structure would be located directly adjacent to the streambed of Los Trancos Creek in an area where the creek has experienced high storm flow rates. Because the retaining wall would replace a previously existing roadway embankment, it would maintain Los Trancos Creek within its existing banks and would not impede or redirect flood flows. Therefore, this impact would be less than significant.
- i) *No Impact.* There are no levees or dams in the project area and the project would not create a condition that could result in the failure of a levee or dam. Therefore, no impact would occur.

**MITIGATION:**

**Mitigation Measure HYD-1. Control Rate of Dewatering Water Discharge.** Water produced by dewatering the construction area will be released or pumped downstream at a rate that does not degrade water quality and that minimizes disturbance of the creek bed.

| J. LAND USE  |                                |  |                                     |                                     |            |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|------------|
| WOULD THE PROJECT:   | IMPACT                         |  |                                     |                                     | SOURCE     |
|  | YES                            |  |                                     | NO                                  |            |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |            |
| a) Physically divide an established community?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 2, 4       |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 8a, 9, 18a |

**DISCUSSION:**

Setting

The project is located in northwestern Santa Clara County in the Portola Valley area, a rural residential community. The roadway repair would be completed in an area directly adjacent to Arastradero Road.

**DISCUSSION OF IMPACTS**

- a) *No Impact.* The project would restore the roadway embankment directly adjacent to Arastradero Road by installing a soldier pile retaining wall. The project would not install any new roadways, levees, utilities, or other infrastructure that could divide an existing community. Therefore, the project would have no impact.
- b) *Less Than Significant Impact.* The project would restore a roadway embankment while minimizing impacts on other natural and community resources. The project would be completed by Santa Clara County and would not conflict with the County’s General Plan, zoning policies, or ordinances, including those related to transportation and natural resource preservation. Therefore, this impact would be less than significant.

**MITIGATION:**

None required.

| <b>K. NOISE</b>   |                                       |   |                                     |                                     |                 |
|---|---------------------------------------|---|-------------------------------------|-------------------------------------|-----------------|
| <b>WOULD THE PROJECT:</b>   | <b>IMPACTS</b>                        |   |                                     |                                     | <b>SOURCE</b>   |
|   | <b>YES</b>                            |   |                                     | <b>NO</b>                           |                 |
|   | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>                    |                 |
| a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 8a, 13, 22a, 45 |
| b) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 13, 45          |
| c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 2, 5, 45     |
| d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 2, 5, 45     |
| e) For a project located within an airport land use plan referral area or, where such a plan has not been adopted, within two miles of a public airport or public use airport, or private airstrip would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 1, 5, 22a       |

**DISCUSSION:**

Noise is a subjective reaction to different types of sounds. Noise is typically defined as airborne sound that is loud, unpleasant, unexpected, or undesired. The decibel scale is used to measure sound, using the hearing threshold (20 micropascals) as a point of reference, defined as 0 decibels (dB). Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The perceived loudness of sounds is dependent on many factors, including sound pressure and frequency. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. All noise levels reported in this section are in terms of A-weighted levels, but may be expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. When the standard logarithmic decibel is A-weighted, an increase of 10 dB is generally perceived as a doubling in loudness. For example, a 70-dB sound is half as loud as an 80-dB sound and twice as loud as a 60-dB sound.



Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary source near the ground. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dB, while a solid wall or berm reduces noise levels by 5 to 10 dB (FHWA 2006).

### ***Human Response to Noise***

Human response to environmental noise is subjective and varies from individual to individual. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. Regarding increases in A-weighted noise levels (dBA):

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

### ***Fundamentals of Environmental Groundborne Vibration***

Sources of groundborne vibrations include natural phenomena or human-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. For the purposes of this analysis, a PPV descriptor with units of inches per second is used to evaluate construction-generated vibration for building damage and human complaints. Generally, a PPV of less than 0.08 inches per second does not produce perceptible vibration. At 0.10 PPV inches per second, continuous vibrations may begin to annoy people but there would be no risk of architectural damage to normal buildings. A 0.20 PPV is commonly used as a threshold for annoyance for people in buildings and could result in architectural damage to normal dwellings (Caltrans 2013).

### **Setting**

The project site is on the north side of Arastradero Road, immediately west of John Marthens Lane. Land uses in the project area are primarily low-density single-family residences, which are considered sensitive noise receptors and could be affected by construction noise. The closest existing sensitive receptors to the project site are a single-family residence approximately 230

feet to the northwest, across Alpine Road, and three single-family residences approximately 330 feet to the southwest, across Arastradero Road.

**Regulatory Setting**

The County of Santa Clara noise ordinance limits noise from construction activities:

Section B11-154 (b)(6)(b)

- a) Where technically and economically feasible, construction activities will be conducted in a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:
  - i. Mobile equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than ten days) of mobile equipment:
    - Daily, except Sundays and legal holidays 7:00 a.m.—7:00 p.m., Single Family Residential Area: 75 dBA
    - Daily, 7:00 p.m. to 7:00 a.m., and all day Sunday and legal holidays, Single Family Residential Area: 50 dBA
  - ii. Stationary equipment. Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of ten days or more) of stationary equipment are as follows:
    - Daily, except Sundays and legal holidays 7:00 a.m.—7:00 p.m., Single Family Residential Area: 60 dBA
    - Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays, Single Family Residential Area: 50 dBA

**DISCUSSION OF IMPACTS**

The following addresses potential environmental impacts of construction. Post-construction or operational impacts are not evaluated because the project would not generate operational noise or increase the capacity of Arastradero Road. The retaining wall would require very little, if any, maintenance that would generate noise.

- a, c) *Less Than Significant Impact.* Project construction would temporarily increase noise levels in the project area because the construction contractor would use vehicles and heavy construction equipment. Construction equipment would include an excavator, a backhoe, a crane, an auger/boring rig, a concrete pump, a generator, and other small equipment. Each construction phase would require different equipment and none of the required construction phases would last longer than 10 days.

During project construction, noise levels could affect the nearest existing sensitive receptors. The single-family home closest to the project has a primary outdoor area (backyard) approximately 230 feet from the project site, across Alpine Road to the northwest. The Federal Highway Administration’s (FHWA) Roadway Construction

Noise Model version 1.1 was used to estimate maximum construction noise at this residence. This model uses noise data for different types of construction equipment used during a large construction project (Central Artery/Tunnel, Boston). **Table 9** shows the predicted maximum noise ( $L_{max}$ ) for the types of equipment required for the proposed roadway repair and the predicted maximum noise level at the closest sensitive receptor.

**TABLE 9**  
**CONSTRUCTION EQUIPMENT NOISE EMISSIONS AND USAGE FACTORS**

| Equipment           | Reference $L_{max}$ at 50 feet (dBA) | Calculated $L_{max}$ at Closest Sensitive Receptor (dBA) |
|---------------------|--------------------------------------|--|
| Backhoe             | 77.6                                 | 64.3   |
| Excavator           | 80.7                                 | 67.5   |
| Auger Drill Rig     | 84.4                                 | 70.4   |
| Concrete Pump Truck | 81.4                                 | 67.4   |
| Mobile Crane        | 80.6                                 | 67.3   |
| Generator           | 80.6                                 | 66.6   |
| Paver               | 77.2                                 | 64.0   |
| Roller              | 80.0                                 | 62.8   |
|                     | <b>Maximum</b>                       | <b>70.4</b>  |

Source: FHWA 2006

As shown in **Table 9**, the maximum predicted noise levels at the nearest sensitive receptor (outdoor) would be 70.4 dBA. In accordance with the County’s noise ordinance, construction would be limited to weekdays. The ordinance allows construction from 7:00 a.m. to 7:00 p.m.; however, the proposed roadway repair would be completed between 7:00 a.m. and 3:00 p.m. Further, none of the planned equipment would exceed the County standard of 75 dBA. Therefore, construction noise would not violate the County noise ordinance and this impact would be less than significant.

- b) *Less Than Significant Impact.* Construction would require the use of excavators, backhoes, haul trucks, pavers, and rollers. The project would not require equipment that could result in severe groundborne vibration (e.g., pile drivers); however, the planned heavy equipment could generate groundborne vibration. This impact would be temporary, and vibration would cease completely when construction ends. Construction activity would be limited to the weekdays from 7:00 a.m. to 3:00 p.m.

High levels of groundborne vibration can cause architectural or structural damage to nearby buildings. The threshold at which there is a risk of architectural damage to normal dwelling structures (i.e., cracks in plastered walls and ceilings) is a PPV of 0.20 inches per seconds (Caltrans 2013). **Table 10** shows vibration levels for typical construction equipment, based on the application of the Caltrans-recommended standard.

**TABLE 10**  
**TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS**

| Equipment               | Peak Particle Velocity at 25 Feet<br>(inches per second) |
|-------------------------|--|
| Large Vibratory Roller  | 0.210  |
| Large Bulldozer         | 0.089  |
| Loaded Truck            | 0.076  |
| Jackhammer              | 0.035  |
| Small Bulldozer/Tractor | 0.003  |

Source: Caltrans 2013

Based on the vibration levels presented in **Table 10**, the maximum anticipated groundborne vibration generated by heavy-duty equipment (0.210 inches per second) would result in a vibration level of 0.018 inches per second at 230 feet (the closest sensitive receptor)<sup>1</sup>. Therefore, the use of construction equipment would not result in a groundborne vibration velocity level above 0.20 inches per second and predicted vibration levels at the nearest existing residential structures would not exceed recommended criteria. Therefore, the project would not expose persons to or result in generation of excessive groundborne vibrations, and this impact would be less than significant.

- d) *Less Than Significant Impact.* Project construction would temporarily increase noise levels in the project area by using heavy equipment. However, as described above in a), these noise increases would be short-term and would only occur during daylight hours. Further, the maximum noise levels would be approximately 70 dBA. While construction noise may be noticeable at the nearest sensitive receptor, the increase in ambient noise over the existing roadway noise would not be substantial and this impact would be less than significant.
- e) *No Impact.* The closest airport or private airstrip to the project site is Moffett Field, approximately 8 miles to the east. The project does not include any residents or long-term workers. Therefore, the project would not result in exposure of people residing or working in the project area to excessive noise levels due from an airport or private airstrip and there would be no impact.

**MITIGATION:**

None required.

<sup>1</sup> The vibration at a specific distance can be calculated by  $PPV_D = PPV_{25\text{ feet}} (25/D)^{1.1}$  where D is the specific distance.

| L. POPULATION AND HOUSING  |                                |  |                              |                                     |            |
|--|--------------------------------|--|------------------------------|-------------------------------------|------------|
| WOULD THE PROJECT:   | IMPACT                         |  |                              |                                     | SOURCE     |
|  | YES                            |  |                              | NO                                  |            |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |            |
| a) Induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 3, 4    |
| b) Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 2, 3, 4 |

**DISCUSSION:**

Setting

The project is located in northwestern Santa Clara County in the Portola Valley area, a rural residential community. The roadway repair would be completed in an area directly adjacent to Arastradero Road in a low-lying area adjacent to Los Trancos Creek.

**DISCUSSION OF IMPACTS**

- a) *No Impact.* The project would not construct new homes or businesses and would not extend existing roads or other infrastructure. Therefore, the project would not result in population growth and there would be no impact.
- b) *No Impact.* The project would repair an existing roadway and would not displace any existing housing or people and would not necessitate the construction of replacement housing. Therefore, there would be no impact.

**MITIGATION:**

None required.

| M. PUBLIC SERVICES  |                                |  |                                     |                          |              |
|---|--------------------------------|--|-------------------------------------|--------------------------|--------------|
| WOULD THE PROJECT:  | IMPACT                         |  |                                     |                          | SOURCE       |
|   | YES                            |  |                                     | NO                       |              |
|   | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact        | No Impact                |              |
| a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: |                                |  |                                     |                          |              |
| i) Fire Protection?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 3, 5      |
| ii) Police Protection?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 3, 5      |
| iii) School facilities?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 3, 5      |
| iv) Parks?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 3, 5, 17h |
| v) Other public facilities?   | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1, 3, 5      |

**DISCUSSION:**

Setting

The road repair project would occur in the Portola Valley area of Santa Clara County where there are existing fire and police protection, schools, and parks facilities.

**DISCUSSION OF IMPACTS**

a) *Less Than Significant Impact.* The project would involve the permanent repair of a section of Arastradero Road that was damaged by winter storms. Construction would occur during summer 2019 over a period of approximately four weeks and would not require police or fire protection. The project would not add residences or a substantial worker population and therefore would not affect schools or parks. Therefore, the project would not require construction or alteration of any government facilities to maintain adequate public services because none would be required. The project would restore Arastradero Road to a safe condition, reducing the potential need for police and fire response. The project would not substantially affect public services and this impact would be less than significant.

**MITIGATION:**

None required.

| N. MINERAL RESOURCES AND RECREATION  |                                |  |                              |                                     |                 |
|--|--------------------------------|--|------------------------------|-------------------------------------|-----------------|
| WOULD THE PROJECT:   | IMPACT                         |  |                              |                                     | SOURCE          |
|  | YES                            |  |                              | NO                                  |                 |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |                 |
| a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state?  | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 2, 3, 6, 44  |
| b) Result in the loss of availability of a locally-important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan?                    | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 2, 3, 6,8a   |
| c) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 2, 4, 5, 17h |
| d) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?                       | <input type="checkbox"/>       | <input type="checkbox"/>                           | <input type="checkbox"/>     | <input checked="" type="checkbox"/> | 1, 3, 4, 5      |

**DISCUSSION:**

**Setting**

The project is in an area of the county that includes areas classified by the California Department of Conservation as MRZ-3 and -4, which are areas in which the significance of mineral deposits has not been evaluated or in which the data are inadequate.

The project site is located in a residential area. Recreational facilities in the area include walking trails, sports fields, and private clubs.

**DISCUSSION OF IMPACTS**

- a) *No Impact.* The project would be constructed within the area of Arastradero Road’s storm-damaged embankment, and on the surface of Arastradero Road and a pull-out area used to access utilities. It would not construct buildings or other structures or create conditions that would result in the loss of availability of mineral resources.
- b) *No Impact.* The project site is not located within a locally important mineral resource recovery site identified in the County General Plan. Therefore, there would be no impact.
- c) *No Impact.* The proposed project would not introduce new residents or an influx of workers such that existing parks would deteriorate from heavy use or result in the need for new or expanded facilities.
- d) *No Impact.* The proposed roadway repair project would not include recreational facilities or the expansion of existing facilities and there would be no impact.

**MITIGATION:**

None required.

| <b>O. TRANSPORTATION / TRAFFIC</b>  |                                       |   |                                     |                                     |                          |
|---|---------------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|
| <b>WOULD THE PROJECT:</b>   | <b>IMPACT</b>                         |   |                                     |                                     | <b>SOURCE</b>            |
|   | <b>YES</b>                            |   |                                     | <b>NO</b>                           |                          |
|   | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>                    |                          |
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 4, 5, 6, 7, 49, 52    |
| b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6, 49, 50, 52            |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 5, 6, 7, 52              |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?  | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 3, 5, 6, 7, 52           |
| e) Result in inadequate emergency access?   | <input type="checkbox"/>              | <input checked="" type="checkbox"/>                       | <input type="checkbox"/>            | <input type="checkbox"/>            | 1, 3, 5, 8a, 21a, 48, 52 |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                          |

**DISCUSSION:**

Setting

Arastradero Road is a two-lane County road that extends from Alpine Road to Page Mill Road. As Arastradero Road enters Santa Clara County from Alpine Road to the west, it crosses a bridge over Los Trancos Creek, where there are signs advising motorists to drive slowly and that the roadway narrows. Similarly, motorists approaching from the east see signs advising them to slow down and share the road with bicyclists. John Marthens Lane intersects the project site from the southeast.



Construction would use a clearing adjacent to Arastradero Road as a staging area. The work would require access to Los Trancos Creek and would require closing the westbound lane during construction hours of 7:00 a.m. to 3:00 p.m. for approximately three to four weeks.

## DISCUSSION OF IMPACTS

- a) *Less Than Significant Impact.* The project would repair storm damage to Arastradero Road and would not make changes to roadway capacity or intersection performance and would not conflict with the County General Plan Transportation Element. The Santa Clara Countywide Bicycle Plan establishes bikeway corridors across the county; identifies where connections are needed to cross freeways, railroad tracks, and waterways; and specifies ways to make it easier for people to use their bicycle with transit. The Santa Clara Valley Transit Authority (VTA) has published manuals for designing pedestrian facilities, including technical guidelines (VTA 2003a) and best practices (VTA 2003b) for development near transit. Project construction would result in a short-term effect on the use of the bicycle lane at the edge of Arastradero Road, but would not conflict with the County's transportation plans, including for non-motorized travel, including pedestrian and bike paths and for development near transit. Therefore, this impact would be less than significant.
- b) *Less Than Significant Impact.* Santa Clara County has established a Congestion Management Program (CMP) pursuant to Government Code 65088 to reduce traffic congestion. VTA serves as the Congestion Management Agency for Santa Clara County and maintains the County's CMP. VTA's 2015 CMP contains elements for level of service, multimodal performance measures, demand management, and trip reduction. Project construction would result in a short-term effect on local traffic and would not conflict with VTA's CMP. This impact would be less than significant.
- c) *No Impact.* There are no public or private airports within 2 miles of the project site. The nearest airfields are Moffett Field and municipal airports in San Jose and Palo Alto. Construction would occur at ground level and would not result in changes in air traffic patterns, nor would the project result in a change in location that results in substantial safety risks. Therefore, the project would have no impact.
- d) *Less Than Significant Impact with Mitigation.* The project would not include roadway design features beyond repairing the roadway edge and embankment and replacing a safety guardrail. There would be no changes in roadway or land use. Construction could introduce hazards to pedestrians, bicyclists, and traffic operations. Lane closures would be required for several weeks. If not properly managed, these closures could also create hazards for drivers, pedestrians, and bicyclists. This impact would be potentially significant, and the County would implement mitigation measure TRA-1, which would require the construction contractor to prepare a construction traffic management plan. The plan would outline the measures the contractor will take to manage passing traffic, particularly when construction equipment requires a lane closure. With implementation of this measure, this impact would be less than significant.

- e) *Less Than Significant Impact with Mitigation.* The project would not result in permanent roadway closure and would not block entrances or exits from homes or businesses. Construction would require daytime lane closure for part of the construction period, which would require restricting traffic to one direction and result in potentially significant impacts on emergency access. Therefore, the County would implement mitigation measure TRA-1, which would require the construction contractor to prepare a construction traffic management plan. With implementation of this measure, this impact would be less than significant.
  
- f) *Less Than Significant Impact.* Project construction would result in temporary lane closures but would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. The project would not interfere with any existing bus routes, would not remove or relocate any existing bus stops, and would not conflict with transit planning or facilities. Therefore, the project would have a less than significant impact on alternative transportation systems.

**MITIGATION:**

**Mitigation Measure TRA-1. Traffic Management Plan.** Before the start of project construction, the construction contractor will prepare for County approval a construction traffic management plan that identifies the safety measures that will be implemented by the site contractor during lane closures. These measures will include the use of appropriate signage, channelizer cones, and warning devices, as necessary. They will also include the deployment of flaggers on both sides of the lane closures, if warranted by the traffic volumes or approaching emergency vehicles.

| P. TRIBAL CULTURAL RESOURCES   |                                |  |                              |                          |        |
|--|--------------------------------|--|------------------------------|--------------------------|--------|
| WOULD THE PROJECT  | IMPACT                         |  |                              |                          | SOURCE |
|  | YES                            |  |                              | NO                       |        |
|  | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact                |        |
| a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:   |                                |  |                              |                          |        |
| i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or   | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/> | 89     |
| ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | <input type="checkbox"/>       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>     | <input type="checkbox"/> | 89     |

**DISCUSSION:**

a) *Less Than Significant with Mitigation.* In compliance with AB 52, on August 15, 2018, the County sent a letter of inquiry to the Native American Heritage Commission (NAHC), asking for a review of the Sacred Lands files. The County mailed letters to local Native American groups and individuals identified by the NAHC pursuant to CEQA Section 21080.3, including amendments outlined in AB 52. No responses have been received to date.

Based on the disturbed nature of the site, it is unlikely that the site contains tribal cultural resources, as defined in Public Resources Code Section 21074. Nevertheless, the County would follow up with the contacted Native American tribes to evaluate potential impacts and would include the results in the final IS/MND. Pending the results of consultation, the potential exists for the project site to contain tribal cultural resources. Therefore, the County would implement mitigation measure CUL-1 as described above. Mitigation measure CUL-1 would reduce potentially significant impacts on tribal cultural resources to less than significant.

**MITIGATION:**

See Cultural Resources for mitigation measure CUL-1.

| <b>Q. UTILITIES AND SERVICE SYSTEMS</b>   |                                       |   |                                     |                                     |               |
|---|---------------------------------------|---|-------------------------------------|-------------------------------------|---------------|
| <b>WOULD THE PROJECT:</b>   | <b>IMPACT</b>                         |   |                                     |                                     | <b>SOURCE</b> |
|   | <b>YES</b>                            |   |                                     | <b>NO</b>                           |               |
|   | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>                    |               |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 6, 70      |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                              | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 6, 70      |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                       | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 1, 3, 6       |
| d) Require new or expanded entitlements in order to have sufficient water supplies available to serve the project?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 1, 3, 6, 24b  |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 1, 3, 6, 70   |
| f) Not be able to be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 1, 3, 5, 6    |
| g) Be in non-compliance with federal, state, and local statutes and regulations related to solid waste?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 3, 5, 6       |

**DISCUSSION:**

Setting

The project would be constructed in a rural residential area with municipal water, wastewater, and storm drainage facilities. Construction would occur directly adjacent to Arastradero Road.

**DISCUSSION OF IMPACTS**

- a) *No Impact.* The project would not generate wastewater or exceed wastewater treatment requirements. Any wastewater would be collected in portable toilets and would be transported by the construction contractor to a licensed disposal facility.
- b) *No Impact.* The project would not construct new water or wastewater treatment facilities or expand existing facilities and there would be no impact.

- c) *No Impact.* The project site does not have and would not require construction of new stormwater drainage facilities or expansion of existing facilities.
- d) *No Impact.* The project would not require water supply and thus would not require new or expanded water entitlements. There would be no impact.
- e) *No Impact.* The project would not generate wastewater. Thus, the project would not result in a determination by the wastewater treatment provider that it has inadequate disposal capacity. There would be no impact.
- f, g) *Less Than Significant Impact.* The project would only generate small volumes of construction waste. The amount of construction-related waste would be limited to packaging for project components and equipment and solid waste generated by construction workers. Any solid waste generated during construction would be removed by the construction contractor and disposed of using a private collection and disposal service. Construction contractors would be required to comply with federal, state, and local statutes and regulations related to solid waste, including recycling requirements. Thus, any impacts from construction waste disposal would be less than significant.

**MITIGATION:**

None required.

| <b>R. MANDATORY FINDING OF SIGNIFICANCE</b>  |                                       |   |                                     |                          |               |
|--|---------------------------------------|---|-------------------------------------|--------------------------|---------------|
| <b>WOULD THE PROJECT:</b>  | <b>IMPACT</b>                         |   |                                     |                          | <b>SOURCE</b> |
|  | <b>YES</b>                            |   |                                     | <b>NO</b>                |               |
|  | <u>Potentially Significant Impact</u> | <u>Less Than Significant With Mitigation Incorporated</u> | <u>Less Than Significant Impact</u> | <u>No Impact</u>         |               |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1 to 52       |
| b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?  | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1 to 52       |
| c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?   | <input type="checkbox"/>              | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1 to 52       |

**DISCUSSION:**

**DISCUSSION OF IMPACTS**

a) *Less Than Significant Impact with Mitigation.* As described in Section D, "Biological Resources," the project's impacts on special-status species, wetlands, and riparian habitat would be less than significant with mitigation. As described in Section E, "Cultural Resources," the project's impacts on archaeological and tribal cultural resources would be less than significant with mitigation, and there would be no impacts on historical resources. The project would comply with regulatory requirements and mitigation measures to minimize potential effects and provide mitigation, including biological monitoring and habitat restoration. The project site is adjacent to a roadway in an area with no historic structures. The proposed project includes several measures that are designed to improve the quality of the environment, including minimizing the amount of fill and restoring streambed gravel. Thus, because the County would include the design and mitigation measures described in the project description and IS/MND and would obtain all necessary permits prior to construction and implement and abide by all permit conditions, the project would not have the potential to degrade the quality of the environment. The project's overall impact on the quality of the environment would be less than significant.

- b) *Less Than Significant Impact.* All of the potentially significant impacts identified in this IS/MND would be mitigated to less than significant, and the project would not result in impacts that would be individually limited but cumulatively considerable. The potential for cumulative impacts would be inherently limited because the project site is in an isolated area. Furthermore, the County would minimize the project's impacts using a number of measures in coordination with the regulatory agencies designed to avoid or minimize environmental effects, including impacts on aquatic resources.

Because the project would affect the streambed and banks of Los Trancos Creek and would be focused on restoring these resources, any impacts on Los Trancos Creek would be less than cumulatively considerable. There are no known cultural resources within the project footprint or in the project area and therefore the proposed project's potential impacts on cultural resources would be less than cumulatively considerable.

No concurrent projects are in the immediate project vicinity that would overlap in terms of community impacts, such as aesthetics or noise, and no impacts would occur on several CEQA topics (i.e., agriculture, land use, minerals, and population and housing). Impacts on natural resources (i.e., air and water quality) and the potential for soil erosion would be addressed by standard regulatory requirements. Therefore, because of the small area that would be affected by the project and its isolated location, the project's impacts would be less than cumulatively considerable.

- c) *Less Than Significant Impact.* The project would be constructed in an isolated area and would require only small volumes of hazardous chemicals and would not have a potentially significant impact on human beings. Potential community impacts (e.g., air quality) would be reduced with incorporation of the mitigation measures. No other substantial direct or indirect impacts on human beings were identified in this IS/MND. Thus, this impact would be less than significant.

## References

- BAAQMD (Bay Area Air Quality Management District). 2017a. *Bay Area 2017 Clean Air Plan*.  
 ———. 2017b. *CEQA Air Quality Guidelines*.
- Cal Engineering & Geology 2017. Draft Geotechnical Report, Arastradero Road Storm Damage Improvements. CE&G Document No. 171580.001. October 26
- California Department of Conservation, Division of Mines and Geology. 1996. Regionally Significant Construction Aggregate Resource Areas in the South San Francisco Bay Production-Consumption Region, Livermore Quadrangle [map].  
[ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR\\_96-03/OFR\\_96-03\\_Plate16.pdf](ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_96-03/OFR_96-03_Plate16.pdf).
- California Department of Forestry and Fire Protection. 2007. Fire Hazard Severity Zones in SRA, Alameda County [map].  
[http://frap.fire.ca.gov/webdata/maps/alameda/fhszs\\_map.1.pdf](http://frap.fire.ca.gov/webdata/maps/alameda/fhszs_map.1.pdf).
- California Department of Forestry and Fire Protection 2008. Fire Hazard Severity Zones.  
[http://www.fire.ca.gov/fire\\_prevention/fhsz\\_maps\\_santaclara](http://www.fire.ca.gov/fire_prevention/fhsz_maps_santaclara)
- . 2008. Very High Fire Hazard Severity Zones in LRA, Alameda County [map].  
[http://frap.fire.ca.gov/webdata/maps/alameda/fhszl\\_map.1.pdf](http://frap.fire.ca.gov/webdata/maps/alameda/fhszl_map.1.pdf).
- CalRecycle (California Department of Resources Recycling and Recovery). 2018. Facility/Site Details: Vasco Road Sanitary Landfill. Accessed April 26.  
<http://www.calrecycle.ca.gov/SWFacilities/Directory/01-AA-0010/Detail/>.
- Caltrans (California Department of Transportation). 2018. California Scenic Highway Mapping System. Accessed March 7, 2018.  
[http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/).
- . 2013. *Transportation and Construction Vibration Guidance Manual*.
- . 2015. State Scenic Highway Program. Eligible and Officially Designated Scenic Highways. Accessed January 26, 2018.  
<http://www.dot.ca.gov/hq/tsip/gis/datalibrary/Metadata/ScenicHwys.html>.
- CAPCOA (California Air Pollution Control Officers Association). 2011. *Health Effects*.  
 ———. 2017. *CalEEMod User's Guide*. <http://www.caleemod.com/>.
- CARB (California Air Resources Board). 2018. iADAM Top 4 Summary. Accessed August 17.  
<http://www.arb.ca.gov/adam/topfour/topfour1.php>.
- CGS (California Geological Survey). 2003. Earthquake Zones of Required Investigation Briones Valley Quadrangle [map].  
 ———. 2008. *Seismic Hazard Zone Report 114 of the Livermore 7.5-Minute Quadrangle, Alameda County, California*.
- DOC (California Department of Conservation). 2014. Farmland Mapping and Monitoring Program. Alameda County Important Farmland 2012 [map].  
<ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/ala12.pdf>.



- DTSC (California Department of Toxic Substances Control). 2018. EnviroStor Cortese List Database. Accessed April 12.  
[https://www.envirostor.dtsc.ca.gov/public/report\\_inspection](https://www.envirostor.dtsc.ca.gov/public/report_inspection).
- DWR (California Department of Water Resources). 2003. *Bulletin 118, California's Groundwater*.
- EPA (US Environmental Protection Agency). 2016a. *Carbon Dioxide*.  
<https://www.epa.gov/ghgemissions/overview-greenhouse-gases#carbon-dioxide>.
- . 2016b. *Methane*. <https://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html>.
- . 2016c. *Nitrous Oxide*.  
<https://www3.epa.gov/climatechange/ghgemissions/gases/n2o.html>.
- Envirostor 2018. <https://www.envirostor.dtsc.ca.gov/public/search?basic=True>
- FAA (Federal Aviation Administration). 2018. *San Francisco VFR Sectional Map*.  
<http://vfrmap.com/>.
- FEMA (Federal Emergency Management Agency). 2012. Flood Insurance Rate Maps, Community Panels. <https://msc.fema.gov/portal/search#searchresultsanchor>
- FHWA (Federal Highway Administration). 2006. *Highway Construction Noise Handbook*.
- FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment*.
- Geotracker 2018.  
<https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=94028>
- H.T. Harvey & Associates. 2017. Regional General Permit 5 Application for Arastradero Road Repair. Submitted to Ms. Katerina Galactos, U.S. Army Corps of Engineers, San Francisco District. August 30, 2017
- Jones & Stokes. 2006. Lower San Francisquito Creek Watershed Aquatic Habitat Assessment and Limiting Factors Analysis. San Jose, California.
- Leidy, R. A., G. S. Becker, and B. N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco estuary, California. Center for Ecosystem Management and Restoration, Oakland, California.
- MTC and ABAG (Metropolitan Transportation Commission and Association of Bay Area Governments). 2017. *Plan Bay Area 2040*. <https://www.planbayarea.org>.
- National Marine Fisheries Service. 2005. Endangered and threatened species: Designation of critical habitat for seven evolutionarily significant units of Pacific steelhead and salmon in California. Final rule. Federal Register 70:52488-52626.
- [NRCS] Natural Resources Conservation Service. 2017. Web Soil Survey: Custom Soil Resource Report for the Los Altos Area, California. U.S. Department of Agriculture. <<http://websoilsurvey.nrcs.usda.gov>>. Accessed July 2017.
- OHP (California Office of Historic Preservation). 1976. California Inventory of Historic Resources.
- . 1992. Points of Historical Interest.

- . 1996. California Historical Landmarks.
- . 2012a. Archaeological Determinations of Eligibility.
- . 2012b. Directory of Properties in the Historic Property Data File.
- County of Santa Clara. Santa Clara County General Plan, 1995-2010, December 1994.
- Santa Clara County. 2009. *County of Santa Clara Climate Action Plan for Operations and Facilities*. [https://www.sccgov.org/sites/osp/Documents/CAPOF\\_2009\\_09\\_29FINAL.pdf](https://www.sccgov.org/sites/osp/Documents/CAPOF_2009_09_29FINAL.pdf).
- Santa Clara County 2010. Oak Woodland Impact Guidelines. [https://www.sccgov.org/sites/dpd/DocsForms/Documents/Brochure\\_TreePreservation.pdf](https://www.sccgov.org/sites/dpd/DocsForms/Documents/Brochure_TreePreservation.pdf)
- Santa Clara County 2012. Santa Clara County Geologic Hazard Zones. [https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO\\_GeohazardATLAS.pdf](https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf)
- . 2016. *Land Use Plan*. [https://www.sccgov.org/sites/dpd/DocsForms/Documents/landuse\\_plan\\_map\\_2015.pdf](https://www.sccgov.org/sites/dpd/DocsForms/Documents/landuse_plan_map_2015.pdf).
- . 2017. *County of Santa Clara Emergency Operations Plan*.
- . 2018. *Santa Clara Countywide Bicycle Plan*. <http://www.vta.org/projects-and-programs/planning/bike-plan>.
- Santa Clara Valley Transit Authority (VTA) 2003a. Pedestrian Technical Guidelines.
- Santa Clara Valley Transit Authority (VTA) 2003b. Community Design and Transportation Manual of Best Practices for Integrating Transportation and Land Use
- Stanford University. 2013. Stanford University Habitat Conservation Plan. Accessed July 24, 2017. <http://hcp.stanford.edu/documents.html>.
- SWRCB (State Water Resources Control Board). 2018. GeoTracker. Accessed April 12. <https://geotracker.waterboards.ca.gov/>.
- [USFWS] U.S. Fish and Wildlife Service. 1996. Endangered and threatened wildlife and plants: Determination of threatened status for the California red-legged frog. Federal Register 61:25813-25833.
- [USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants: Revised designation of critical habitat for California red-legged frog; Final rule. Federal Register 75:12816- 12959.
- USGS (US Geological Survey). 1983. *Land Application of Wastewater and its Effect on Ground-water Quality in the Livermore-Amador Valley, Alameda County, California*. Water Resources Investigations Report 82-4100.

## INITIAL STUDY SOURCE LIST\*

1. **Environmental Information Form**
2. **Field Inspection**
3. **Project Plans**
4. **Working knowledge of site and conditions**
5. **Experience with Other Projects of This Size and Nature**
6. **County Expert Sources: Geologist, Fire Marshal, Roads & Airports, Environmental Health, Land Development Engineering, Parks & Recreation, Zoning Administration, Comprehensive Planning, Architectural & Site Approval Committee Secretary**
7. **Agency Sources: Santa Clara Valley Water District, Santa Clara Valley Transportation Authority, Midpeninsula OpenSpace Regional District, U.S. Fish & Wildlife Service, CA Dept. of Fish & Game, Caltrans, U.S. Army Corps of Engineers, Regional Water Quality Control Board, Public Works Depts. of individual cities, Planning Depts. of individual cities,**
- 8a. **Santa Clara County (SCC) General Plan**
- 8b. The South County Joint Area Plan
9. **SCC Zoning Regulations (Ordinance)**
10. County Grading Ordinance
11. SCC Guidelines for Architecture and Site Approval
12. SCC Development Guidelines for Design Review
13. County Standards and Policies Manual (Vol. I - Land Development)
14. Table 18-1-B of the Uniform Building Code (expansive soil regulations) [1994 version]
15. Land Use Database
16. **Santa Clara County Heritage Resource (including Trees) Inventory [computer database]**
17. GIS Database
  - a. SCC General Plan Land Use, and Zoning
  - b. **USFWS Critical Habitat & Riparian Habitat**
  - c. **Geologic Hazards**
  - d. **Archaeological Resources**
  - e. **Water Resources**
  - f. **Viewshed and Scenic Roads**
  - g. **Fire Hazard**
  - h. **Parks, Public Open Space, and Trails**
  - i. Heritage Resources - Trees
  - j. **Topography, Contours, Average Slope**
  - k. **Soils**
  - l. **HCP Data (habitat models, land use coverage etc)**
  - m. Air photos
  - n. **USGS Topographic**
  - o. **Dept. of Fish & Game, Natural Diversity Data**
  - p. **FEMA Flood Zones**
  - q. Williamsosn Act
  - r. Farmland monitoring program
  - s. Traffic Analysis Zones
- Base Map Overlays & Textual Reports (GIS)
18. Paper Maps
  - a. **SCC Zoning**
  - b. Barclay's Santa Clara County Locaide Street Atlas
  - c. Color Air Photos (MPSI)
  - d. Santa Clara Valley Water District - Maps of Flood Control Facilities & Limits of 1% Flooding
  - e. Soils Overlay Air Photos
  - f. "Future Width Line" map set
19. **CEQA Guidelines [Current Edition]**  
Area Specific: San Martin, Stanford, and Other Areas
  - San Martin
    - 20a. **San Martin Integrated Design Guidelines**
    - 20b. San Martin Water Quality Study
    - 20c. Memorandum of Understanding (MOU) between Santa Clara County & Santa Clara Valley Water District
  - Stanford
    - 21a. **Stanford University General Use Permit (GUP), Community Plan (CP), Mitigation and Monitoring Reporting Program (MMRP) and Environmental Impact Report (EIR)**
    - 21b. Stanford Protocol and Land Use Policy Agreement
  - Other Areas
    - 22a. **South County Airport Comprehensive Land Use Plan and Palo Alto Airport Comprehensive Land Use Plan [November 19, 2008]**
    - 22b. Los Gatos Hillside Specific Area Plan
    - 22c. County Lexington Basin Ordinance Relating to Sewage Disposal
    - 22d. User Manual Guidelines & Standards for Land Uses Near Streams: A Manual of Tools, Standards and Procedures to Protect Streams and Streamside Resources in Santa Clara County by the Santa Clara Valley Water Resources Protection Collaborative, August 2005 – Revised July 2006.
    - 22e. Guidelines and Standards for Land Use Near Streams: Streamside Review Area – Summary prepared by Santa Clara County Planning Office, September 2007.
    - 22f. Monterey Highway Use Permit Area
  - Soils
    23. **USDA, SCS, "Soils of Santa Clara County**
    24. USDA, SCS, "Soil Survey of Eastern Santa Clara County"  
Agricultural Resources/Open Space
    25. Right to Farm Ordinance
    26. State Dept. of Conservation, "CA Agricultural Land Evaluation and Site Assessment Model"
    27. Open Space Preservation, Report of the Preservation 2020 Task Force, April 1987 [Chapter IV]
    28. Williamson Act Ordinance and Guidelines (current version)
  - Air Quality
    29. BAAQMD Clean Air Plan, and BAAQMD CEQA Air Quality Guidelines (2010)
    30. BAAQMD Annual Summary of Contaminant Excesses & BAAQMD, "Air Quality & Urban Development - Guidelines for Assessing Impacts of Projects & Plans" [current version]

## INITIAL STUDY SOURCE LIST\*

- Biological Resources/  
Water Quality & Hydrological Resources/  
Utilities & Service Systems"
31. **Site-Specific Biological Report**  
32. **Santa Clara County Tree Preservation Ordinance Section C16, Santa Clara County Guide to Evaluating Oak Woodlands Impacts, Santa Clara County Guidelines for Tree Protection and Preservation for Land Use Applications**
33. Clean Water Act, Section 404  
34. Riparian Inventory of Santa Clara County, Greenbelt Coalition, November 1988  
35. CA Regional Water Quality Control Board, Water Quality Control Plan, San Francisco Bay Region [1995]  
36. Santa Clara Valley Water District, Private Well Water Testing Program [12-98]  
37. SCC Nonpoint Source Pollution Control Program, Urban Runoff Management Plan [1997]  
38. County Environmental Health / Septic Tank Sewage Disposal System - Bulletin "A"  
39. County Environmental Health Department Tests and Reports
- Archaeological Resources
40. Northwest Information Center, Sonoma State University  
41. **Site Specific Archaeological Reconnaissance Report**
- Geological Resources
42. **Site Specific Geologic Report**
43. State Department of Mines and Geology, Special Report #42  
44. State Department of Mines and Geology, Special Report #146
- Noise
45. **County Noise Ordinance**
- Hazards & Hazardous Materials
46. Section 21151.4 of California Public Resources Code  
47. State Department of Toxic Substances, Hazardous Waste and Substances Sites List  
48. County Office of Emergency Services Emergency Response Plan [1994 version]
- Transportation/Traffic
49. Transportation Research Board, "Highway Capacity Manual", Special Report 209, 1995.  
50. SCC Congestion Management Agency, "Monitoring and Conformance report" (Current Edition)  
51. Official County Road Book  
52. **Site-specific Traffic Impact Analysis Report**
- 
- \*Items listed in bold are the most important sources and should be referred to during the first review of the project, when they are available. The planner should refer to the other sources for a particular environmental factor if the former indicates a potential environmental impact.**
-

This page intentionally left blank.

---

# **APPENDICES**

---



**APPENDIX A.1**  
**CALEEMOD: ANNUAL**



Arastradero Road Repair - Santa Clara County, Annual

**Arastradero Road Repair**  
**Santa Clara County, Annual**

**1.0 Project Characteristics**

---

**1.1 Land Usage**

| Land Uses                  | Size | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------|------|----------|-------------|--------------------|------------|
| Other Non-Asphalt Surfaces | 3.00 | 1000sqft | 0.07        | 3,000.00           | 0          |

**1.2 Other Project Characteristics**

|                                 |                                |                                 |       |                                  |       |
|---------------------------------|--------------------------------|---------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>             | Rural                          | <b>Wind Speed (m/s)</b>         | 2.2   | <b>Precipitation Freq (Days)</b> | 58    |
| <b>Climate Zone</b>             | 5                              |                                 |       | <b>Operational Year</b>          | 2020  |
| <b>Utility Company</b>          | Pacific Gas & Electric Company |                                 |       |                                  |       |
| <b>CO2 Intensity (lb/MW hr)</b> | 641.35                         | <b>CH4 Intensity (lb/MW hr)</b> | 0.029 | <b>N2O Intensity (lb/MW hr)</b>  | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Arastradero Road Repair - Santa Clara County, Annual

Project Characteristics - Construction of a road repair/retaining wall project.

Land Use -

Construction Phase - 4 week estimated construction schedule.

Site preparation = removing riprap.

Grading = excavating for wall and boring holes for piling footings.

Off-road Equipment - Excavation includes bores for piling footings.

Off-road Equipment - 1 excavator and 1 backhoe for removing riprap.

Off-road Equipment - Grading includes excavating for wall and boring for footings.

Off-road Equipment - Other construction equipment = concrete pump.

Off-road Equipment - Paving for repair of disturbed road only.

Off-road Equipment - Repainting of road marking

Grading -

Energy Use -

Construction Off-road Equipment Mitigation - Dust mitigation per BAAQMD Basic Construction Mitigation Measures

| Table Name             | Column Name                    | Default Value | New Value |
|------------------------|--------------------------------|---------------|-----------|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0             | 6         |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed   | 0             | 15        |
| tblConstructionPhase   | NumDays                        | 1.00          | 2.00      |
| tblConstructionPhase   | NumDays                        | 2.00          | 5.00      |
| tblConstructionPhase   | NumDays                        | 100.00        | 11.00     |
| tblConstructionPhase   | NumDays                        | 5.00          | 1.00      |
| tblConstructionPhase   | NumDays                        | 5.00          | 1.00      |
| tblGrading             | MaterialExported               | 0.00          | 105.00    |
| tblGrading             | MaterialExported               | 0.00          | 70.00     |
| tblOffRoadEquipment    | HorsePower                     | 172.00        | 100.00    |
| tblOffRoadEquipment    | LoadFactor                     | 0.41          | 0.41      |
| tblOffRoadEquipment    | LoadFactor                     | 0.42          | 0.35      |

## Arastradero Road Repair - Santa Clara County, Annual

|                           |                            |           |                              |
|---------------------------|----------------------------|-----------|------------------------------|
| tblOffRoadEquipment       | LoadFactor                 | 0.41      | 0.41                         |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Graders                      |
| tblOffRoadEquipment       | OffRoadEquipmentType       | Forklifts | Other Construction Equipment |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Excavators                   |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Graders                      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00      | 1.00                         |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00      | 1.00                         |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00      | 0.00                         |
| tblOffRoadEquipment       | UsageHours                 | 6.00      | 2.00                         |
| tblOffRoadEquipment       | UsageHours                 | 4.00      | 3.00                         |
| tblOffRoadEquipment       | UsageHours                 | 7.00      | 2.00                         |
| tblOffRoadEquipment       | UsageHours                 | 8.00      | 4.00                         |
| tblOffRoadEquipment       | UsageHours                 | 7.00      | 2.00                         |
| tblProjectCharacteristics | UrbanizationLevel          | Urban     | Rural                        |
| tblTripsAndVMT            | WorkerTripNumber           | 15.00     | 10.00                        |
| tblTripsAndVMT            | WorkerTripNumber           | 18.00     | 8.00                         |

## 2.0 Emissions Summary

---



Arastradero Road Repair - Santa Clara County, Annual

| Quarter | Start Date | End Date  | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---------|------------|-----------|--|--|
| 1       | 7-15-2019  | 9-30-2019 | 0.0889                                       | 0.0889                                     |
|         |            | Highest   | 0.0889                                       | 0.0889                                     |

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         | 2.6000e-004        | 0.0000        | 3.0000e-005        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0000        | 6.0000e-005        |
| 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       | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 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             |
| <b>Total</b> | <b>2.6000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>6.0000e-005</b> |

Arastradero Road Repair - Santa Clara County, Annual

**2.2 Overall Operational**

**Mitigated Operational**

|              | ROG                | NOx           | CO                 | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2      | NBio- CO2          | Total CO2          | CH4           | N2O           | CO2e               |
|--------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|
| Category     | tons/yr            |               |                    |               |               |               |               |                |               |               | MT/yr         |                    |                    |               |               |                    |
| Area         | 2.6000e-004        | 0.0000        | 3.0000e-005        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0000        | 6.0000e-005        |
| 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       | 0.0000             | 0.0000        | 0.0000             | 0.0000        | 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             |
| <b>Total</b> | <b>2.6000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>6.0000e-005</b> |

|                   | ROG  | NOx  | CO   | SO2  | 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**

Arastradero Road Repair - Santa Clara County, Annual

| Phase Number | Phase Name                      | Phase Type            | Start Date | End Date  | Num Days Week | Num Days | Phase Description |
|--------------|---------------------------------|-----------------------|------------|-----------|---------------|----------|-------------------|
| 1            | Site Preparation                | Site Preparation      | 7/15/2019  | 7/16/2019 | 5             | 2        |                   |
| 2            | Grading                         | Grading               | 7/17/2019  | 7/23/2019 | 5             | 5        |                   |
| 3            | Wall and Guardrail Construction | Building Construction | 7/24/2019  | 8/7/2019  | 5             | 11       |                   |
| 4            | Paving Repair                   | Paving                | 8/8/2019   | 8/8/2019  | 5             | 1        |                   |
| 5            | Raod Markings                   | Architectural Coating | 8/9/2019   | 8/9/2019  | 5             | 1        |                   |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0.07**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 180 (Architectural Coating – sqft)**

**OffRoad Equipment**

## Arastradero Road Repair - Santa Clara County, Annual

| Phase Name                      | Offroad Equipment Type       | Amount | Usage Hours | Horse Power | Load Factor |
|---------------------------------|------------------------------|--------|-------------|-------------|-------------|
| Site Preparation                | Excavators                   | 1      | 8.00        | 158         | 0.38        |
| Site Preparation                | Tractors/Loaders/Backhoes    | 1      | 8.00        | 97          | 0.37        |
| Grading                         | Bore/Drill Rigs              | 1      | 6.00        | 221         | 0.50        |
| Grading                         | Cranes                       | 1      | 1.00        | 231         | 0.29        |
| Grading                         | Excavators                   | 1      | 2.00        | 158         | 0.38        |
| Grading                         | Tractors/Loaders/Backhoes    | 1      | 6.00        | 97          | 0.37        |
| Wall and Guardrail Construction | Cranes                       | 1      | 3.00        | 231         | 0.29        |
| Wall and Guardrail Construction | Other Construction Equipment | 2      | 3.00        | 100         | 0.35        |
| Wall and Guardrail Construction | Tractors/Loaders/Backhoes    | 1      | 4.00        | 97          | 0.37        |
| Site Preparation                | Graders                      | 0      | 8.00        | 187         | 0.41        |
| Paving Repair                   | Pavers                       | 1      | 7.00        | 130         | 0.42        |
| Paving Repair                   | Rollers                      | 1      | 2.00        | 80          | 0.38        |
| Paving Repair                   | Tractors/Loaders/Backhoes    | 1      | 2.00        | 97          | 0.37        |
| Road Markings                   | Air Compressors              | 1      | 2.00        | 78          | 0.48        |
| Wall and Guardrail Construction | Excavators                   | 1      | 1.00        | 158         | 0.38        |
| Grading                         | Graders                      | 0      | 8.00        | 187         | 0.41        |
| Paving Repair                   | Cement and Mortar Mixers     | 4      | 6.00        | 9           | 0.56        |
| Grading                         | Concrete/Industrial Saws     | 1      | 8.00        | 81          | 0.73        |
| Wall and Guardrail Construction | Forklifts                    | 2      | 6.00        | 89          | 0.20        |
| Grading                         | Rubber Tired Dozers          | 1      | 1.00        | 247         | 0.40        |

Trips and VMT



Arastradero Road Repair - Santa Clara County, Annual

| Phase Name                      | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---------------------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation                | 2                       | 5.00               | 0.00               | 9.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading                         | 6                       | 10.00              | 0.00               | 13.00               | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Wall and Guardrail Construction | 7                       | 1.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving Repair                   | 7                       | 8.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Road Markings                   | 1                       | 0.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

**3.1 Mitigation Measures Construction**

Water Exposed Area

Clean Paved Roads

**3.2 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 |                    |                    |                    |                    | 0.0000        | 0.0000             | 0.0000             | 0.0000         | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 4.9000e-004        | 5.0200e-003        | 5.5700e-003        | 1.0000e-005        |               | 2.9000e-004        | 2.9000e-004        |                | 2.6000e-004        | 2.6000e-004        | 0.0000        | 0.7427        | 0.7427        | 2.3000e-004        | 0.0000        | 0.7486        |
| <b>Total</b>  | <b>4.9000e-004</b> | <b>5.0200e-003</b> | <b>5.5700e-003</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>2.9000e-004</b> | <b>2.9000e-004</b> | <b>0.0000</b>  | <b>2.6000e-004</b> | <b>2.6000e-004</b> | <b>0.0000</b> | <b>0.7427</b> | <b>0.7427</b> | <b>2.3000e-004</b> | <b>0.0000</b> | <b>0.7486</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.2 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      | 4.0000e-005        | 1.4000e-003        | 2.8000e-004        | 0.0000        | 8.0000e-005        | 1.0000e-005        | 8.0000e-005        | 2.0000e-005        | 1.0000e-005        | 3.0000e-005        | 0.0000        | 0.3468        | 0.3468        | 2.0000e-005        | 0.0000        | 0.3472        |
| 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       | 2.0000e-005        | 1.0000e-005        | 1.4000e-004        | 0.0000        | 4.0000e-005        | 0.0000             | 4.0000e-005        | 1.0000e-005        | 0.0000             | 1.0000e-005        | 0.0000        | 0.0351        | 0.0351        | 0.0000             | 0.0000        | 0.0351        |
| <b>Total</b> | <b>6.0000e-005</b> | <b>1.4100e-003</b> | <b>4.2000e-004</b> | <b>0.0000</b> | <b>1.2000e-004</b> | <b>1.0000e-005</b> | <b>1.2000e-004</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>0.3819</b> | <b>0.3819</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.3823</b> |

**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 |                    |                    |                    |                    | 0.0000        | 0.0000             | 0.0000             | 0.0000         | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 4.9000e-004        | 5.0200e-003        | 5.5700e-003        | 1.0000e-005        |               | 2.9000e-004        | 2.9000e-004        |                | 2.6000e-004        | 2.6000e-004        | 0.0000        | 0.7427        | 0.7427        | 2.3000e-004        | 0.0000        | 0.7486        |
| <b>Total</b>  | <b>4.9000e-004</b> | <b>5.0200e-003</b> | <b>5.5700e-003</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>2.9000e-004</b> | <b>2.9000e-004</b> | <b>0.0000</b>  | <b>2.6000e-004</b> | <b>2.6000e-004</b> | <b>0.0000</b> | <b>0.7427</b> | <b>0.7427</b> | <b>2.3000e-004</b> | <b>0.0000</b> | <b>0.7486</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.2 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      | 4.0000e-005        | 1.4000e-003        | 2.8000e-004        | 0.0000        | 7.0000e-005        | 1.0000e-005        | 8.0000e-005        | 2.0000e-005        | 1.0000e-005        | 3.0000e-005        | 0.0000        | 0.3468        | 0.3468        | 2.0000e-005        | 0.0000        | 0.3472        |
| 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       | 2.0000e-005        | 1.0000e-005        | 1.4000e-004        | 0.0000        | 4.0000e-005        | 0.0000             | 4.0000e-005        | 1.0000e-005        | 0.0000             | 1.0000e-005        | 0.0000        | 0.0351        | 0.0351        | 0.0000             | 0.0000        | 0.0351        |
| <b>Total</b> | <b>6.0000e-005</b> | <b>1.4100e-003</b> | <b>4.2000e-004</b> | <b>0.0000</b> | <b>1.1000e-004</b> | <b>1.0000e-005</b> | <b>1.2000e-004</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>0.3819</b> | <b>0.3819</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.3823</b> |

**3.3 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 |                    |               |               |                    | 1.8900e-003        | 0.0000             | 1.8900e-003        | 1.0400e-003        | 0.0000             | 1.0400e-003        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.7900e-003        | 0.0276        | 0.0215        | 5.0000e-005        |                    | 1.4100e-003        | 1.4100e-003        |                    | 1.3400e-003        | 1.3400e-003        | 0.0000        | 4.1359        | 4.1359        | 9.8000e-004        | 0.0000        | 4.1604        |
| <b>Total</b>  | <b>2.7900e-003</b> | <b>0.0276</b> | <b>0.0215</b> | <b>5.0000e-005</b> | <b>1.8900e-003</b> | <b>1.4100e-003</b> | <b>3.3000e-003</b> | <b>1.0400e-003</b> | <b>1.3400e-003</b> | <b>2.3800e-003</b> | <b>0.0000</b> | <b>4.1359</b> | <b>4.1359</b> | <b>9.8000e-004</b> | <b>0.0000</b> | <b>4.1604</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.3 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      | 6.0000e-005        | 2.0200e-003        | 4.0000e-004        | 1.0000e-005        | 1.1000e-004        | 1.0000e-005        | 1.2000e-004        | 3.0000e-005        | 1.0000e-005        | 4.0000e-005        | 0.0000        | 0.5009        | 0.5009        | 2.0000e-005        | 0.0000        | 0.5015        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 9.0000e-005        | 7.0000e-005        | 7.0000e-004        | 0.0000             | 2.0000e-004        | 0.0000             | 2.0000e-004        | 5.0000e-005        | 0.0000             | 5.0000e-005        | 0.0000        | 0.1755        | 0.1755        | 0.0000             | 0.0000        | 0.1756        |
| <b>Total</b> | <b>1.5000e-004</b> | <b>2.0900e-003</b> | <b>1.1000e-003</b> | <b>1.0000e-005</b> | <b>3.1000e-004</b> | <b>1.0000e-005</b> | <b>3.2000e-004</b> | <b>8.0000e-005</b> | <b>1.0000e-005</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>0.6764</b> | <b>0.6764</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.6772</b> |

**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 |                    |               |               |                    | 8.5000e-004        | 0.0000             | 8.5000e-004        | 4.7000e-004        | 0.0000             | 4.7000e-004        | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Off-Road      | 2.7900e-003        | 0.0276        | 0.0215        | 5.0000e-005        |                    | 1.4100e-003        | 1.4100e-003        |                    | 1.3400e-003        | 1.3400e-003        | 0.0000        | 4.1359        | 4.1359        | 9.8000e-004        | 0.0000        | 4.1604        |
| <b>Total</b>  | <b>2.7900e-003</b> | <b>0.0276</b> | <b>0.0215</b> | <b>5.0000e-005</b> | <b>8.5000e-004</b> | <b>1.4100e-003</b> | <b>2.2600e-003</b> | <b>4.7000e-004</b> | <b>1.3400e-003</b> | <b>1.8100e-003</b> | <b>0.0000</b> | <b>4.1359</b> | <b>4.1359</b> | <b>9.8000e-004</b> | <b>0.0000</b> | <b>4.1604</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.3 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      | 6.0000e-005        | 2.0200e-003        | 4.0000e-004        | 1.0000e-005        | 1.1000e-004        | 1.0000e-005        | 1.1000e-004        | 3.0000e-005        | 1.0000e-005        | 4.0000e-005        | 0.0000        | 0.5009        | 0.5009        | 2.0000e-005        | 0.0000        | 0.5015        |
| Vendor       | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| Worker       | 9.0000e-005        | 7.0000e-005        | 7.0000e-004        | 0.0000             | 1.9000e-004        | 0.0000             | 1.9000e-004        | 5.0000e-005        | 0.0000             | 5.0000e-005        | 0.0000        | 0.1755        | 0.1755        | 0.0000             | 0.0000        | 0.1756        |
| <b>Total</b> | <b>1.5000e-004</b> | <b>2.0900e-003</b> | <b>1.1000e-003</b> | <b>1.0000e-005</b> | <b>3.0000e-004</b> | <b>1.0000e-005</b> | <b>3.0000e-004</b> | <b>8.0000e-005</b> | <b>1.0000e-005</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>0.6764</b> | <b>0.6764</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.6772</b> |

**3.4 Wall and Guardrail 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     | 4.5800e-003        | 0.0453        | 0.0327        | 5.0000e-005        |               | 2.9200e-003        | 2.9200e-003        |                | 2.6900e-003        | 2.6900e-003        | 0.0000        | 4.4013        | 4.4013        | 1.3900e-003        | 0.0000        | 4.4361        |
| <b>Total</b> | <b>4.5800e-003</b> | <b>0.0453</b> | <b>0.0327</b> | <b>5.0000e-005</b> |               | <b>2.9200e-003</b> | <b>2.9200e-003</b> |                | <b>2.6900e-003</b> | <b>2.6900e-003</b> | <b>0.0000</b> | <b>4.4013</b> | <b>4.4013</b> | <b>1.3900e-003</b> | <b>0.0000</b> | <b>4.4361</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.4 Wall and Guardrail 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       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 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       | 2.0000e-005        | 1.0000e-005        | 1.5000e-004        | 0.0000        | 4.0000e-005        | 0.0000        | 4.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0386        | 0.0386        | 0.0000        | 0.0000        | 0.0386        |
| <b>Total</b> | <b>2.0000e-005</b> | <b>1.0000e-005</b> | <b>1.5000e-004</b> | <b>0.0000</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>4.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0386</b> | <b>0.0386</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0386</b> |

**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     | 4.5800e-003        | 0.0453        | 0.0327        | 5.0000e-005        |               | 2.9200e-003        | 2.9200e-003        |                | 2.6900e-003        | 2.6900e-003        | 0.0000        | 4.4012        | 4.4012        | 1.3900e-003        | 0.0000        | 4.4361        |
| <b>Total</b> | <b>4.5800e-003</b> | <b>0.0453</b> | <b>0.0327</b> | <b>5.0000e-005</b> |               | <b>2.9200e-003</b> | <b>2.9200e-003</b> |                | <b>2.6900e-003</b> | <b>2.6900e-003</b> | <b>0.0000</b> | <b>4.4012</b> | <b>4.4012</b> | <b>1.3900e-003</b> | <b>0.0000</b> | <b>4.4361</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.4 Wall and Guardrail 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       | 0.0000             | 0.0000             | 0.0000             | 0.0000        | 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       | 2.0000e-005        | 1.0000e-005        | 1.5000e-004        | 0.0000        | 4.0000e-005        | 0.0000        | 4.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0386        | 0.0386        | 0.0000        | 0.0000        | 0.0386        |
| <b>Total</b> | <b>2.0000e-005</b> | <b>1.0000e-005</b> | <b>1.5000e-004</b> | <b>0.0000</b> | <b>4.0000e-005</b> | <b>0.0000</b> | <b>4.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0386</b> | <b>0.0386</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0386</b> |

**3.5 Paving Repair - 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     | 2.7000e-004        | 2.4900e-003        | 2.2600e-003        | 0.0000        |               | 1.3000e-004        | 1.3000e-004        |                | 1.2000e-004        | 1.2000e-004        | 0.0000        | 0.3178        | 0.3178        | 9.0000e-005        | 0.0000        | 0.3200        |
| Paving       | 0.0000             |                    |                    |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| <b>Total</b> | <b>2.7000e-004</b> | <b>2.4900e-003</b> | <b>2.2600e-003</b> | <b>0.0000</b> |               | <b>1.3000e-004</b> | <b>1.3000e-004</b> |                | <b>1.2000e-004</b> | <b>1.2000e-004</b> | <b>0.0000</b> | <b>0.3178</b> | <b>0.3178</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>0.3200</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.5 Paving Repair - 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       | 1.0000e-005        | 1.0000e-005        | 1.1000e-004        | 0.0000        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0281        | 0.0281        | 0.0000        | 0.0000        | 0.0281        |
| <b>Total</b> | <b>1.0000e-005</b> | <b>1.0000e-005</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0281</b> | <b>0.0281</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0281</b> |

**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     | 2.7000e-004        | 2.4900e-003        | 2.2600e-003        | 0.0000        |               | 1.3000e-004        | 1.3000e-004        |                | 1.2000e-004        | 1.2000e-004        | 0.0000        | 0.3178        | 0.3178        | 9.0000e-005        | 0.0000        | 0.3200        |
| Paving       | 0.0000             |                    |                    |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000        | 0.0000        |
| <b>Total</b> | <b>2.7000e-004</b> | <b>2.4900e-003</b> | <b>2.2600e-003</b> | <b>0.0000</b> |               | <b>1.3000e-004</b> | <b>1.3000e-004</b> |                | <b>1.2000e-004</b> | <b>1.2000e-004</b> | <b>0.0000</b> | <b>0.3178</b> | <b>0.3178</b> | <b>9.0000e-005</b> | <b>0.0000</b> | <b>0.3200</b> |



Arastradero Road Repair - Santa Clara County, Annual

**3.5 Paving Repair - 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       | 1.0000e-005        | 1.0000e-005        | 1.1000e-004        | 0.0000        | 3.0000e-005        | 0.0000        | 3.0000e-005        | 1.0000e-005        | 0.0000        | 1.0000e-005        | 0.0000        | 0.0281        | 0.0281        | 0.0000        | 0.0000        | 0.0281        |
| <b>Total</b> | <b>1.0000e-005</b> | <b>1.0000e-005</b> | <b>1.1000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>1.0000e-005</b> | <b>0.0000</b> | <b>0.0281</b> | <b>0.0281</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0281</b> |

**3.6 Road Markings - 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 | 6.3000e-004        |                    |                    |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Off-Road        | 4.0000e-005        | 3.1000e-004        | 3.1000e-004        | 0.0000        |               | 2.0000e-005        | 2.0000e-005        |                | 2.0000e-005        | 2.0000e-005        | 0.0000        | 0.0426        | 0.0426        | 0.0000        | 0.0000        | 0.0426        |
| <b>Total</b>    | <b>6.7000e-004</b> | <b>3.1000e-004</b> | <b>3.1000e-004</b> | <b>0.0000</b> |               | <b>2.0000e-005</b> | <b>2.0000e-005</b> |                | <b>2.0000e-005</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.0426</b> | <b>0.0426</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0426</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.6 Raod Markings - 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        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**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 | 6.3000e-004        |                    |                    |               |               | 0.0000             | 0.0000             |                | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| Off-Road        | 4.0000e-005        | 3.1000e-004        | 3.1000e-004        | 0.0000        |               | 2.0000e-005        | 2.0000e-005        |                | 2.0000e-005        | 2.0000e-005        | 0.0000        | 0.0426        | 0.0426        | 0.0000        | 0.0000        | 0.0426        |
| <b>Total</b>    | <b>6.7000e-004</b> | <b>3.1000e-004</b> | <b>3.1000e-004</b> | <b>0.0000</b> |               | <b>2.0000e-005</b> | <b>2.0000e-005</b> |                | <b>2.0000e-005</b> | <b>2.0000e-005</b> | <b>0.0000</b> | <b>0.0426</b> | <b>0.0426</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0426</b> |

Arastradero Road Repair - Santa Clara County, Annual

**3.6 Raod Markings - 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        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**4.0 Operational Detail - Mobile**

---

**4.1 Mitigation Measures Mobile**

Arastradero Road Repair - Santa Clara County, Annual

|             | ROG     | NOx    | CO     | SO2    | Fugitive 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 |
| Other Non-Asphalt Surfaces | 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 |
| Other Non-Asphalt Surfaces | 14.70      | 6.60       | 6.60        | 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       |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Other Non-Asphalt Surfaces | 0.604810 | 0.038204 | 0.185149 | 0.108513 | 0.015498 | 0.004981 | 0.012268 | 0.020156 | 0.002083 | 0.001571 | 0.005363 | 0.000620 | 0.000785 |

5.0 Energy Detail

Historical Energy Use: N



Arastradero Road Repair - Santa Clara County, Annual

**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         |               |               |               |               |               |
| Other Non-Asphalt Surfaces | 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        |
| <b>Total</b>               |                 | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

|                            | Electricity Use | Total CO2     | CH4           | N2O           | CO2e          |
|----------------------------|-----------------|---------------|---------------|---------------|---------------|
| Land Use                   | kWh/yr          | MT/yr         |               |               |               |
| Other Non-Asphalt Surfaces | 0               | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                 | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

Arastradero Road Repair - Santa Clara County, Annual

**5.3 Energy by Land Use - Electricity**

**Mitigated**

|                            | Electricity Use | Total CO2     | CH4           | N2O           | CO2e          |
|----------------------------|-----------------|---------------|---------------|---------------|---------------|
| Land Use                   | kWh/yr          | MT/yr         |               |               |               |
| Other Non-Asphalt Surfaces | 0               | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                 | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**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   | 2.6000e-004 | 0.0000 | 3.0000e-005 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 5.0000e-005 | 5.0000e-005 | 0.0000 | 0.0000 | 6.0000e-005 |
| Unmitigated | 2.6000e-004 | 0.0000 | 3.0000e-005 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      | 0.0000   | 5.0000e-005 | 5.0000e-005 | 0.0000 | 0.0000 | 6.0000e-005 |

Arastradero Road Repair - Santa Clara County, Annual

**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 | 6.0000e-005        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000             |
| Consumer Products     | 1.9000e-004        |               |                    |               |               | 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        | 3.0000e-005        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0000        | 6.0000e-005        |
| <b>Total</b>          | <b>2.5000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>6.0000e-005</b> |

**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 | 6.0000e-005        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 0.0000             | 0.0000             | 0.0000        | 0.0000        | 0.0000             |
| Consumer Products     | 1.9000e-004        |               |                    |               |               | 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        | 3.0000e-005        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        | 0.0000        | 5.0000e-005        | 5.0000e-005        | 0.0000        | 0.0000        | 6.0000e-005        |
| <b>Total</b>          | <b>2.5000e-004</b> | <b>0.0000</b> | <b>3.0000e-005</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>5.0000e-005</b> | <b>5.0000e-005</b> | <b>0.0000</b> | <b>0.0000</b> | <b>6.0000e-005</b> |

**7.0 Water Detail**



Arastradero Road Repair - Santa Clara County, Annual

**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         |               |               |               |
| Other Non-Asphalt Surfaces | 0 / 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                    | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

Arastradero Road Repair - Santa Clara County, Annual

**7.2 Water by Land Use**

**Mitigated**

|                            | Indoor/Outdoor Use | Total CO2     | CH4           | N2O           | CO2e          |
|----------------------------|--------------------|---------------|---------------|---------------|---------------|
| Land Use                   | Mgal               | MT/yr         |               |               |               |
| Other Non-Asphalt Surfaces | 0 / 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                    | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**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 |

Arastradero Road Repair - Santa Clara County, Annual

**8.2 Waste by Land Use**

**Unmitigated**

|                            | Waste Disposed | Total CO2     | CH4           | N2O           | CO2e          |
|----------------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use                   | tons           | MT/yr         |               |               |               |
| Other Non-Asphalt Surfaces | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**Mitigated**

|                            | Waste Disposed | Total CO2     | CH4           | N2O           | CO2e          |
|----------------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use                   | tons           | MT/yr         |               |               |               |
| Other Non-Asphalt Surfaces | 0              | 0.0000        | 0.0000        | 0.0000        | 0.0000        |
| <b>Total</b>               |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**9.0 Operational Offroad**

---

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

Arastradero Road Repair - Santa Clara County, Annual

**10.0 Stationary Equipment**

---

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|------------|-------------|-------------|-----------|
|----------------|--------|-----------|------------|-------------|-------------|-----------|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|----------------|--------|----------------|-----------------|---------------|-----------|
|----------------|--------|----------------|-----------------|---------------|-----------|

**User Defined Equipment**

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

**11.0 Vegetation**

---



**APPENDIX A.2**  
**CALEEMOD: SUMMER**

Arastradero Road Repair - Santa Clara County, Summer

**Arastradero Road Repair**  
**Santa Clara County, Summer**

**1.0 Project Characteristics**

---

**1.1 Land Usage**

| Land Uses                  | Size | Metric   | Lot Acreage | Floor Surface Area | Population |
|----------------------------|------|----------|-------------|--------------------|------------|
| Other Non-Asphalt Surfaces | 3.00 | 1000sqft | 0.07        | 3,000.00           | 0          |

**1.2 Other Project Characteristics**

|                                |                                |                                |       |                                  |       |
|--------------------------------|--------------------------------|--------------------------------|-------|----------------------------------|-------|
| <b>Urbanization</b>            | Rural                          | <b>Wind Speed (m/s)</b>        | 2.2   | <b>Precipitation Freq (Days)</b> | 58    |
| <b>Climate Zone</b>            | 5                              |                                |       | <b>Operational Year</b>          | 2020  |
| <b>Utility Company</b>         | Pacific Gas & Electric Company |                                |       |                                  |       |
| <b>CO2 Intensity (lb/MWhr)</b> | 641.35                         | <b>CH4 Intensity (lb/MWhr)</b> | 0.029 | <b>N2O Intensity (lb/MWhr)</b>   | 0.006 |

**1.3 User Entered Comments & Non-Default Data**

Arastradero Road Repair - Santa Clara County, Summer

Project Characteristics - Construction of a road repair/retaining wall project.

Land Use -

Construction Phase - 4 week estimated construction schedule.

Site preparation = removing riprap.

Grading = excavating for wall and boring holes for piling footings.

Off-road Equipment - Excavation includes bores for piling footings.

Off-road Equipment - 1 excavator and 1 backhoe for removing riprap.

Off-road Equipment - Grading includes excavating for wall and boring for footings.

Off-road Equipment - Other construction equipment = concrete pump.

Off-road Equipment - Paving for repair of disturbed road only.

Off-road Equipment - Repainting of road marking

Grading -

Energy Use -

Construction Off-road Equipment Mitigation - Dust mitigation per BAAQMD Basic Construction Mitigation Measures

| Table Name             | Column Name                    | Default Value | New Value |
|------------------------|--------------------------------|---------------|-----------|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0             | 6         |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed   | 0             | 15        |
| tblConstructionPhase   | NumDays                        | 1.00          | 2.00      |
| tblConstructionPhase   | NumDays                        | 2.00          | 5.00      |
| tblConstructionPhase   | NumDays                        | 100.00        | 11.00     |
| tblConstructionPhase   | NumDays                        | 5.00          | 1.00      |
| tblConstructionPhase   | NumDays                        | 5.00          | 1.00      |
| tblGrading             | MaterialExported               | 0.00          | 105.00    |
| tblGrading             | MaterialExported               | 0.00          | 70.00     |
| tblOffRoadEquipment    | HorsePower                     | 172.00        | 100.00    |
| tblOffRoadEquipment    | LoadFactor                     | 0.41          | 0.41      |
| tblOffRoadEquipment    | LoadFactor                     | 0.42          | 0.35      |



## Arastradero Road Repair - Santa Clara County, Summer

|                           |                            |           |                              |
|---------------------------|----------------------------|-----------|------------------------------|
| tblOffRoadEquipment       | LoadFactor                 | 0.41      | 0.41                         |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Graders                      |
| tblOffRoadEquipment       | OffRoadEquipmentType       | Forklifts | Other Construction Equipment |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Excavators                   |
| tblOffRoadEquipment       | OffRoadEquipmentType       |           | Graders                      |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00      | 1.00                         |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 2.00      | 1.00                         |
| tblOffRoadEquipment       | OffRoadEquipmentUnitAmount | 1.00      | 0.00                         |
| tblOffRoadEquipment       | UsageHours                 | 6.00      | 2.00                         |
| tblOffRoadEquipment       | UsageHours                 | 4.00      | 3.00                         |
| tblOffRoadEquipment       | UsageHours                 | 7.00      | 2.00                         |
| tblOffRoadEquipment       | UsageHours                 | 8.00      | 4.00                         |
| tblOffRoadEquipment       | UsageHours                 | 7.00      | 2.00                         |
| tblProjectCharacteristics | UrbanizationLevel          | Urban     | Rural                        |
| tblTripsAndVMT            | WorkerTripNumber           | 15.00     | 10.00                        |
| tblTripsAndVMT            | WorkerTripNumber           | 18.00     | 8.00                         |

## 2.0 Emissions Summary

---



Arastradero Road Repair - Santa Clara County, Summer

**2.2 Overall Operational**

**Unmitigated Operational**

|              | ROG                | NOx           | CO                 | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O           | CO2e               |
|--------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|---------------|--------------------|
| Category     | lb/day             |               |                    |               |               |               |               |                |               |               | lb/day   |                    |                    |               |               |                    |
| Area         | 1.4300e-003        | 0.0000        | 3.1000e-004        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 6.6000e-004        | 6.6000e-004        | 0.0000        |               | 7.0000e-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             |
| 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             |
| <b>Total</b> | <b>1.4300e-003</b> | <b>0.0000</b> | <b>3.1000e-004</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>6.6000e-004</b> | <b>6.6000e-004</b> | <b>0.0000</b> | <b>0.0000</b> | <b>7.0000e-004</b> |

**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         | 1.4300e-003        | 0.0000        | 3.1000e-004        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 6.6000e-004        | 6.6000e-004        | 0.0000        |               | 7.0000e-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             |
| 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             |
| <b>Total</b> | <b>1.4300e-003</b> | <b>0.0000</b> | <b>3.1000e-004</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>6.6000e-004</b> | <b>6.6000e-004</b> | <b>0.0000</b> | <b>0.0000</b> | <b>7.0000e-004</b> |

Arastradero Road Repair - Santa Clara County, Summer

|                   | ROG  | NOx  | CO   | SO2  | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4  | N2O  | CO2e |
|-------------------|------|------|------|------|---------------|--------------|------------|----------------|---------------|-------------|----------|----------|-----------|------|------|------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 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            | Site Preparation                | Site Preparation      | 7/15/2019  | 7/16/2019 | 5             | 2        |                   |
| 2            | Grading                         | Grading               | 7/17/2019  | 7/23/2019 | 5             | 5        |                   |
| 3            | Wall and Guardrail Construction | Building Construction | 7/24/2019  | 8/7/2019  | 5             | 11       |                   |
| 4            | Paving Repair                   | Paving                | 8/8/2019   | 8/8/2019  | 5             | 1        |                   |
| 5            | Road Markings                   | Architectural Coating | 8/9/2019   | 8/9/2019  | 5             | 1        |                   |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.07

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 180 (Architectural Coating – sqft)

#### OffRoad Equipment

## Arastradero Road Repair - Santa Clara County, Summer

| Phase Name                      | Offroad Equipment Type       | Amount | Usage Hours | Horse Power | Load Factor |
|---------------------------------|------------------------------|--------|-------------|-------------|-------------|
| Site Preparation                | Excavators                   | 1      | 8.00        | 158         | 0.38        |
| Site Preparation                | Tractors/Loaders/Backhoes    | 1      | 8.00        | 97          | 0.37        |
| Grading                         | Bore/Drill Rigs              | 1      | 6.00        | 221         | 0.50        |
| Grading                         | Cranes                       | 1      | 1.00        | 231         | 0.29        |
| Grading                         | Excavators                   | 1      | 2.00        | 158         | 0.38        |
| Grading                         | Tractors/Loaders/Backhoes    | 1      | 6.00        | 97          | 0.37        |
| Wall and Guardrail Construction | Cranes                       | 1      | 3.00        | 231         | 0.29        |
| Wall and Guardrail Construction | Other Construction Equipment | 2      | 3.00        | 100         | 0.35        |
| Wall and Guardrail Construction | Tractors/Loaders/Backhoes    | 1      | 4.00        | 97          | 0.37        |
| Site Preparation                | Graders                      | 0      | 8.00        | 187         | 0.41        |
| Paving Repair                   | Pavers                       | 1      | 7.00        | 130         | 0.42        |
| Paving Repair                   | Rollers                      | 1      | 2.00        | 80          | 0.38        |
| Paving Repair                   | Tractors/Loaders/Backhoes    | 1      | 2.00        | 97          | 0.37        |
| Road Markings                   | Air Compressors              | 1      | 2.00        | 78          | 0.48        |
| Wall and Guardrail Construction | Excavators                   | 1      | 1.00        | 158         | 0.38        |
| Grading                         | Graders                      | 0      | 8.00        | 187         | 0.41        |
| Paving Repair                   | Cement and Mortar Mixers     | 4      | 6.00        | 9           | 0.56        |
| Grading                         | Concrete/Industrial Saws     | 1      | 8.00        | 81          | 0.73        |
| Wall and Guardrail Construction | Forklifts                    | 2      | 6.00        | 89          | 0.20        |
| Grading                         | Rubber Tired Dozers          | 1      | 1.00        | 247         | 0.40        |

Trips and VMT

Arastradero Road Repair - Santa Clara County, 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 |
|---------------------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation                | 2                       | 5.00               | 0.00               | 9.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Grading                         | 6                       | 10.00              | 0.00               | 13.00               | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Wall and Guardrail Construction | 7                       | 1.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Paving Repair                   | 7                       | 8.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |
| Road Markings                   | 1                       | 0.00               | 0.00               | 0.00                | 10.80              | 6.60               | 20.00               | LD_Mix               | HDT_Mix              | HHDT                  |

**3.1 Mitigation Measures Construction**

Water Exposed Area

Clean Paved Roads

**3.2 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 |               |               |               |                    | 3.9600e-003        | 0.0000        | 3.9600e-003   | 6.0000e-004        | 0.0000        | 6.0000e-004   |          |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.4935        | 5.0192        | 5.5659        | 8.2700e-003        |                    | 0.2854        | 0.2854        |                    | 0.2626        | 0.2626        |          | 818.6674        | 818.6674        | 0.2590        |     | 825.1429        |
| <b>Total</b>  | <b>0.4935</b> | <b>5.0192</b> | <b>5.5659</b> | <b>8.2700e-003</b> | <b>3.9600e-003</b> | <b>0.2854</b> | <b>0.2893</b> | <b>6.0000e-004</b> | <b>0.2626</b> | <b>0.2632</b> |          | <b>818.6674</b> | <b>818.6674</b> | <b>0.2590</b> |     | <b>825.1429</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.2 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      | 0.0404        | 1.3722        | 0.2676        | 3.6100e-003        | 0.0786        | 5.3300e-003        | 0.0840        | 0.0216         | 5.1000e-003        | 0.0267        |          | 384.9500        | 384.9500        | 0.0175        |     | 385.3883        |
| 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        | 0.0121        | 0.1530        | 4.2000e-004        | 0.0411        | 2.6000e-004        | 0.0413        | 0.0109         | 2.4000e-004        | 0.0111        |          | 41.5989         | 41.5989         | 1.1300e-003   |     | 41.6271         |
| <b>Total</b> | <b>0.0594</b> | <b>1.3843</b> | <b>0.4206</b> | <b>4.0300e-003</b> | <b>0.1197</b> | <b>5.5900e-003</b> | <b>0.1253</b> | <b>0.0324</b>  | <b>5.3400e-003</b> | <b>0.0378</b> |          | <b>426.5489</b> | <b>426.5489</b> | <b>0.0187</b> |     | <b>427.0153</b> |

**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 |               |               |               |                    | 1.7800e-003        | 0.0000        | 1.7800e-003   | 2.7000e-004        | 0.0000        | 2.7000e-004   |               |                 | 0.0000          |               |     | 0.0000          |
| Off-Road      | 0.4935        | 5.0192        | 5.5659        | 8.2700e-003        |                    | 0.2854        | 0.2854        |                    | 0.2626        | 0.2626        | 0.0000        | 818.6674        | 818.6674        | 0.2590        |     | 825.1429        |
| <b>Total</b>  | <b>0.4935</b> | <b>5.0192</b> | <b>5.5659</b> | <b>8.2700e-003</b> | <b>1.7800e-003</b> | <b>0.2854</b> | <b>0.2872</b> | <b>2.7000e-004</b> | <b>0.2626</b> | <b>0.2628</b> | <b>0.0000</b> | <b>818.6674</b> | <b>818.6674</b> | <b>0.2590</b> |     | <b>825.1429</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.2 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      | 0.0404        | 1.3722        | 0.2676        | 3.6100e-003        | 0.0751        | 5.3300e-003        | 0.0804        | 0.0207         | 5.1000e-003        | 0.0258        |          | 384.9500        | 384.9500        | 0.0175        |     | 385.3883        |
| 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        | 0.0121        | 0.1530        | 4.2000e-004        | 0.0389        | 2.6000e-004        | 0.0392        | 0.0104         | 2.4000e-004        | 0.0106        |          | 41.5989         | 41.5989         | 1.1300e-003   |     | 41.6271         |
| <b>Total</b> | <b>0.0594</b> | <b>1.3843</b> | <b>0.4206</b> | <b>4.0300e-003</b> | <b>0.1140</b> | <b>5.5900e-003</b> | <b>0.1196</b> | <b>0.0311</b>  | <b>5.3400e-003</b> | <b>0.0364</b> |          | <b>426.5489</b> | <b>426.5489</b> | <b>0.0187</b> |     | <b>427.0153</b> |

**3.3 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 |               |                |               |               | 0.7551        | 0.0000        | 0.7551        | 0.4141         | 0.0000        | 0.4141        |          |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 1.1162        | 11.0410        | 8.6174        | 0.0187        |               | 0.5627        | 0.5627        |                | 0.5361        | 0.5361        |          | 1,823.6283        | 1,823.6283        | 0.4312        |     | 1,834.4078        |
| <b>Total</b>  | <b>1.1162</b> | <b>11.0410</b> | <b>8.6174</b> | <b>0.0187</b> | <b>0.7551</b> | <b>0.5627</b> | <b>1.3179</b> | <b>0.4141</b>  | <b>0.5361</b> | <b>0.9502</b> |          | <b>1,823.6283</b> | <b>1,823.6283</b> | <b>0.4312</b> |     | <b>1,834.4078</b> |



Arastradero Road Repair - Santa Clara County, Summer

**3.3 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      | 0.0234        | 0.7929        | 0.1546        | 2.0900e-003        | 0.0454        | 3.0800e-003        | 0.0485        | 0.0125         | 2.9500e-003        | 0.0154        |          | 222.4156        | 222.4156        | 0.0101        |     | 222.6688        |
| 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       | 0.0380        | 0.0242        | 0.3060        | 8.4000e-004        | 0.0822        | 5.2000e-004        | 0.0827        | 0.0218         | 4.8000e-004        | 0.0223        |          | 83.1978         | 83.1978         | 2.2500e-003   |     | 83.2541         |
| <b>Total</b> | <b>0.0614</b> | <b>0.8170</b> | <b>0.4606</b> | <b>2.9300e-003</b> | <b>0.1276</b> | <b>3.6000e-003</b> | <b>0.1312</b> | <b>0.0342</b>  | <b>3.4300e-003</b> | <b>0.0377</b> |          | <b>305.6134</b> | <b>305.6134</b> | <b>0.0124</b> |     | <b>305.9229</b> |

**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 |               |                |               |               | 0.3398        | 0.0000        | 0.3398        | 0.1864         | 0.0000        | 0.1864        |               |                   | 0.0000            |               |     | 0.0000            |
| Off-Road      | 1.1162        | 11.0410        | 8.6174        | 0.0187        |               | 0.5627        | 0.5627        |                | 0.5361        | 0.5361        | 0.0000        | 1,823.6283        | 1,823.6283        | 0.4312        |     | 1,834.4078        |
| <b>Total</b>  | <b>1.1162</b> | <b>11.0410</b> | <b>8.6174</b> | <b>0.0187</b> | <b>0.3398</b> | <b>0.5627</b> | <b>0.9026</b> | <b>0.1864</b>  | <b>0.5361</b> | <b>0.7224</b> | <b>0.0000</b> | <b>1,823.6283</b> | <b>1,823.6283</b> | <b>0.4312</b> |     | <b>1,834.4078</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.3 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      | 0.0234        | 0.7929        | 0.1546        | 2.0900e-003        | 0.0434        | 3.0800e-003        | 0.0465        | 0.0120         | 2.9500e-003        | 0.0149        |          | 222.4156        | 222.4156        | 0.0101        |     | 222.6688        |
| 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       | 0.0380        | 0.0242        | 0.3060        | 8.4000e-004        | 0.0779        | 5.2000e-004        | 0.0784        | 0.0207         | 4.8000e-004        | 0.0212        |          | 83.1978         | 83.1978         | 2.2500e-003   |     | 83.2541         |
| <b>Total</b> | <b>0.0614</b> | <b>0.8170</b> | <b>0.4606</b> | <b>2.9300e-003</b> | <b>0.1212</b> | <b>3.6000e-003</b> | <b>0.1248</b> | <b>0.0327</b>  | <b>3.4300e-003</b> | <b>0.0361</b> |          | <b>305.6134</b> | <b>305.6134</b> | <b>0.0124</b> |     | <b>305.9229</b> |

**3.4 Wall and Guardrail 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     | 0.8327        | 8.2362        | 5.9482        | 8.9000e-003        |               | 0.5311        | 0.5311        |                | 0.4886        | 0.4886        |          | 882.0989        | 882.0989        | 0.2791        |     | 889.0761        |
| <b>Total</b> | <b>0.8327</b> | <b>8.2362</b> | <b>5.9482</b> | <b>8.9000e-003</b> |               | <b>0.5311</b> | <b>0.5311</b> |                | <b>0.4886</b> | <b>0.4886</b> |          | <b>882.0989</b> | <b>882.0989</b> | <b>0.2791</b> |     | <b>889.0761</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.4 Wall and Guardrail 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       | 0.0000             | 0.0000             | 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       | 3.8000e-003        | 2.4200e-003        | 0.0306        | 8.0000e-005        | 8.2100e-003        | 5.0000e-005        | 8.2700e-003        | 2.1800e-003        | 5.0000e-005        | 2.2300e-003        |          | 8.3198        | 8.3198        | 2.3000e-004        |     | 8.3254        |
| <b>Total</b> | <b>3.8000e-003</b> | <b>2.4200e-003</b> | <b>0.0306</b> | <b>8.0000e-005</b> | <b>8.2100e-003</b> | <b>5.0000e-005</b> | <b>8.2700e-003</b> | <b>2.1800e-003</b> | <b>5.0000e-005</b> | <b>2.2300e-003</b> |          | <b>8.3198</b> | <b>8.3198</b> | <b>2.3000e-004</b> |     | <b>8.3254</b> |

**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     | 0.8327        | 8.2362        | 5.9482        | 8.9000e-003        |               | 0.5311        | 0.5311        |                | 0.4886        | 0.4886        | 0.0000        | 882.0989        | 882.0989        | 0.2791        |     | 889.0761        |
| <b>Total</b> | <b>0.8327</b> | <b>8.2362</b> | <b>5.9482</b> | <b>8.9000e-003</b> |               | <b>0.5311</b> | <b>0.5311</b> |                | <b>0.4886</b> | <b>0.4886</b> | <b>0.0000</b> | <b>882.0989</b> | <b>882.0989</b> | <b>0.2791</b> |     | <b>889.0761</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.4 Wall and Guardrail 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       | 0.0000             | 0.0000             | 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       | 3.8000e-003        | 2.4200e-003        | 0.0306        | 8.0000e-005        | 7.7900e-003        | 5.0000e-005        | 7.8400e-003        | 2.0700e-003        | 5.0000e-005        | 2.1200e-003        |          | 8.3198        | 8.3198        | 2.3000e-004        |     | 8.3254        |
| <b>Total</b> | <b>3.8000e-003</b> | <b>2.4200e-003</b> | <b>0.0306</b> | <b>8.0000e-005</b> | <b>7.7900e-003</b> | <b>5.0000e-005</b> | <b>7.8400e-003</b> | <b>2.0700e-003</b> | <b>5.0000e-005</b> | <b>2.1200e-003</b> |          | <b>8.3198</b> | <b>8.3198</b> | <b>2.3000e-004</b> |     | <b>8.3254</b> |

**3.5 Paving Repair - 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     | 0.5429        | 4.9832        | 4.5165        | 7.6800e-003        |               | 0.2529        | 0.2529        |                | 0.2362        | 0.2362        |          | 700.6663        | 700.6663        | 0.1895        |     | 705.4030        |
| Paving       | 0.0000        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                 | 0.0000          |               |     | 0.0000          |
| <b>Total</b> | <b>0.5429</b> | <b>4.9832</b> | <b>4.5165</b> | <b>7.6800e-003</b> |               | <b>0.2529</b> | <b>0.2529</b> |                | <b>0.2362</b> | <b>0.2362</b> |          | <b>700.6663</b> | <b>700.6663</b> | <b>0.1895</b> |     | <b>705.4030</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.5 Paving Repair - 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       | 0.0304        | 0.0193        | 0.2448        | 6.7000e-004        | 0.0657        | 4.2000e-004        | 0.0661        | 0.0174         | 3.9000e-004        | 0.0178        |          | 66.5583        | 66.5583        | 1.8000e-003        |     | 66.6033        |
| <b>Total</b> | <b>0.0304</b> | <b>0.0193</b> | <b>0.2448</b> | <b>6.7000e-004</b> | <b>0.0657</b> | <b>4.2000e-004</b> | <b>0.0661</b> | <b>0.0174</b>  | <b>3.9000e-004</b> | <b>0.0178</b> |          | <b>66.5583</b> | <b>66.5583</b> | <b>1.8000e-003</b> |     | <b>66.6033</b> |

**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     | 0.5429        | 4.9832        | 4.5165        | 7.6800e-003        |               | 0.2529        | 0.2529        |                | 0.2362        | 0.2362        | 0.0000        | 700.6663        | 700.6663        | 0.1895        |     | 705.4030        |
| Paving       | 0.0000        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                 | 0.0000          |               |     | 0.0000          |
| <b>Total</b> | <b>0.5429</b> | <b>4.9832</b> | <b>4.5165</b> | <b>7.6800e-003</b> |               | <b>0.2529</b> | <b>0.2529</b> |                | <b>0.2362</b> | <b>0.2362</b> | <b>0.0000</b> | <b>700.6663</b> | <b>700.6663</b> | <b>0.1895</b> |     | <b>705.4030</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.5 Paving Repair - 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       | 0.0304        | 0.0193        | 0.2448        | 6.7000e-004        | 0.0623        | 4.2000e-004        | 0.0627        | 0.0166         | 3.9000e-004        | 0.0170        |          | 66.5583        | 66.5583        | 1.8000e-003        |     | 66.6033        |
| <b>Total</b> | <b>0.0304</b> | <b>0.0193</b> | <b>0.2448</b> | <b>6.7000e-004</b> | <b>0.0623</b> | <b>4.2000e-004</b> | <b>0.0627</b> | <b>0.0166</b>  | <b>3.9000e-004</b> | <b>0.0170</b> |          | <b>66.5583</b> | <b>66.5583</b> | <b>1.8000e-003</b> |     | <b>66.6033</b> |

**3.6 Road Markings - 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 | 1.2515        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                | 0.0000         |                    |     | 0.0000         |
| Off-Road        | 0.0888        | 0.6118        | 0.6138        | 9.9000e-004        |               | 0.0429        | 0.0429        |                | 0.0429        | 0.0429        |          | 93.8160        | 93.8160        | 7.9200e-003        |     | 94.0141        |
| <b>Total</b>    | <b>1.3403</b> | <b>0.6118</b> | <b>0.6138</b> | <b>9.9000e-004</b> |               | <b>0.0429</b> | <b>0.0429</b> |                | <b>0.0429</b> | <b>0.0429</b> |          | <b>93.8160</b> | <b>93.8160</b> | <b>7.9200e-003</b> |     | <b>94.0141</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.6 Raod Markings - 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        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**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 | 1.2515        |               |               |                    |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |               |                | 0.0000         |                    |     | 0.0000         |
| Off-Road        | 0.0888        | 0.6118        | 0.6138        | 9.9000e-004        |               | 0.0429        | 0.0429        |                | 0.0429        | 0.0429        | 0.0000        | 93.8160        | 93.8160        | 7.9200e-003        |     | 94.0141        |
| <b>Total</b>    | <b>1.3403</b> | <b>0.6118</b> | <b>0.6138</b> | <b>9.9000e-004</b> |               | <b>0.0429</b> | <b>0.0429</b> |                | <b>0.0429</b> | <b>0.0429</b> | <b>0.0000</b> | <b>93.8160</b> | <b>93.8160</b> | <b>7.9200e-003</b> |     | <b>94.0141</b> |

Arastradero Road Repair - Santa Clara County, Summer

**3.6 Raod Markings - 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        |
| <b>Total</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b>  | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |     | <b>0.0000</b> |

**4.0 Operational Detail - Mobile**

---

**4.1 Mitigation Measures Mobile**



Arastradero Road Repair - Santa Clara County, Summer

|             | ROG    | NOx    | CO     | SO2    | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4    | N2O | CO2e   |
|-------------|--------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|-----|--------|
| 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 |
| Other Non-Asphalt Surfaces | 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 |
| Other Non-Asphalt Surfaces | 14.70      | 6.60       | 6.60        | 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       |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Other Non-Asphalt Surfaces | 0.604810 | 0.038204 | 0.185149 | 0.108513 | 0.015498 | 0.004981 | 0.012268 | 0.020156 | 0.002083 | 0.001571 | 0.005363 | 0.000620 | 0.000785 |

5.0 Energy Detail

Historical Energy Use: N

Arastradero Road Repair - Santa Clara County, 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   |               |               |               |               |               |
| Other Non-Asphalt Surfaces | 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        |
| <b>Total</b>               |                | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

Arastradero Road Repair - Santa Clara County, Summer

**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         | lb/day        |               |               |               |               |               |               |                |               |               | lb/day   |               |               |               |               |               |
| Other Non-Asphalt Surfaces | 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        |
| <b>Total</b>               |                 | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> |          | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> | <b>0.0000</b> |

**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   | 1.4300e-003 | 0.0000 | 3.1000e-004 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          | 6.6000e-004 | 6.6000e-004 | 0.0000 |     | 7.0000e-004 |
| Unmitigated | 1.4300e-003 | 0.0000 | 3.1000e-004 | 0.0000 |               | 0.0000       | 0.0000     |                | 0.0000        | 0.0000      |          | 6.6000e-004 | 6.6000e-004 | 0.0000 |     | 7.0000e-004 |

Arastradero Road Repair - Santa Clara County, Summer

**6.2 Area by SubCategory**

**Unmitigated**

|                       | ROG                | NOx           | CO                 | SO2           | Fugitive PM10 | Exhaust PM10  | PM10 Total    | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total   | Bio- CO2 | NBio- CO2          | Total CO2          | CH4           | N2O | CO2e               |
|-----------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|--------------------|--------------------|---------------|-----|--------------------|
| SubCategory           | lb/day             |               |                    |               |               |               |               |                |               |               | lb/day   |                    |                    |               |     |                    |
| Architectural Coating | 3.4000e-004        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                    | 0.0000             |               |     | 0.0000             |
| Consumer Products     | 1.0600e-003        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                    | 0.0000             |               |     | 0.0000             |
| Landscaping           | 3.0000e-005        | 0.0000        | 3.1000e-004        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 6.6000e-004        | 6.6000e-004        | 0.0000        |     | 7.0000e-004        |
| <b>Total</b>          | <b>1.4300e-003</b> | <b>0.0000</b> | <b>3.1000e-004</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> |          | <b>6.6000e-004</b> | <b>6.6000e-004</b> | <b>0.0000</b> |     | <b>7.0000e-004</b> |

**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 | 3.4000e-004        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                    | 0.0000             |               |     | 0.0000             |
| Consumer Products     | 1.0600e-003        |               |                    |               |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          |                    | 0.0000             |               |     | 0.0000             |
| Landscaping           | 3.0000e-005        | 0.0000        | 3.1000e-004        | 0.0000        |               | 0.0000        | 0.0000        |                | 0.0000        | 0.0000        |          | 6.6000e-004        | 6.6000e-004        | 0.0000        |     | 7.0000e-004        |
| <b>Total</b>          | <b>1.4300e-003</b> | <b>0.0000</b> | <b>3.1000e-004</b> | <b>0.0000</b> |               | <b>0.0000</b> | <b>0.0000</b> |                | <b>0.0000</b> | <b>0.0000</b> |          | <b>6.6000e-004</b> | <b>6.6000e-004</b> | <b>0.0000</b> |     | <b>7.0000e-004</b> |

**7.0 Water Detail**

## Arastradero Road Repair - Santa Clara County, 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 |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

**10.0 Stationary Equipment**

---

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|------------|-------------|-------------|-----------|
|----------------|--------|-----------|------------|-------------|-------------|-----------|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|----------------|--------|----------------|-----------------|---------------|-----------|
|----------------|--------|----------------|-----------------|---------------|-----------|

**User Defined Equipment**

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

**11.0 Vegetation**

---

**APPENDIX B**  
**USACE REQUEST FOR REGIONAL GENERAL PERMIT 5**



August 30, 2017

Ms. Katerina Galacatos  
U.S. Army Corps of Engineers  
Regulatory Branch  
1455 Market Street, 16<sup>th</sup> Floor  
San Francisco, California 94103-1398

**Subject: Arastradero Road Repair, Santa Clara County, California:** Request for Regional General Permit 5, Repair and Protection Activities in Emergency Situations

Dear Ms. Galacatos,

On behalf of County of Santa Clara Roads and Airports Department and applicant Herbert Naraval, we are submitting this permit application, which constitutes a request that the U.S. Army Corps of Engineers (USACE) authorize impacts to jurisdictional waters within Los Trancos Creek located near the intersection of Alpine Road in Portola Valley, California, as part of the Arastradero Road Repair under the Regional General Permit 5 for emergency repair. The table below summarizes the proposed impacts to USACE jurisdiction. The project would temporarily impact 0.01 ac (400 ft<sup>2</sup>) and permanently impact 0.002 ac (120 ft<sup>2</sup>) and 20 linear feet of perennial waters associated with Los Trancos Creek. In addition, approximately 0.02 ac (497 ft<sup>2</sup>) of developed lands (i.e., gravel road shoulder) would be temporarily used for construction staging.

**Summary of Impacts to USACE Waters Jurisdiction and Non-jurisdictional Uplands**

|                                   | Habitat Type                           | Permanent (ft <sup>2</sup> ) | Linear Feet (In ft) | Temporary (ft <sup>2</sup> ) | Linear Feet (In ft) |
|-----------------------------------|--|------------------------------|---------------------|------------------------------|---------------------|
| <b>USACE Jurisdiction</b>         |  |                              |                     |                              |                     |
| Waters                            | Perennial freshwater Stream            | 120                          | 20                  | 400                          | 40                  |
| <b>Non-Jurisdictional Uplands</b> |  |                              |                     |                              |                     |
| Uplands                           | Developed Lands (gravel road shoulder) | 0                            | 0                   | 497                          | 100                 |

County of Santa Clara Roads and Airports Department proposes the immediate repair (upon receiving required permits) of the westbound lane and shoulder along Arastradero Road, which has recently failed following several flood events in Los Trancos Creek during the 2016-2017 rainy season. The project is located immediately west of the intersection of Alpine Road and Arastradero Road in Portola Valley, California (37.383076 N, 122.192789 W). This emergency action would propose to install a soldier pile or sheet pile wall with concrete facing and a metal beam guard rail. Soldier piles with timber lagging or sacrificial steel are being considered as well as steel sheet z-piles (AZ 28-700; See Appendix A for design examples). The wall would be located approximately 4 to 6 ft from the edge of the existing shoulder, with a length of about 20 ft, and backfilled with native and/or clean, imported material. Temporary impacts may include reconfiguring the



gravel sandbar adjacent to the proposed wall to create a wider low flow channel. Based on the site location along Los Trancos Creek, the occurrence of federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) at the repair site cannot be ruled out.

If steel piles are used, they would be driven to a depth of 20 ft with either a vibratory hammer or pile hammer. Dewatering of the work area would not be required. After the wall is in place, the space between the failed embankment and the wall would be backfilled with standard Caltrans clean backfill and capped with native soil, if available. If soldier piles with timber lagging are required, piles would be drilled into concrete foundations that would be approximately 14 ft deep. In this case, the work area (up to 400 square feet) may need to be temporarily dewatered during installation activities. Clean gravel bags would be used to divert creek flows away from the work area. Construction staging would occur on the widened roadway shoulder approximately 100 ft east of the work area. Traffic control would be required during construction. Equipment required for the activity would include a crane, a drill rig or pile driver, an excavator, a backhoe, and a sheepfoot roller for compaction.

The Palo Alto, Los Altos Hills, and Portola Valley communities rely on this segment of Arastradero Road for public access, emergency response, and utility services to the surrounding community. The 20-ft-wide public road has been narrowed to 17 ft to support two-way traffic during the dry season. However immediate action is required prior to the upcoming rainy season to prevent further loss of the roadway, which contains several underground utility lines and serves as the primary access for residences as well as fire and emergency medical response teams to the surrounding residential developments and open space. This section of road is also the primary access to Palo Alto University, which supports a student body of approximately 1,000 students and 200 staff members. The longer the road remains in this state, the greater the chances become for full failure during the upcoming rainy season. Based on the loss of services and safety concerns from the Arastradero Road failure, this constitutes an emergency repair request under USACE standards.

We greatly appreciate your timely consideration of our application package. If you or your staff have any questions, please feel free to contact me at [khardwicke@harveyecology.com](mailto:khardwicke@harveyecology.com) or at (408) 458-3236.

Sincerely,



Kelly Hardwicke, Ph.D. (Approved Agent)  
Principal Plant Ecologist  
983 University Ave, Bldg. D  
Los Gatos, CA 95031



On behalf of

Herbert Naraval (Applicant)  
Associate Civil Engineer  
County of Santa Clara  
Roads and Airports Department  
(408) 494-1308  
[herbert.naraval@rda.sccgov.org](mailto:herbert.naraval@rda.sccgov.org)

**U.S. ARMY CORPS OF ENGINEERS  
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**  
33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -  
OMB No. 0710-0003  
Expires: 30-SEPTEMBER-2015*

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please **DO NOT RETURN** your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

**PRIVACY ACT STATEMENT**

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

|                    |                      |                  |                              |
|--------------------|----------------------|------------------|------------------------------|
| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|--------------------|----------------------|------------------|------------------------------|

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

|   |  |
|---|--|
| 5. APPLICANT'S NAME<br>First - Herbert      Middle -      Last - Naraval<br>Company - County of Santa Clara Roads and Airports<br>E-mail Address - herbert.naraval@rda.co.scl.ca.us | 8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)<br>First - Kelly      Middle -      Last - Hardwicke<br>Company - H.T. Harvey & Associates<br>E-mail Address - khardwicke@harveyecology.com |
| 6. APPLICANT'S ADDRESS:<br>Address- 1505 Schallenberger Road<br>City - San Jose      State - CA      Zip - 95131      Country - USA   | 9. AGENT'S ADDRESS:<br>Address- 983 University Ave, Building D<br>City - Los Gatos      State - CA      Zip - 95032      Country -   |
| 7. APPLICANT'S PHONE NOS. w/AREA CODE<br>a. Residence      b. Business      c. Fax<br>408-494-1308      408-297-0530  | 10. AGENTS PHONE NOS. w/AREA CODE<br>a. Residence      b. Business      c. Fax<br>408-458-3236      408-458-3210   |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, Kelly Hardwicke to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

  
 \_\_\_\_\_  
 SIGNATURE OF APPLICANT      9/31/17  
 \_\_\_\_\_  
 DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

|   |   |
|---|---|
| 12. PROJECT NAME OR TITLE (see instructions)<br>Arastradero Road, Emergency Permit Assistance   |   |
| 13. NAME OF WATERBODY, IF KNOWN (if applicable)<br>Los Trancos Creek  | 14. PROJECT STREET ADDRESS (if applicable)<br>Address<br>City -      State-      Zip- |
| 15. LOCATION OF PROJECT<br>Latitude: +N 37.383076      Longitude: -W 122.192789   |   |
| 16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)<br>State Tax Parcel ID      Municipality<br>Section - 28      Township - 6 South      Range - 3 West |   |

17. DIRECTIONS TO THE SITE

From San Francisco, take Interstate 280-South for approximately 35 miles and take Exit #22 for Alpine Road. Continue south on Alpine Road for approximately 2 miles and turn left onto Arastradero Road. The work area will be on your left as you pass over Los Trancos Creek. See attached Figure 1. Vicinity Map and Figure 2. USGS Topographic Map (Palo Alto 7.5-minute quadrangle).

18. Nature of Activity (Description of project, include all features)

This emergency action would propose to install a soldier pile or sheet pile wall with concrete facing and a metal beam guard rail. Soldier piles with timber lagging or sacrificial steel are being considered as well as steel sheet z-piles (AZ 28-700; Appendix A). The wall would be located about 4 to 6 ft from the edge of the existing shoulder, with a length of about 20 ft, and backfilled with native and/or clean, imported material. If steel piles are used, they would be driven to a depth of 20 ft with either a vibratory hammer or pile hammer. Dewatering of the work area would not be required. Once the wall is in place, the space in between would be filled with standard Caltrans clean backfill and capped with native soil, if available. If soldier piles with timber lagging are required, piles would be drilled into concrete foundations that would be approximately 14 ft deep. In this case, the work area (up to approximately 400 sq. ft) may need to be temporarily dewatered during installation activities. Clean gravel bags would be used to divert creek flows away from the work area. Construction staging would occur on the widened roadway shoulder about 100 ft east of the work area. Traffic control would also be required.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

County of Santa Clara Roads and Airports Department proposes the immediate repair (upon receiving required permits) of the westbound lane and shoulder along Arastradero Road, which has recently failed following several flood events in Los Trancos Creek during the 2016-2017 rainy season. The project is located immediately west of the intersection of Alpine Road and Arastradero Road in Portola Valley, California. The Palo Alto, Los Altos Hills, and Portola Valley communities rely on Arastradero Road for public access, emergency response, and utility services. The 20-ft-wide public road has been narrowed to 17 ft to support two-way traffic during the dry season. However immediate action is required prior to the upcoming rainy season to prevent further loss of the roadway, which contains several underground utility lines and serves as the primary access for residences as well as fire and emergency medical response teams to the surrounding residential developments and open space. The longer the road remains in this state, the greater the chances become for full failure during the upcoming rainy season.

**USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED**

20. Reason(s) for Discharge

In order to repair the failed roadway and shoulder and restore safe road conditions, the project would temporarily impact 0.01 ac (400 sq.ft) and permanently impact 0.002 ac (120 sq. ft) of perennial waters associated with Los Trancos Creek. In addition, approximately 0.02 ac (479 sq. ft.) of developed lands (i.e., gravel road shoulder) adjacent to the creek would be temporarily used for construction staging.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

| Type  | Type                           | Type                  |
|---|--------------------------------|-----------------------|
| Amount in Cubic Yards                         | Amount in Cubic Yards          | Amount in Cubic Yards |
| 10 sheet piles (AZ 28-700 steel): 25.70 cu.yd | clean back fill - 44.44 cu. yd |                       |

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres Permanent 0.002 ac (120 sq. ft); Temporary 0.01 ac (400 sq. ft)  
or  
Linear Feet Permanent 20 linear feet; Temporary 40 linear feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Please see the Supplemental Document.

24. Is Any Portion of the Work Already Complete?  Yes  No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list)

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

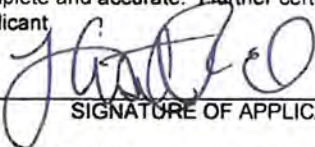
City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

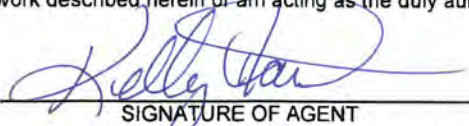
| AGENCY | TYPE APPROVAL*  | IDENTIFICATION NUMBER | DATE APPLIED | DATE APPROVED | DATE DENIED |
|--------|-----------------|-----------------------|--------------|---------------|-------------|
| RWQCB  | Section 401 WQC |                       | Under RGP 5  |               |             |
| NMFS   | LOC             |                       | Under RGP 5  |               |             |
| USFWS  | LOC             |                       | Under RGP 5  |               |             |
|        |                 |                       |              |               |             |

\* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant

  
SIGNATURE OF APPLICANT

8/31/17  
DATE

  
SIGNATURE OF AGENT

8/31/17  
DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

# Regional General Permit Number 5 for Repair and Protection Activities in Emergency Situations Attachment

---

## Table of Contents:

|   |    |
|---|----|
| Box 5. Location of Project.....   | 1  |
| Box 6. Nature of Activity.....  | 4  |
| Site Description.....   | 4  |
| Biotic Habitats.....  | 5  |
| Open Water.....   | 5  |
| White Alder Riparian Forest.....  | 7  |
| Mixed Oak Forest.....   | 9  |
| Developed.....  | 10 |
| Project Purpose and Work Description.....   | 11 |
| Box 9. Description of Avoidance and Minimization Measures for Special-Status Species..... | 13 |
| Central California Coast Steelhead.....   | 13 |
| California Red-legged Frog.....   | 16 |
| Western Pond Turtle.....  | 17 |
| Compliance with Additional Laws and Regulations.....                                      | 18 |
| References.....   | 19 |

## Figures:

|  |    |
|--|----|
| Figure 1. Vicinity Map.....            | 2  |
| Figure 2. USGS Topographic Map.....    | 3  |
| Figure 3. Biotic Habitats Map.....     | 6  |
| Figure 4. Preliminary Impacts Map..... | 12 |

## Tables:

|  |   |
|--|---|
| Table 1. Biotic Habitat/Land Cover Acreages on the Project Site..... | 5 |
|--|---|

## Appendices:

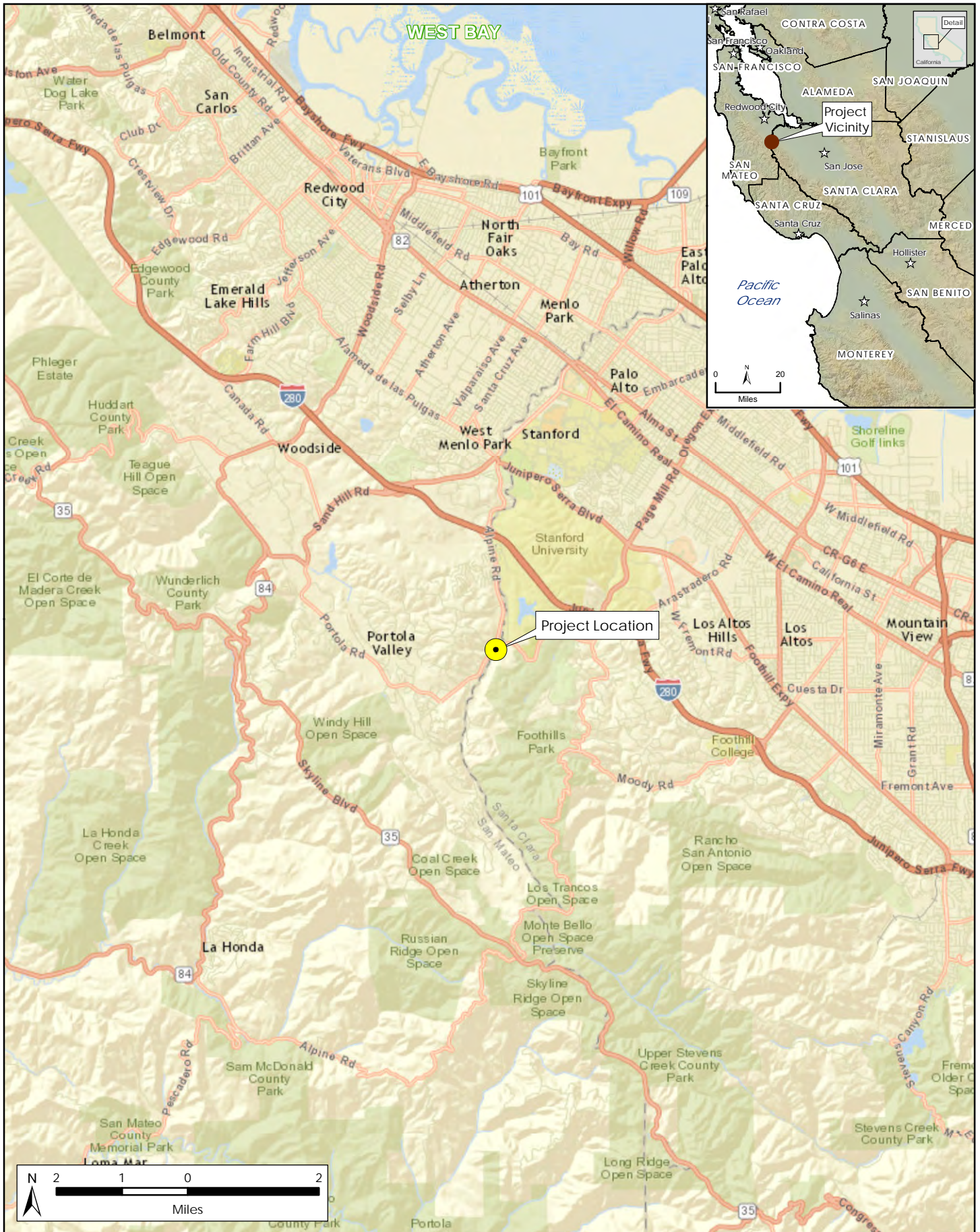
|                                  |     |
|----------------------------------|-----|
| Appendix A. Design Examples..... | A-1 |
|----------------------------------|-----|

## Box 5. Location of Project

---

The project site for the Arastradero Road Repair Emergency Project (project) site is located along Arastradero Road, approximately 250 feet (ft) east of the intersection of Alpine Road in Portola Valley, California (Figure 1). The project site is approximately 1.17 acre (ac) and occurs in the *Palo Alto* U.S. Geological Survey (USGS) 7.5-minute quadrangle map, in Township 6 South, Range 3 West, Section 28 (Figure 2). Elevation ranges from approximately 365 to 390 ft above mean sea level (Google Inc. 2017). The project site consists of the westbound portion of Arastradero Road and a section of Los Trancos Creek, approximately 40 ft in length, embedded in a rural-residential matrix. The site is bordered to the north by the attendant riparian corridor of Los Trancos Creek, to the west by Alpine Road, and to the east by Arastradero Road. Representative photographs of the project site are depicted in the next section below.





N:\Projects\2797-06\11\Reports\Figure 1. Vicinity Map.mxd swatt



**H. T. HARVEY & ASSOCIATES**  
Ecological Consultants

Figure 1. Vicinity Map  
Arastradero Road Project (2797-11)  
August 2017







## Box 6. Nature of Activity

---

### Site Description

The 1.17-ac project site is located in the *Palo Alto, California* USGS 7.5-minute quadrangle in Santa Clara County, California. The project site extends from the main thoroughfare of Alpine Road to John Marthens Lane along Arastradero Road. Here, Los Trancos Creek runs perpendicular to Arastradero Road, and flows beneath it. Immediately beyond the bridge to the direct north of Arastradero Road, the creek meanders away from Arastradero Road caused by a buildup of sedimentation and then back towards Arastradero Road where there is a scoured embankment, and finally back to its original flowline, which parallels Arastradero before reaching a fish ladder. The focus of the project site is where the creek flows closest to Arastradero Road located at 37.383076 N, 122.192789 W. This is where a scoured embankment approximately 10 ft tall, caused by severe winter storms in 2016/2017, reroutes the creek back to its original flowline before it reaches the fish ladder downstream. The fish ladder is operated by Stanford University and is located approximately 170 ft downstream of the scoured road embankment. The bridge is located approximately 20 ft upstream of the scoured road embankment. Near the bridge crossing, a small 5-ft-wide drainage channel that originates from the east and is connected to a culvert below Arastradero Road, flows into Los Trancos Creek. The banks of the Los Trancos Creek, particularly near the scoured embankment, are steeply sloped and unstable. Scouring of the creek has resulted in pavement failure, and has facilitated the narrowing of Arastradero Road to 17 ft for both east and westbound vehicles.

Across the project site, the elevation ranges from approximately 365 to 390 ft (Google Inc. 2017). Based on 30-year climate normals from 1980 through 2010, the project site receives approximately 25.49 inches of annual precipitation and has an average temperature range of 47.2° to 72.6° F (PRISM Climate Group 2017). During the wet season (November through April) prior to the reconnaissance survey, the project site area received 35.8 inches of precipitation, which is approximately 54% more precipitation than the 30-year average during those months (23.30 inches). Therefore, though the project site was functioning under normal conditions at the time of the July 2017 survey, it received substantially more precipitation the prior winter when compared to winters past.

The project site is underlain by Flaskan sandy clay loam, 5 to 9 percent slopes, which is composed of well drained, non-saline to very slightly saline alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics (NRCS 2017). Flaskan sandy clay loam, 5 to 9 percent slopes, is typically located on alluvial fans and stream terraces, and comprises sandy clay loam (0 to 30 inches in depth), gravelly clay loam (30 to 45 inches in depth), gravelly sandy clay loam (45 to 51 inches in depth), and very gravelly sandy clay loam (51 to 59 inches in depth) (NRCS 2017).

## Biotic Habitats

Reconnaissance-level surveys, conducted on July 13, 2017 by qualified H.T. Harvey & Associates plant ecologists, Gregory Sproull, M.S., and Matthew Mosher, B.S., identified four biotic habitats or land cover types on the project site: developed, which includes Arastradero Road and the adjacent roadway shoulders; open water; white alder riparian forest; and mixed oak forest. These habitats are described in detail below and their distributions on the project site are depicted in Figure 3. Representative photos of each habitat type are provided below. The upland and riparian habitats are defined based on classifications in *A Manual of California Vegetation* (Sawyer et al. 2009), which is a vegetation classification and description system for the state of California based on general species assemblages and broad edaphic characteristics. Table 1 provides the approximate acreage of each habitat type within the project boundaries.

**Table 1. Biotic Habitat/Land Cover Acreages on the Project Site**

| Biotic Habitat/Land Use     | Total Area (acres) |
|-----------------------------|--------------------|
| Open Water                  | 0.14               |
| White Alder Riparian Forest | 0.16               |
| Mixed Oak Forest            | 0.54               |
| Developed                   | 0.30               |
| Gravel Sandbars             | 0.03               |
| <b>Total</b>                | <b>1.17</b>        |

### Open Water

**Vegetation.** Open water habitat on the project site (0.14 ac) is limited to the drainage channel that flows from a culvert below Arastradero Road and into Los Trancos Creek and the active flow channel of Los Trancos Creek, which flows northerly from Monte Bello Ridge on the northeast slope of the Santa Cruz Mountains to its confluence with San Francisquito Creek at Stanford University (Photo 2). At the time of the July 13, 2017 reconnaissance survey, clear water was flowing in Los Trancos Creek. In the reach within the project site boundaries, the creek gradient is relatively mild because of the shallowly sloped bed, which contains small rocks and gravels. This reach is located between the bridge crossing (Arastradero Road) and the fish ladder operated by Stanford University. Here, the creek flows in an S shape, initially away from Arastradero Road (caused by a buildup of sedimentation) and then back towards Arastradero Road (where there is a scoured embankment), and finally back to its original flowline, which parallels Arastradero before reaching a fish ladder. Near the scoured embankment, the channel meanders around a second buildup of sedimentation and gravels. On this buildup, an unstable tree was uprooted, spanning the extent of the stream. On the project site, Los Trancos Creek contains steep banks that range from 2 to 10 ft above the creek bed and flows in a northeasterly direction.

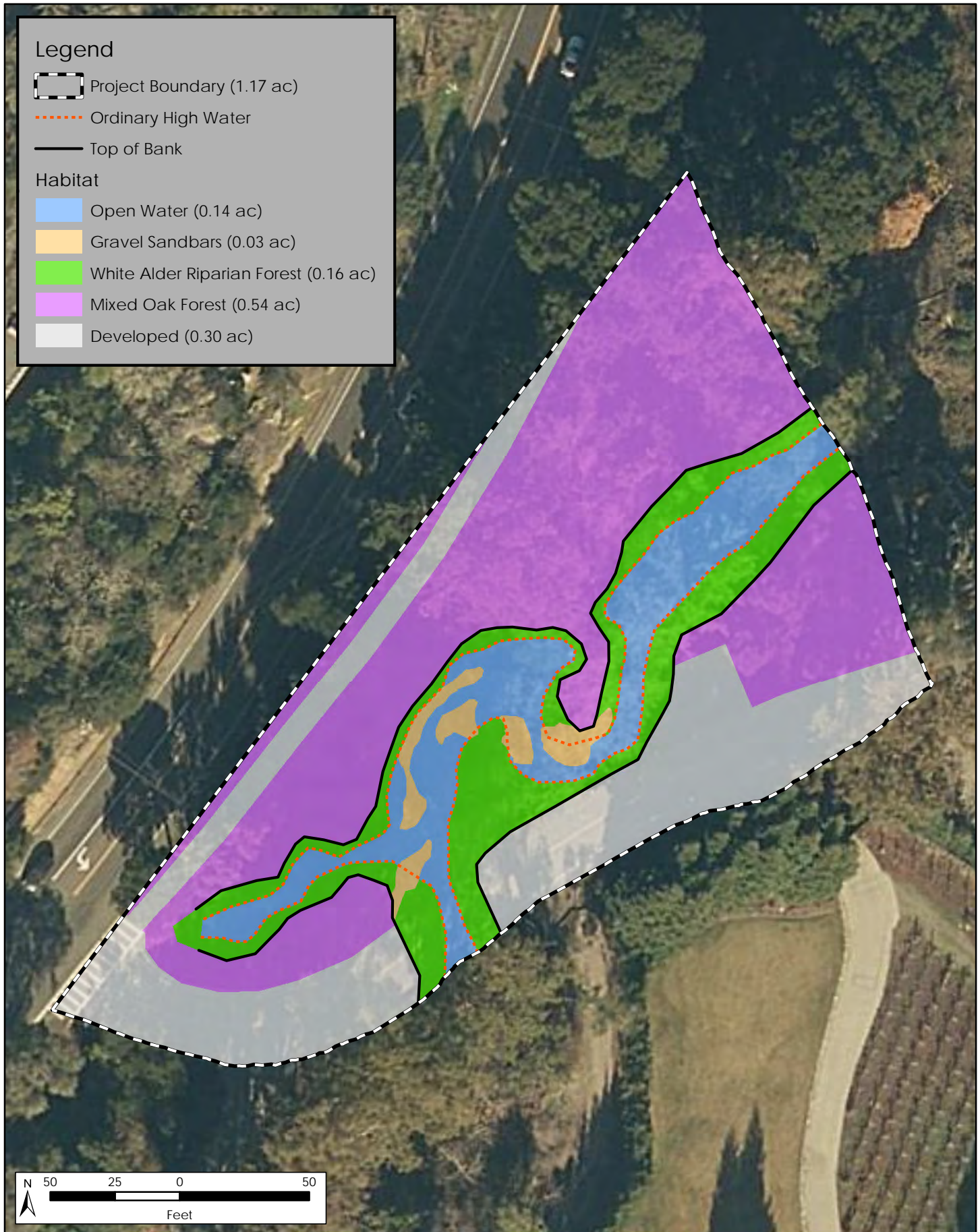


Figure 3. **Biotic Habitats Map**  
 Arastradero Road Project (2797-11)  
 August 2017





In July of 2017, the stretch of Los Trancos Creek located on the project site contained small gravel bars, riffles, and pools, and ranged from approximately 2 to 18 inches in depth and 2 to 15 ft in width. Directly adjacent to the scoured road embankment, the water was approximately 5 inches in depth and 5 ft in width. The open water habitat was mapped based on an interpretation of topographic lines, stream widths measured in the field, and observed ordinary high water marks (OHWMs). Although riparian forest canopy overhangs portions of the open water habitat, for impact analysis



**Photo 1. View of Los Trancos Creek where the channel flows below the scoured embankment**

purposes, these areas were mapped solely as aquatic habitat within the defined OHWMs. During portions of the wet season, the creek level rises and velocity of flows are higher (which was particularly true during the especially wet 2017 winter), which is evidenced by bank incision located several feet above the observed July 2017 water level at the OHWMs.

**Wildlife.** The aquatic habitat within Los Trancos Creek supports native fish species such as the California roach (*Hesperoleucus symmetricus*), hardhead (*Mylopharodon conocephalus*), and threespine stickleback (*Gasterosteus aculeatus*). In addition, the federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) has been documented within Los Trancos Creek (Leidy et al. 2005). Sierran chorus frogs (*Pseudacris sierra*), California newts (*Taricha torosa*), and non-native bullfrogs (*Litobates catesbeianus*) and crayfish are also present in the creek, and waterbirds such as the wood duck (*Aix sponsa*), green heron (*Butorides virescens*), and belted kingfisher (*Ceryle alcyon*) forage in these waters. Bats, including Yuma bats (*Yuma myotis*) and Mexican free-tailed bats (*Tadarida brasiliensis*), forage aerially on insects over Los Trancos Creek.

### **White Alder Riparian Forest**

**Vegetation.** On the project site, white alder riparian forest habitat (0.16 ac) occurs between the top of bank on each side of Los Trancos Creek (Photo 3). Here, the riparian banks are steep, unstable, and densely vegetated. The overstory is dominated by tall (approximately 30 to 50 ft) white alder (*Alnus rhombifolia*), which grows amid black walnut (*Juglans hindsii*), California bay (*Umbellularia californica*), coast live oak (*Quercus agrifolia*), and California buckeye (*Aesculus californica*). Dense thickets of arroyo willow (*Salix lasiolepis*) are also present along the banks of the creek. The understory is dominated by forbs, such as Himalayan blackberry (*Rubus armeniacus*), bigleaf periwinkle (*Vinca major*), poison oak (*Toxicodendron diversilobum*), watercress (*Nasturtium officinale*), and stinging nettle (*Urtica dioica*) among others, that grow close to the water's edge. Seedlings and saplings of Oregon ash (*Fraxinus latifolia*) are also present in the understory, as is highly invasive French broom

(*Genista monspessulana*), which grows in dense patches in several locations (Cal-IPC 2017). A small (approximately 10 foot by 10 foot) patch of common horsetail rush (*Equisetum arvense*) grows directly below the scoured embankment adjacent to Arastradero Road.

**Wildlife.** Riparian habitats in California generally support exceptionally rich animal communities and contribute a disproportionately high amount to landscape-level species diversity. The presence of year-round water and abundant invertebrate fauna along



**Photo 2. View of white alder riparian habitat just downstream of scoured embankment**

this reach of Los Trancos Creek provide foraging opportunities for many species, and the diverse habitat structure provides cover and nesting opportunities. The alders and cottonwoods along Los Trancos Creek attract a number of avian species to the riparian habitat. Some of these species are resident year-round, breeding in the riparian habitat in spring and summer and using it for cover and foraging during the non-breeding season. Common species nesting and foraging primarily in the riparian tree canopy include the chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*), and downy woodpecker (*Picoides pubescens*). Other resident species, such as the Bewick's wren (*Thryomanes bewickii*), spotted towhee (*Pipilo maculatus*), and song sparrow (*Melospiza melodia*), nest and forage on or very close to the ground, usually in dense vegetation. Raptors, such as red-shouldered hawks (*Buteo lineatus*) and Cooper's hawks (*Accipiter cooperii*), may nest within the riparian corridor in the site vicinity and forage in adjacent habitats year round.

A number of species of reptiles and amphibians occur in riparian corridors. Leaf litter, downed tree branches, and fallen logs provide cover for arboreal salamanders (*Aneides lugubris*), California newts, western toads (*Anaxyrus boreas*), and Sierran chorus frogs. Several lizard species also occur here, including the western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), and southern alligator lizard (*Elgaria multicarinata*). Small mammals such as ornate shrews (*Sorex ornatus*), California voles (*Microtus californicus*), and western grey squirrels (*Sciurus griseus*) use these riparian habitats, and medium-sized mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and non-native Virginia opossums (*Didelphis virginiana*) are common, urban-adapted species present in this riparian habitat.



## Mixed Oak Forest

**Vegetation.** Mixed oak forest occurs across 0.54 ac of the project site (Photo 4). This habitat is located above top of bank and is not tied to ground water associated with Los Trancos Creek. Here, the overstory is dominated by coast live oak and contains mixtures of valley oak (*Quercus lobata*), black walnut, California buckeye, Eucalyptus (*Eucalyptus* sp.), and California bay. The canopy in this habitat is generally closed and the understory, which is mostly undeveloped, is dominated by small-statured poison oak shrubs and ruderal forbs and grasses, such as prickly lettuce (*Lactuca serriola*), spreading hedge parsley (*Torilis arvensis*), black mustard (*Brassica nigra*), wild oat (*Avena fatua*), and riggut brome (*Bromus diandrus*). The majority of the forest floor is covered in leaf litter. A 3-foot-wide paved pedestrian trail (mapped as developed) extends through the northern portion of the mixed oak forest habitat, which abuts the white alder riparian forest and developed land cover (i.e., Alpine Road and Arastradero Road).



**Photo 3. View of mixed oak forest habitat near the fish ladder**

**Wildlife.** The mixed oak forest habitat produces mast crops that are an important food source for many birds as well as mammals, including the California scrub-jay (*Apelocoma insularis*), acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), black-tailed deer (*Odocoileus hemionus*), and western gray squirrel. Hollow trees and logs provide denning sites for mammals such as the striped skunk, while cavities in mature trees are used by cavity-dwelling species such as the acorn woodpecker, chestnut-backed chickadee, oak titmouse, white-breasted nuthatch (*Sitta carolinensis*), great horned owl (*Bubo virginianus*), and raccoon. Bats, such as the California myotis (*Myotis californicus*), may use hollows of larger, older oak trees for roosting. The native deer mouse (*Peromyscus maniculatus*) and California mouse (*Peromyscus californicus*) nest and forage in this habitat as well. Nests of San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) were observed in this habitat approximately 50 ft from the project site in areas where dense understory vegetation provided cover and foraging opportunities, but were not observed on the site itself.

## Developed

**Vegetation.** The developed land cover type on the project site (0.30 ac) comprises the road surface of Arastradero Road, which spans Los Trancos Creek (Photo 1). The entirety of Arastradero Road on the project site is paved and lacks vegetation.

**Wildlife.** Paved areas do not provide high-quality wildlife habitat; however, snakes and lizards may bask on these surfaces. In addition, a variety of wildlife may cross or move along the road en route to other habitats, and species that occur in the adjacent riparian and mixed oak forest habitats may forage within this area.



**Photo 4. View of Arastradero Road facing northwest where scoured embankment occurs**

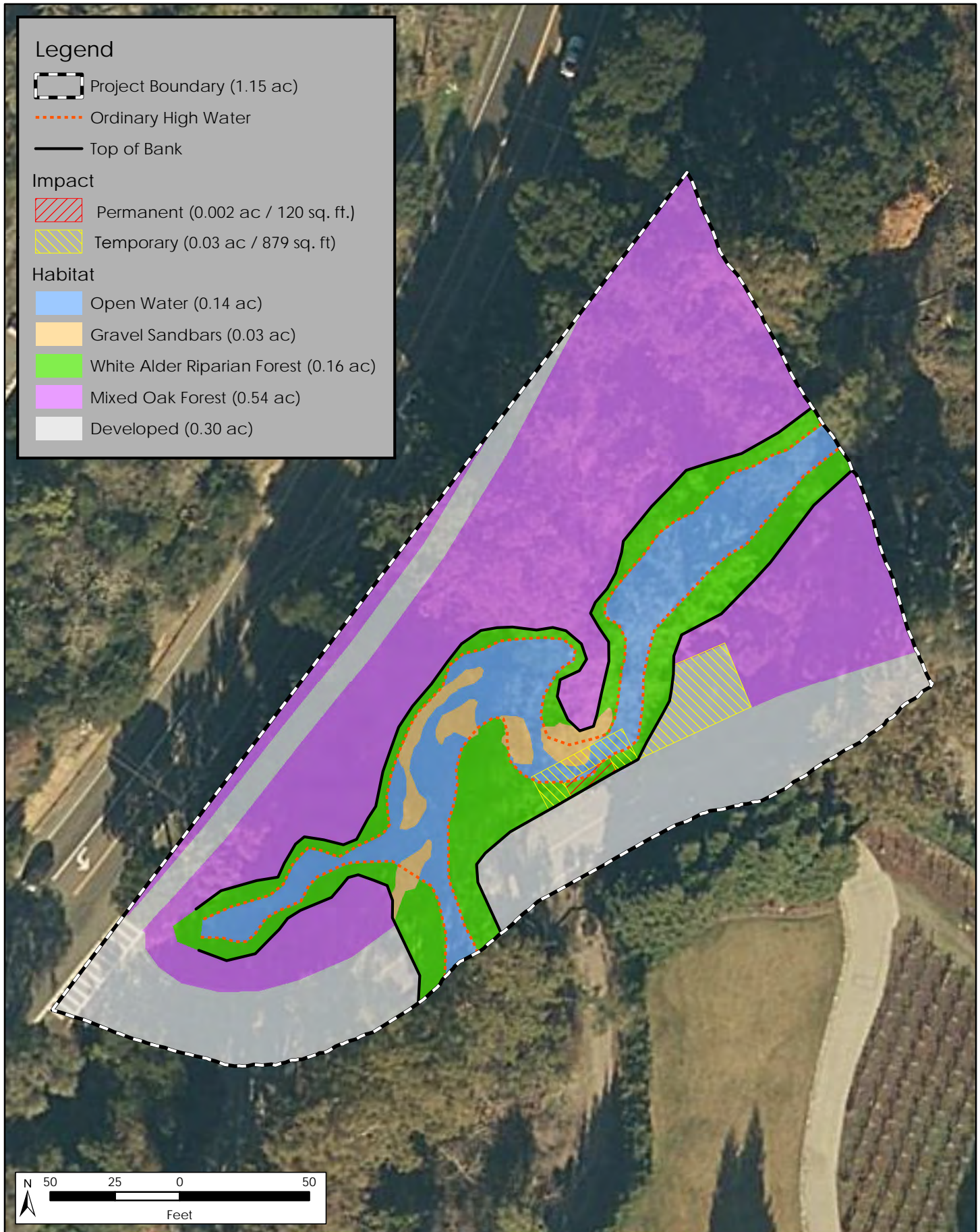
## Project Purpose and Work Description

County of Santa Clara Roads and Airports Department proposes the immediate repair (upon receiving required permits) of the westbound lane and shoulder along Arastradero Road, which has recently failed following several flood events in Los Trancos Creek during the 2016-2017 rainy season. The project is located immediately west of the intersection of Alpine Road and Arastradero Road in Portola Valley, California (37.383076 N, 122.192789 W). This emergency action would propose to install a soldier pile or sheet pile wall with concrete facing and a metal beam guard rail. Soldier piles with timber lagging or sacrificial steel are being considered as well as steel sheet z-piles (AZ 28-700; See Appendix A for design examples). The wall would be located approximately 4 to 6 ft from the edge of the existing shoulder, with a length of about 20 ft, and backfilled with native and/or clean, imported material. Temporary impacts may include reconfiguring the gravel sandbar adjacent to the proposed wall to create a wider low flow channel (Figure 4).

If steel piles are used, they would be driven to a depth of 20 ft with either a vibratory hammer or pile hammer. Dewatering of the work area would not be required. After the wall is in place, the space between the failed embankment and the wall would be backfilled with standard Caltrans clean backfill and capped with native soil, if available. If soldier piles with timber lagging are required, piles would be drilled into concrete foundations that would be approximately 14 ft deep. In this case, the work area (up to 400 square ft) may need to be temporarily dewatered during installation activities. Clean gravel bags would be used to divert creek flows away from the work area. Construction staging would occur on the widened roadway shoulder approximately 100 ft east of the work area. Traffic control would be required during construction. Equipment required for the activity would include a crane, a drill rig or pile driver, an excavator, a backhoe, and a sheepfoot roller for compaction.

The Palo Alto, Los Altos Hills, and Portola Valley communities rely on this segment of Arastradero Road for public access, emergency response, and utility services. The 20-ft-wide public road has been narrowed to 17 ft to support two-way traffic during the dry season. However immediate action is required prior to the upcoming rainy season to prevent further loss of the roadway, which contains several underground utility lines and serves as the primary access for residences as well as fire and emergency medical response teams to the surrounding residential developments and open space. This section of road is also the primary access to Palo Alto University, which supports a student body of approximately 1,000 students and 200 staff members. The longer the road remains in this state, the greater the chances become for full failure during the upcoming rainy season. Based on the loss of services and safety concerns from the Arastradero Road failure, this constitutes an emergency repair request under USACE standards.





N:\Projects\2797-06\11\Reports\Figure 4 Impacts Map.mxd

Figure 4. **Preliminary** Impacts Map  
 Arastradero Road Project (2797-11)  
 August 2017



## Box 9. Description of Avoidance and Minimization Measures for Special-Status Species

---

No special-status plant species have potential to occur in the study area. A reconnaissance-level survey conducted on July 21, 2017 by qualified H. T. Harvey & Associates wildlife ecologist Peter Nelson, Ph.D., identified suitable habitats on the project site for the following special-status wildlife species:

- the federally threatened Central California Coast steelhead
- the federally threatened California red-legged frog (*Rana draytonii*), also a California species of special concern
- the western pond turtle (*Actinemys marmorata*), a California species of special concern
- the San Francisco dusky-footed woodrat, a California species of special concern.

During the July 2017 survey, one active dusky-footed woodrat nest was observed with fresh scat approximately 50 ft from the project site, but no woodrat nests were observed on the project site itself. Thus, woodrats are determined to be absent from the site, and no impacts on this species will occur as a result of the project.

### Central California Coast Steelhead

The Central California Coast steelhead, federally listed as threatened, potentially occurs in Los Trancos Creek within the study area (Leidy et al. 2005), and critical habitat for steelhead is present in Los Trancos Creek (National Marine Fisheries Service 2005). According to the California Department of Fish and Wildlife's Fish Passage Assessment Database (2017), there are four partial barriers between the project site and the confluence of Los Trancos and San Francisquito Creeks. All barriers have been modified to improve fish passage or have deteriorated through natural causes and associated barrier issues have been reduced. A new fish ladder was installed on the Felt Lake Diversion Dam (FLDD; PAD\_ID 705761) in 2009 or 2010 because the prior ladder was too steep; the weirs under Highway 280 (PAD\_ID 705760) were modified (notched and downstream jump depth boxes) to allow passage; the Webb Ranch Weir (PAD\_ID 705755) has deteriorated to allow for adult and juvenile *O. mykiss* upstream migration; and the Piers Lane Weir (PAD\_ID 705759) is also deteriorating with current conditions reported to all for adult and juvenile upstream migration. Published reports (Leidy et al. 2005, Jones & Stokes 2006, Stoecker 2014) document the historical and recent residence of rainbow trout in Los Trancos Creek, including the project site and reaches upstream, but there is no evidence that there is current migratory access to Los Trancos above the FLDD for Central California Coast steelhead. The Stanford University Habitat Conservation Plan (2013) refers to "large numbers of parr" in Los Trancos Creek, apparently downstream of the dam. The FLDD, despite the new fish ladder, may still be a substantial barrier to fish passage, and it is uncertain that Central California Coast steelhead use Los Trancos Creek above the project site.

Other fishes, particularly California roach (several dozen), were present in the stream near the project site, but *O. mykiss* was not observed during the July site visit. However, habitat at the project site and upstream to Astraderos Road crossing appeared to be in good condition. While the presence (current or seasonal) of Central California Coast steelhead upstream of the FLDD is uncertain, the potential for steelhead to occur in Los Trancos Creek within the study area cannot be ruled out.

If steelhead are present, project construction may result in the injury or mortality of individual steelhead as a result of stranding during dewatering activities or crushing by equipment. In addition, individual steelhead might be killed or injured while being handled (e.g., during relocation). Implementation of the mitigation measures described below will minimize the potential impact on steelhead as a result of road repair activities.

**Applicant Proposed Measure 1A. Channel Widening.** Arastradero Road is currently being undercut by Los Trancos Creek. The stream channel at this location is approximately 5 ft wide, which is extremely narrow, and the bank opposite the road is formed by a large gravel bar. Project efforts to armor the bank adjacent to the road are likely to impinge at least partially on the existing stream channel. The County will install sheet piles, if possible, to minimize this effect. In addition, with resource agency approval, gravel and sand from the bar opposite the road will be removed to widen the existing channel and ensure that fish passage is not restricted following the road repair. Eventually, high winter flows will result in the natural reformation of a channel with dimensions that are expected to be suitable for steelhead passage through the project area, but removal of sand and gravel from the point bar immediately following project completion would ensure that passage is maintained until winter flows occur.

**Applicant Proposed Measure 1B. Erosion and Sedimentation Control.** During construction, the County will employ standard construction best management practices (BMPs) to treat and minimize runoff. Construction BMPs will be reviewed and coordinated with the RWQCB, as necessary, for implementation during work and may include but are not limited to the following:

- No litter, debris, or sediment shall be dumped into storm drains. Daily trash and debris removal shall occur at the site.
- Vehicles and equipment may only be driven within established roads and crossings. Routes and boundaries will be clearly marked and will be located outside of driplines of preserved trees.
- Equipment staging and parking of vehicles shall occur on established access roads and flat surfaces.
- No heavy equipment shall operate in the portion of the stream bed where flowing water is present.
- The integrity and effectiveness of construction fencing and erosion control measures shall be inspected on a daily basis. Corrective actions and repairs shall be carried out immediately for fence breaches and ineffective BMPs.
- Fueling, washing, and maintenance of vehicles will in developed habitat, away from the riparian habitat and stream channel. Equipment shall be regularly maintained to avoid fluid leaks. Any leaks will be captured in containers until equipment is moved to a repair location. Hazardous materials will be stored only within



the developed habitat. Containment and cleanup plans will be prepared and put in place for immediate cleanup of fluid or hazardous materials spills.

- At no time shall sediment-laden water be allowed to enter the stream channel.
- Prior to re-watering the site, all concrete installed during the course of project activities shall be allowed to fully dry and cure to maintain water quality and reduce the possibility of project failure.
- All litter and construction debris will be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area will be placed in containers with secure lids before the end of work each day in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. If containers meeting these criteria are not available, all rubbish will be removed from the project site at the end of each work day.
- Absorbent materials designated for spill containment and clean-up activities shall be available on site for use in an accidental spill.

**Applicant Proposed Measure 1C. Worker Environmental Awareness Program.** Before any construction activities begin, a qualified biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California Central Coast steelhead, California red-legged frog, and western pond turtle, their habitat, the importance of the species, the general measures that are being implemented to conserve them as they relate to the project, and the boundaries within which the project may be accomplished.

**Applicant Proposed Measure 1D. Fish Screens.** Prior to construction, temporary fish exclusion screens or block nets will be installed upstream and downstream of the project site to keep fish from entering the project site during work activities.

**Applicant Proposed Measure 1E. Dewatering.** Following construction of the temporary cofferdam, water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

**Applicant Proposed Measure 1F. Biological Monitoring and Fish Relocation.** Data to quantify precisely the number of steelhead that would be relocated prior to construction are not available. However, few steelhead (if any) are expected to be present on the project site prior to dewatering. Nevertheless, before and during dewatering of the construction site, steelhead and other native fish will be captured and relocated away from the work area by a qualified biologist. Fish will be captured by seine, dip net, and/or electrofisher, and then transported and released to suitable in stream locations outside of the work area. All captured fish will be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream, and fish will not be removed from this water except when released. To avoid predation, the biologist will use at least two containers too separate young-of-year fish from larger age-classes and other potential aquatic predators. Captured salmonids will be relocated, as soon as possible, to an instream location

in which suitable habitat conditions are present to allow for adequate survival of transported fish and fish already present.

**Applicant Proposed Measure 1G. Maintenance of Creek Structure.** To maintain creek structure and habitat suitability for salmonids, all sediment with a particle size larger than 1 inch removed from the streambed during the course of construction activities will be retained and returned to the creek upon completion of the project.

### **California Red-legged Frog**

The California red-legged frog was listed as threatened in June 1996 (U.S. Fish and Wildlife Service [USFWS] 1996) based largely on a significant range reduction and continued threats to surviving populations (Miller 1994). Critical habitat was most recently designated in March 2010 (USFWS 2010). No designated critical habitat units are present within the study area.

California red-legged frogs have been recorded along Matadero Creek approximately 1.8 mile northeast of the study area (CNDDDB 2017). They have also historically been known to occur along San Francisquito Creek approximately 1.6 mile northeast of the study area, although this occurrence has likely been extirpated (CNDDDB 2017). No breeding habitat for this species occurs on the project site due to the absence of deep, relatively slow-moving pools with emergent vegetation. However, the study area provides potential foraging and dispersal habitat for this species, and if red-legged frogs are present in ponds or stream reaches in the project vicinity, individual red-legged frogs dispersing or foraging along Los Trancos Creek could potentially occur within the study area.

Construction activities associated with the proposed project could result in direct impacts on individual California red-legged frogs due to injury or mortality as a result of vehicle traffic, equipment use, and worker foot traffic. Individuals may be crushed in their refugia by the passage of heavy equipment or trapped and suffocated. In addition, red-legged frogs could be adversely affected by the spill of hazardous materials and degradation of water quality resulting from unregulated discharge of contaminants or sediment in aquatic habitats during construction. Implementation of Mitigation Measures 1B and 1C above as well as the following measures will reduce project impacts on California red-legged frogs.

**Applicant Proposed Measure 2A: Pump Intake Screens.** During dewatering, pump intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent California red-legged frogs from entering the pump system.

**Applicant Proposed Measure 2B. Determination of Appropriate Relocation Site(s).** Prior to the initiation of any other protective measures, a qualified biologist will determine appropriate relocation sites for any California red-legged frogs that may be observed during the preconstruction survey described below and that need to be relocated.

**Applicant Proposed Measure 2C. Preconstruction Survey.** A qualified biologist shall survey the work site within 48 hours of the initiation of project activities. If California red-legged frogs of any life stage are found, the animals will not be handled and will instead be allowed to leave the site on their own. If needed, the USFWS will be contacted to request permission to relocate the individual.

**Applicant Proposed Measure 2D. Biological Monitoring.** A qualified biologist will remain on-site at all times as a biological monitor during project activities. Prior to commencement of construction activities each day, the biologist will survey the site to ensure no California red-legged frogs are present within the work area. The biological monitor will remain within the project site at all times when construction activities are occurring so that each area of work can be observed to avoid take of California red-legged frogs. If an individual of either species is detected, any project activities that could result in harm to the frog will cease until the individual has moved out of the project site on its own, and the USFWS will be contacted immediately. If any individuals are killed or injured during project activities, the USFWS will be contacted within 24 hours.

**Applicant Proposed Measure 2E. Prevention of Entrapment.** To prevent the inadvertent entrapment of California red-legged frogs, all excavated, steep-walled holes or trenches will be covered at the end of each work day with plywood or similar materials. If this is not possible, one or more escape ramps constructed of earth fill or wooden planks will be established in the hole. Before such holes or trenches are filled, they will be thoroughly inspected for any animals. If at any time a red-legged frog is found trapped or injured in these holes, the individual will be relocated to the pre-approved relocation site(s).

**Applicant Proposed Measure 2F. Removal of Nonnative Species.** A qualified biologist shall permanently remove, from within the project area, any individuals of nonnative species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible.

**Applicant Proposed Measure 2G. Trash Removal.** All litter and construction debris will be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area will be placed in containers with secure lids before the end of work each day in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. If containers meeting these criteria are not available, all rubbish will be removed from the project site at the end of each work day.

## **Western Pond Turtle**

The riparian and aquatic habitat within the study area provides suitable breeding, foraging, and dispersal habitat for the western pond turtle, which is a California species of special concern. Proposed project activities might result in the injury or mortality of small numbers of turtles. For example, individual turtles or their eggs might be directly harmed or killed as a result of crushing by construction personnel or equipment or as a result of desiccation or burying. Implementation of Applicant Proposed Measures 1B, 1C, 2C, 2D, and 2E above, implemented for the Central California Coast steelhead and California red-legged frog, will minimize impacts on individuals of this species. During preconstruction surveys and biological monitoring, the qualified biologist will survey for western pond turtles and ensure that project activities do not harm individuals of this species.

In addition, western pond turtles detected during pre-construction surveys and biological monitoring may be relocated in coordination with the California Department of Fish and Wildlife.

## Compliance with Additional Laws and Regulations

Several species of common native birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code may nest in trees and shrubs on the site or immediately adjacent to the site. Construction-related disturbance during the breeding season (i.e., February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. The following measures should be implemented to ensure that project activities do not violate the MBTA and the California Fish and Game Code:

**Applicant Proposed Measure 3A. Avoidance of the Nesting Season.** To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all potential construction impacts on nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in the South San Francisco Bay Area extends from February 1 through August 31.

**Applicant Proposed Measure 3B. Preconstruction Surveys.** If it is not possible to schedule construction activities between September 1 and January 31, then preconstruction surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. We recommend that these surveys be conducted no more than seven days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 300 ft for raptors and 100 ft for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project implementation.

## References

---

- California Department of Fish and Wildlife. 2017. Fish Passage Assessment Database. <<https://map.dfg.ca.gov/bios/?al=ds69>>. Accessed July 2017.
- [CNDDDB] California Natural Diversity Database. 2017. Rarefind 5.0. California Department of Fish and Wildlife. <<http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>>. Accessed August 2017.
- Google. 2017. Google Earth Pro (Version 7.1.5.1557) [Software]. Available from earth.google.com.
- Jones & Stokes. 2006. Lower San Francisquito Creek Watershed Aquatic Habitat Assessment and Limiting Factors Analysis. San Jose, California.
- Leidy, R. A., G. S. Becker, and B. N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco estuary, California. Center for Ecosystem Management and Restoration, Oakland, California.
- Miller, K. J. 1994. Endangered and threatened wildlife and plants; Proposed endangered status for the California red-legged frog. Federal Register 59:4888-4895.
- National Marine Fisheries Service. 2005. Endangered and threatened species: Designation of critical habitat for seven evolutionarily significant units of Pacific steelhead and salmon in California. Final rule. Federal Register 70:52488-52626.
- [NRCS] Natural Resources Conservation Service. 2017. Web Soil Survey: Custom Soil Resource Report for the Los Altos Area, California. U.S. Department of Agriculture. <<http://websoilsurvey.nrcs.usda.gov>>. Accessed July 2017.
- PRISM Climate Group. 2017. Online PRISM Data Explorer. Oregon State University, Corvallis. <<http://www.prism.oregonstate.edu/explorer/>>. Accessed July 2017.
- Sawyer, J.O, T. Keeler-Wolfe, and J. Evens. 2009. A Manual of California Vegetation. California Department of Fish and Game.
- Stanford University. 2013. Stanford University Habitat Conservation Plan. <http://hcp.stanford.edu/documents.html>. Accessed July 24, 2017.
- Stoecker, M. 2014. Habitat Quality, Rainbow Trout Occurrence, and Steelhead Recovery Potential Upstream of Searsville Dam.



[USFWS] U.S. Fish and Wildlife Service. 1996. Endangered and threatened wildlife and plants: Determination of threatened status for the California red-legged frog. Federal Register 61:25813-25833.

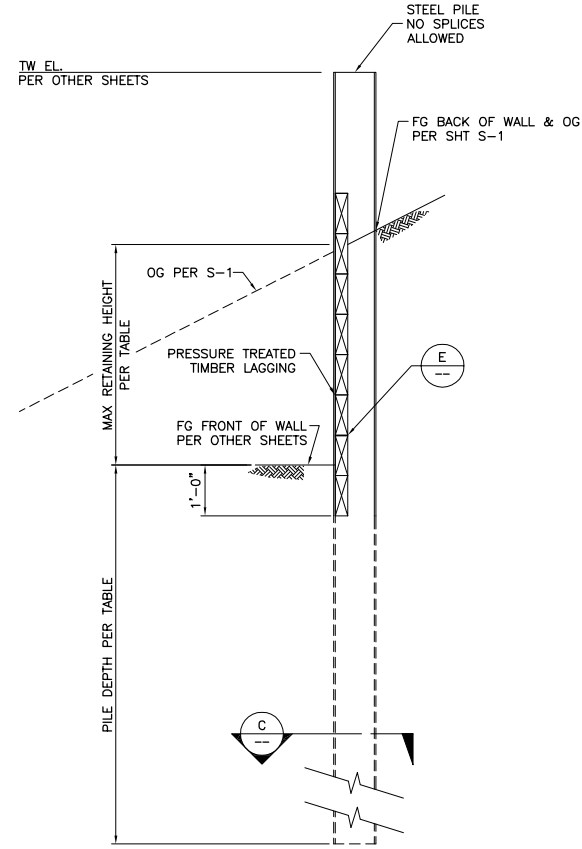
[USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants: Revised designation of critical habitat for California red-legged frog; Final rule. Federal Register 75:12816-12959.

# Appendix A. Design Examples

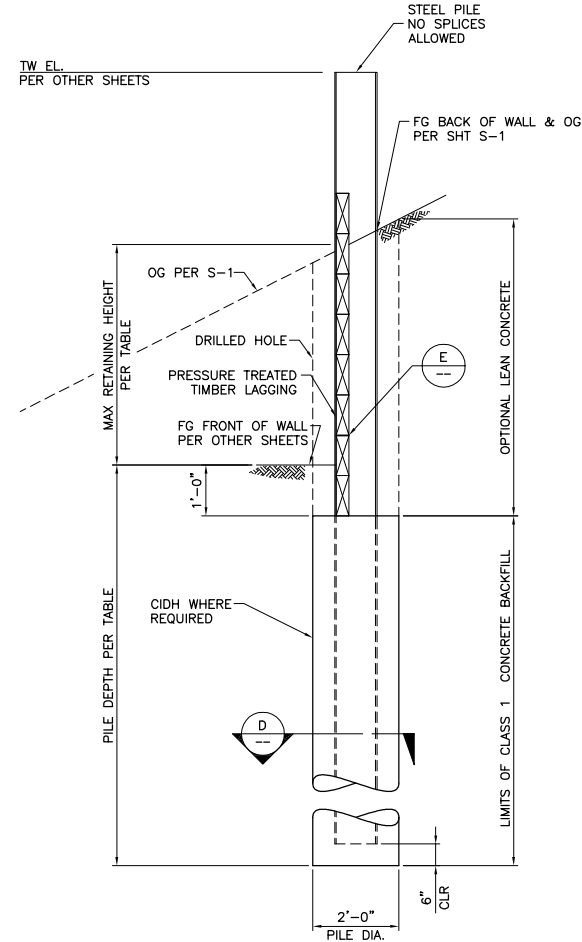
---

**GENERAL NOTES**

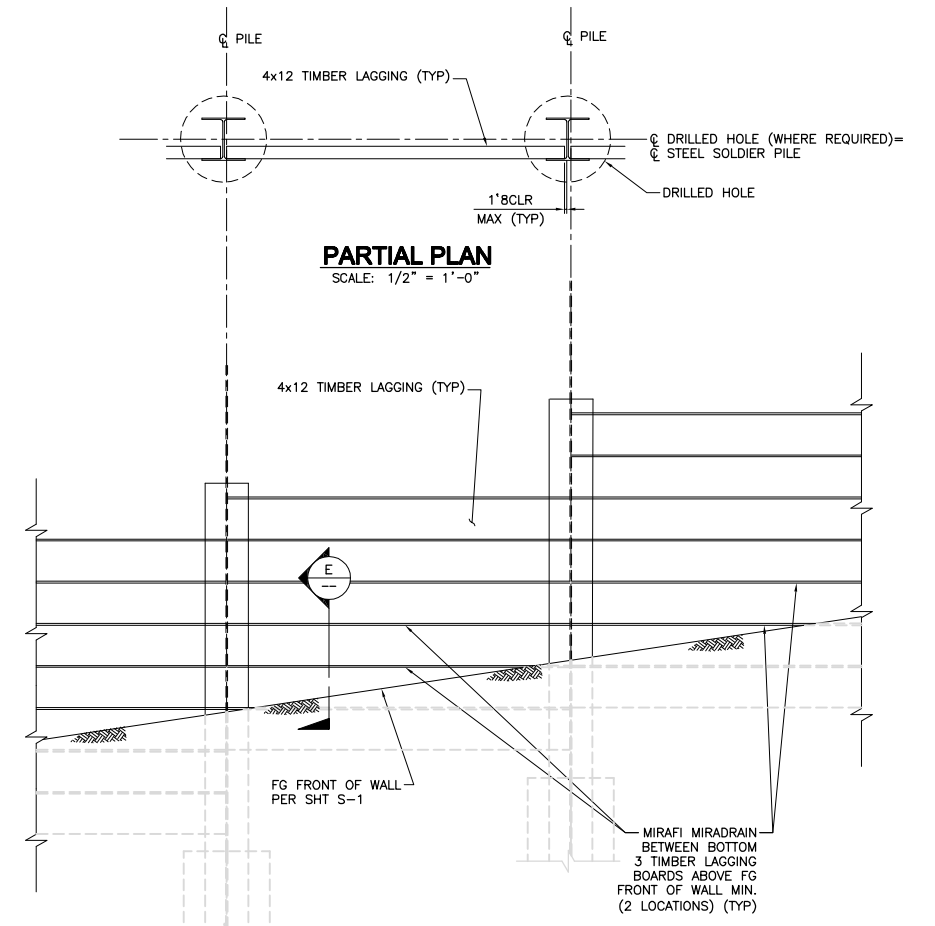
- SPECIFICATION: CALTRANS STANDARD SPECIFICATIONS (MAY 2010 EDITION)
- CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS AND SITE CONDITIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE GEOTECHNICAL REPORT AND BORING LOGS PERTAINING TO THE NATURE OF THE SOILS THAT MAY BE ENCOUNTERED DURING THE COURSE OF THE DRILLING OPERATION.
- STEEL SOLDIER PILES SHALL BE PLACED IN A DRILLED HOLE AND SHALL BE PLUMBED AND ALIGNED BEFORE PLACING CONCRETE BACKFILL. ALIGNMENT SHALL BE MAINTAINED WHILE PLACING BACKFILL MATERIAL IN THE DRILLED HOLES.
- PILE SIZES, LOCATIONS, SPACING AND ELEVATIONS SHALL BE PER PLANS. ANY CHANGE IN PILE LOCATION SHALL BE APPROVED BY THE ENGINEER. CONTRACTOR SHALL STRICTLY ADHERE TO THE LOCATION AND PLUMBNESS OF THE HOLE.
- HOLES SHALL BE DRILLED AND FILLED ALTERNATELY WITH THE CONCRETE PERMITTED TO SET AT LEAST 8 HOURS BEFORE DRILLING ANY ADJACENT HOLES.
- BEFORE PERFORMING ANY PILE INSTALLATION OPERATION CLOSE TO ANY AREA OPEN TO PUBLIC TRAFFIC OR PUBLIC USE, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A PLAN OF THE MEASURES THAT WILL BE EMPLOYED TO PROVIDE FOR THE SAFETY OF THE PUBLIC.
- CARE SHALL BE TAKEN DURING EXCAVATION TO PREVENT DISTURBING THE FOUNDATION MATERIAL SURROUNDING THE PILE. EQUIPMENT, MATERIALS OR METHODS USED FOR EXCAVATING HOLES SHALL NOT CAUSE QUICK SOIL CONDITIONS OR CAUSE SCOURING OR CAVING OF THE HOLE. AFTER EXCAVATION HAS BEGUN, THE PILE SHALL BE CONSTRUCTED IN A CONTINUOUS AND EXPEDITIOUS MANNER IN ORDER TO PREVENT DETERIORATION OF THE SURROUNDING FOUNDATION MATERIAL FROM AIR SLAKING OF FROM THE PRESENCE OF WATER. AT THE END OF EACH WORKING DAY DRILLED HOLES NOT YET BACKFILLED WITH CONCRETE SHALL BE CLOSED SECURELY SUCH THAT THE CLOSURE CANNOT BE OPENED BY HAND.
- HEAVY DUTY COMPACTION EQUIPMENT SHALL BE KEPT 3 FEET MINIMUM FROM SOLDIER PILES AT ALL TIMES. AREA CLOSER THAN 3 FEET TO PILES SHALL BE COMPACTED BY LIGHTWEIGHT HAND-HELD EQUIPMENT.
- STRUCTURAL TIMBER SHALL BE PRESSURE TREATED DOUGLAS FIR, GRADE NO. 1. TIMBER SHALL BE FULL SAWN.
- STRUCTURAL STEEL SHALL HAVE  $f_y = 50\text{ksi}$ .
- CONCRETE DESIGN STRENGTH  $f'_c = 3600\text{psi}$ .



**SECTION A**  
SCALE: 1/2" = 1'-0"



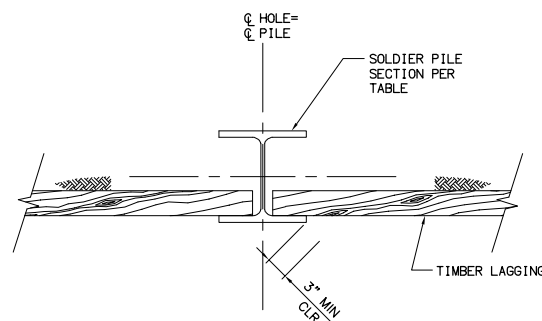
**SECTION B**  
SCALE: 1/2" = 1'-0"



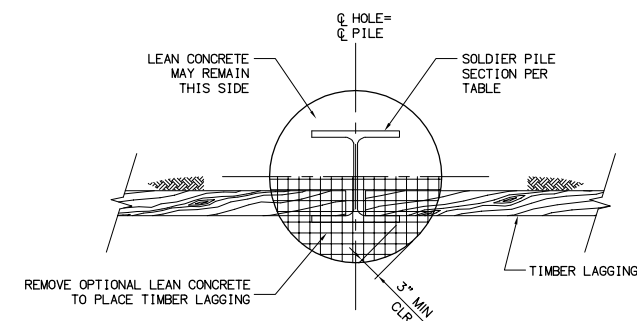
**PARTIAL ELEVATION**  
SCALE: 1/2" = 1'-0"

**CONSTRUCTION SEQUENCE**

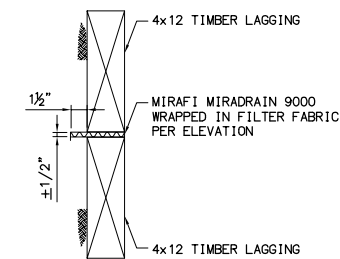
- DRILL HOLE OF THE REQUIRED SIZE AND DEPTH.
- PLACE STEEL SOLDIER PILE IN DRILLED HOLE. PLUMB AND ALIGN STEEL PILE.
- PLACE LEAN CONCRETE BACKFILL ABOVE THE BASE OF THE WALL. MAINTAIN PILE ALIGNMENT WHILE PLACING CONCRETE BACKFILL MATERIAL.
- REMOVE LEAN CONCRETE TO BACK OF TIMBER LAGGING.
- CLEAN AND PAINT SOLDIER PILING.
- INSTALL TIMBER LAGGING WITH MIRAFI MIRADRAIN 9000 BETWEEN EACH LAGGING MEMBER PER SECTION C HEREON.
- BACKFILL IN AREAS BEHIND THE WALL.



**SECTION C**  
SCALE: 1" = 1'-0"



**SECTION D**  
SCALE: 1" = 1'-0"



**SECTION E**  
SCALE: 1 1/2" = 1'-0"

| PILE TABLE          |              |                         |            |                      |
|---------------------|--------------|-------------------------|------------|----------------------|
| MAX RETAINED HEIGHT | WALL SECTION | SOIL FRICTION ANGLE (φ) | PILE DEPTH | SOLDIER PILE SECTION |
| 2'-0"               | A            | 32°                     | 3'-0"      | HP 8 x 36            |
| 3'-0"               | A            | 32°                     | 5'-0"      | HP 8 x 36            |
| 4'-0"               | A            | 32°                     | 6'-0"      | HP 8 x 36            |
| 5'-0"               | A            | 32°                     | 8'-0"      | HP 10 x 42           |
| 6'-0"               | A            | 32°                     | 10'-0"     | HP 10 x 57           |
| 8'-0"               | B            | 32°                     | 12'-0"     | HP 12 x 63           |
| 10'-0"              | B            | 32°                     | 14'-0"     | HP 14 x 73           |
| 2'-0"               | A            | 34°                     | 3'-0"      | HP 8 x 36            |
| 3'-0"               | A            | 34°                     | 5'-0"      | HP 8 x 36            |
| 4'-0"               | A            | 34°                     | 6'-0"      | HP 8 x 36            |
| 5'-0"               | A            | 34°                     | 8'-0"      | HP 10 x 42           |
| 6'-0"               | A            | 34°                     | 10'-0"     | HP 10 x 57           |
| 8'-0"               | B            | 34°                     | 12'-0"     | HP 12 x 63           |
| 10'-0"              | B            | 34°                     | 14'-0"     | HP 14 x 73           |
| 2'-0"               | A            | 36°                     | 3'-0"      | HP 8 x 36            |
| 3'-0"               | A            | 36°                     | 5'-0"      | HP 8 x 36            |
| 4'-0"               | A            | 36°                     | 6'-0"      | HP 8 x 36            |
| 5'-0"               | A            | 36°                     | 8'-0"      | HP 10 x 42           |
| 6'-0"               | A            | 36°                     | 10'-0"     | HP 10 x 57           |
| 8'-0"               | B            | 36°                     | 12'-0"     | HP 12 x 63           |
| 10'-0"              | B            | 36°                     | 14'-0"     | HP 14 x 73           |

**★ PRELIMINARY ★**  
**SUBJECT TO REVISION**

S-1

| REVISIONS |          |             |       |
|-----------|----------|-------------|-------|
| DATE      | INITIALS | DESCRIPTION | APP'D |
|           |          |             |       |
|           |          |             |       |
|           |          |             |       |
|           |          |             |       |

| REFERENCES |
|------------|
|            |
|            |
|            |



SEE SHEET 1 FOR APPROVALS

RECOMMENDED BY:  
**RBF CONSULTING**  
 CHAD W. HARDEN, S.E.  
 3/11/2015 DATE  
 14726 ALTON PARKWAY  
 IRVINE, CALIFORNIA 92618-9227  
 949.472.2000 • FAX 949.472.8573 • www.RBF.com

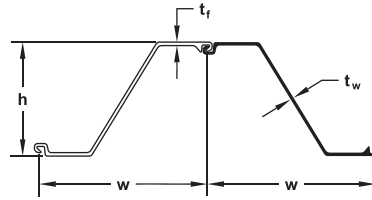
**CITY OF LAGUNA BEACH**  
 PUBLIC WORKS DEPARTMENT  
 CAPITAL IMPROVEMENT PROJECT NO. 0XX  
 CITY STANDARD PLANS  
 STANDARD PLAN  
 SOLDIER PILE WALL

SHEET  
**01**  
 OF  
**01**  
 C.I.P. NO. 0XX

H:\B0424\1358999\00ADD\3876RUC\VD\143105999-91-21-28-5866\W03\_06\B0424\1357107\15-stdr24.rvt

C.I.P. 0XX - CITY STANDARD PLANS

AZ Hot Rolled Steel Sheet Pile



| SECTION      | Width (w)<br>in<br>(mm) | Height (h)<br>in<br>(mm) | THICKNESS                              |                                     | Cross Sectional Area<br>in <sup>2</sup> /ft<br>(cm <sup>2</sup> /m) | WEIGHT                  |  | SECTION MODULUS  |  | Moment of Inertia<br>in <sup>4</sup> /ft<br>(cm <sup>4</sup> /m) | COATING AREA   |   |
|--------------|-------------------------|--------------------------|--|-------------------------------------|---|-------------------------|--|--|--|--|--|---|
|              |                         |                          | Flange (t <sub>f</sub> )<br>in<br>(mm) | Web (t <sub>w</sub> )<br>in<br>(mm) |   | Pile<br>lb/ft<br>(kg/m) | Wall<br>lb/ft <sup>2</sup><br>(kg/m <sup>2</sup> ) | Elastic<br>in <sup>3</sup> /ft<br>(cm <sup>3</sup> /m) | Plastic<br>in <sup>3</sup> /ft<br>(cm <sup>3</sup> /m) |  | Both Sides<br>ft <sup>2</sup> /ft of single<br>(m <sup>2</sup> /m) | Wall Surface<br>ft <sup>2</sup> /ft <sup>2</sup><br>(m <sup>2</sup> /m <sup>2</sup> ) |
| AZ 12-770    | 30.31<br>770            | 13.52<br>344             | 0.335<br>8.5                           | 0.335<br>8.5                        | 5.67<br>120.1   | 48.78<br>72.6           | 19.31<br>94.3                                      | 23.2<br>1245   | 27.5<br>1480   | 156.9<br>21430   | 6.07<br>1.85   | 1.20<br>1.20  |
| AZ 13-770    | 30.31<br>770            | 13.54<br>344             | 0.354<br>9.0                           | 0.354<br>9.0                        | 5.94<br>125.8   | 51.14<br>76.1           | 20.24<br>98.8                                      | 24.2<br>1300   | 28.8<br>1546   | 163.7<br>22360   | 6.07<br>1.85   | 1.20<br>1.20  |
| ◆ AZ 14-770  | 30.31<br>770            | 13.56<br>345             | 0.375<br>9.5                           | 0.375<br>9.5                        | 6.21<br>131.5   | 53.42<br>79.5           | 21.14<br>103.2                                     | 25.2<br>1355   | 30.0<br>1611   | 170.6<br>23300   | 6.07<br>1.85   | 1.20<br>1.20  |
| AZ 17-700    | 27.56<br>700            | 16.52<br>420             | 0.335<br>8.5                           | 0.335<br>8.5                        | 6.28<br>133.0   | 49.12<br>73.1           | 21.38<br>104.4                                     | 32.2<br>1730   | 37.7<br>2027   | 265.3<br>36230   | 6.10<br>1.86   | 1.33<br>1.33  |
| AZ 18-700    | 27.56<br>700            | 16.54<br>420             | 0.354<br>9.0                           | 0.354<br>9.0                        | 6.58<br>139.2   | 51.41<br>76.5           | 22.39<br>109.3                                     | 33.5<br>1800   | 39.4<br>2116   | 276.8<br>37800   | 6.10<br>1.86   | 1.33<br>1.33  |
| ◆ AZ 19-700  | 27.56<br>700            | 16.56<br>421             | 0.375<br>9.5                           | 0.375<br>9.5                        | 6.88<br>145.6   | 53.76<br>80.0           | 23.35<br>114.3                                     | 34.8<br>1870   | 41.0<br>2206   | 288.4<br>39380   | 6.10<br>1.86   | 1.33<br>1.33  |
| AZ 20-700    | 27.56<br>700            | 16.57<br>421             | 0.394<br>10.0                          | 0.394<br>10.0                       | 7.18<br>152.0   | 56.11<br>83.5           | 24.43<br>119.3                                     | 36.2<br>1945   | 42.7<br>2296   | 300.0<br>40960   | 6.10<br>1.86   | 1.33<br>1.33  |
| AZ 18-800    | 31.5<br>800             | 17.68<br>449             | 0.335<br>8.5                           | 0.335<br>8.5                        | 6.07<br>128.6   | 54.26<br>80.7           | 20.67<br>100.9                                     | 34.2<br>1840   | 39.7<br>2135   | 302.6<br>41320   | 6.82<br>2.08   | 1.30<br>1.30  |
| AZ 20-800    | 31.5<br>800             | 17.72<br>450             | 0.375<br>9.5                           | 0.375<br>9.5                        | 6.66<br>141.0   | 59.50<br>88.6           | 22.67<br>110.7                                     | 37.2<br>2000   | 43.3<br>45050  | 329.9<br>45050   | 6.82<br>2.08   | 1.30<br>1.30  |
| AZ 22-800    | 31.5<br>800             | 17.76<br>451             | 0.413<br>10.5                          | 0.413<br>10.5                       | 7.25<br>153.5   | 64.77<br>96.4           | 24.68<br>120.5                                     | 40.3<br>2165   | 47.0<br>2525   | 357.3<br>48790   | 6.82<br>2.08   | 1.30<br>1.30  |
| AZ 23-800    | 31.50<br>800            | 18.66<br>474             | 0.453<br>11.5                          | 0.354<br>9.0                        | 7.12<br>150.6   | 63.56<br>94.6           | 24.22<br>118.2                                     | 43.3<br>2330   | 49.9<br>2680   | 404.6<br>55260   | 6.94<br>2.11   | 1.32<br>1.32  |
| AZ 25-800    | 31.50<br>800            | 18.70<br>475             | 0.492<br>12.5                          | 0.394<br>10.0                       | 7.71<br>163.3   | 68.91<br>102.6          | 26.26<br>128.2                                     | 46.5<br>2500   | 53.8<br>2890   | 435.1<br>59410   | 6.94<br>2.11   | 1.32<br>1.32  |
| AZ 27-800    | 31.50<br>800            | 18.74<br>476             | 0.531<br>13.5                          | 0.433<br>11.0                       | 8.31<br>176.0   | 74.26<br>110.5          | 28.29<br>138.1                                     | 49.7<br>2670   | 57.6<br>3100   | 465.5<br>63570   | 6.94<br>2.11   | 1.32<br>1.32  |
| AZ 24-700    | 27.56<br>700            | 18.07<br>459             | 0.441<br>11.2                          | 0.441<br>11.2                       | 8.23<br>174.1   | 64.30<br>95.7           | 28.00<br>136.7                                     | 45.2<br>2430   | 53.5<br>2867   | 408.8<br>55820   | 6.33<br>1.93   | 1.38<br>1.38  |
| ◆ AZ 26-700  | 27.56<br>700            | 18.11<br>460             | 0.480<br>12.2                          | 0.480<br>12.2                       | 8.84<br>187.2   | 69.12<br>102.9          | 30.10<br>146.9                                     | 48.4<br>2600   | 57.1<br>3070   | 437.3<br>59720   | 6.33<br>1.93   | 1.38<br>1.38  |
| AZ 28-700    | 27.56<br>700            | 18.15<br>461             | 0.520<br>13.2                          | 0.520<br>13.2                       | 9.46<br>200.2   | 73.93<br>110.0          | 32.19<br>157.2                                     | 51.3<br>2760   | 60.9<br>3273   | 465.9<br>63620   | 6.33<br>1.93   | 1.38<br>1.38  |
| AZ 28-750    | 29.53<br>750.0          | 20.04<br>509.0           | 0.472<br>12.00                         | 0.394<br>10.00                      | 8.09<br>171.2   | 67.73<br>100.80         | 27.53<br>134.40                                    | 52.3<br>3245   | 60.3<br>3245   | 523.9<br>71540   | 6.93<br>2.11   | 1.41<br>1.41  |
| AZ 30-750    | 29.53<br>750.0          | 20.08<br>510.0           | 0.512<br>13.00                         | 0.433<br>11.00                      | 8.73<br>184.7   | 73.08<br>108.80         | 29.70<br>145.00                                    | 55.9<br>3005   | 64.8<br>3485   | 561.5<br>76670   | 6.93<br>2.11   | 1.41<br>1.41  |
| AZ 32-750    | 29.53<br>750.0          | 20.12<br>511.0           | 0.551<br>14.00                         | 0.472<br>12.00                      | 9.37<br>198.3   | 78.44<br>116.70         | 31.88<br>155.60                                    | 59.5<br>3200   | 69.2<br>3720   | 599.0<br>81800   | 6.93<br>2.11   | 1.41<br>1.41  |
| AZ 36-700N   | 27.56<br>700            | 19.65<br>499             | 0.591<br>15.0                          | 0.441<br>11.2                       | 10.20<br>215.9  | 79.72<br>118.6          | 34.71<br>169.5                                     | 66.8<br>3590   | 76.4<br>4110   | 656.2<br>89610   | 6.73<br>2.05   | 1.47<br>1.47  |
| ◆ AZ 38-700N | 27.56<br>700            | 19.69<br>500             | 0.630<br>16.0                          | 0.480<br>12.2                       | 10.87<br>230.0  | 84.94<br>126.4          | 36.98<br>180.6                                     | 70.6<br>3795   | 81.1<br>4360   | 694.5<br>94840   | 6.73<br>2.05   | 1.47<br>1.47  |
| AZ 40-700N   | 27.56<br>700            | 19.72<br>501             | 0.669<br>17.0                          | 0.520<br>13.2                       | 11.54<br>244.2  | 90.16<br>134.2          | 39.26<br>191.7                                     | 74.3<br>3995   | 85.7<br>4605   | 732.9<br>100080  | 6.73<br>2.05   | 1.47<br>1.47  |
| AZ 42-700N   | 27.56<br>700            | 19.65<br>499             | 0.709<br>18.0                          | 0.551<br>14.0                       | 12.22<br>258.7  | 95.51<br>142.1          | 41.59<br>203.1                                     | 78.2<br>4205   | 90.3<br>4855   | 768.4<br>104930  | 6.75<br>2.06   | 1.47<br>1.47  |
| AZ 44-700N   | 27.56<br>700            | 19.69<br>500             | 0.748<br>19.0                          | 0.591<br>15.0                       | 12.89<br>272.8  | 100.74<br>149.9         | 43.87<br>214.2                                     | 81.9<br>4405   | 95.0<br>5105   | 806.6<br>110150  | 6.75<br>2.06   | 1.47<br>1.47  |
| AZ 46-700N   | 27.56<br>700            | 19.72<br>501             | 0.787<br>20.0                          | 0.630<br>16.0                       | 13.56<br>287.0  | 105.97<br>157.7         | 46.14<br>225.3                                     | 85.7<br>4605   | 99.5<br>5350   | 844.9<br>115370  | 6.75<br>2.06   | 1.47<br>1.47  |
| AZ 46        | 22.83<br>580            | 18.94<br>481             | 0.709<br>18.0                          | 0.551<br>14.0                       | 13.76<br>291.2  | 89.10<br>132.6          | 46.82<br>228.6                                     | 85.5<br>4595   | 98.5<br>5295   | 808.8<br>110450  | 6.20<br>1.89   | 1.63<br>1.63  |
| AZ 48        | 22.83<br>580            | 18.98<br>482             | 0.748<br>19.0                          | 0.591<br>15.0                       | 14.48<br>306.5  | 93.81<br>139.6          | 49.28<br>240.6                                     | 89.3<br>4800   | 103.3<br>5553  | 847.0<br>115670  | 6.20<br>1.89   | 1.63<br>1.63  |
| AZ 50        | 22.83<br>580            | 19.02<br>483             | 0.787<br>20.0                          | 0.630<br>16.0                       | 15.22<br>322.2  | 98.58<br>146.7          | 51.80<br>252.9                                     | 93.3<br>5015   | 108.2<br>5816  | 886.5<br>121060  | 6.20<br>1.89   | 1.63<br>1.63  |
| AZ 48-700    | 27.56<br>700.0          | 19.80<br>503.0           | 0.866<br>22.00                         | 0.591<br>15.00                      | 13.63<br>288.4  | 106.49<br>158.50        | 46.37<br>226.40                                    | 88.4<br>4755   | 102.1<br>5490  | 876.2<br>119650  | 6.70<br>2.04   | 1.46<br>1.46  |
| AZ 50-700    | 27.56<br>700.0          | 19.84<br>504.0           | 0.906<br>23.00                         | 0.630<br>16.00                      | 14.30<br>302.6  | 111.73<br>166.30        | 48.65<br>237.50                                    | 92.2<br>4955   | 106.7<br>5735  | 914.6<br>124890  | 6.70<br>2.04   | 1.46<br>1.46  |
| AZ 52-700    | 27.56<br>700.0          | 19.88<br>505.0           | 0.945<br>24.00                         | 0.669<br>17.00                      | 14.97<br>317.0  | 116.97<br>174.10        | 50.93<br>248.70                                    | 95.9<br>5155   | 111.3<br>5985  | 953.0<br>130140  | 6.70<br>2.04   | 1.46<br>1.46  |

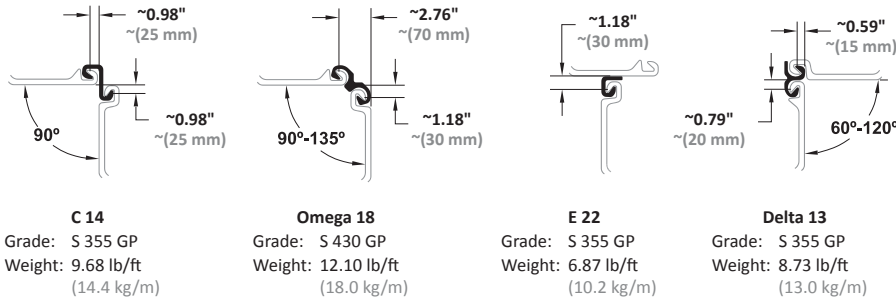
◆ In stock.

AZ Hot Rolled Steel Sheet Pile

| Available Steel Grades |                |       |             |                |       |          |                |       |            |                |       |
|------------------------|----------------|-------|-------------|----------------|-------|----------|----------------|-------|------------|----------------|-------|
| AMERICAN               |                |       | CANADIAN    |                |       | EUROPEAN |                |       | AMLoCor*** |                |       |
| ASTM                   | YIELD STRENGTH |       | CSA G40.21  | YIELD STRENGTH |       | EN 10248 | YIELD STRENGTH |       |            | YIELD STRENGTH |       |
|                        | (ksi)          | (MPa) |             | (ksi)          | (MPa) |          | (ksi)          | (MPa) |            | (ksi)          | (MPa) |
| A 328                  | 39             | 270   | Grade 260 W | 38             | 260   | S 240 GP | 35             | 240   | Blue 320   | 46             | 320   |
| A 572 Gr. 42           | 42             | 290   | Grade 300 W | 43             | 300   | S 270 GP | 39             | 270   | Blue 355   | 51             | 355   |
| A 572 Gr. 50           | 50             | 345   | Grade 350 W | 51             | 355   | S 320 GP | 46             | 320   | Blue 390   | 57             | 390   |
| A 572 Gr. 55           | 55             | 380   | Grade 400 W | 58             | 400   | S 355 GP | 51             | 355   |            |                |       |
| A 572 Gr. 60           | 60             | 415   |             |                |       | S 390 GP | 57             | 390   |            |                |       |
| A 572 Gr. 65           | 65             | 450   |             |                |       | S 430 GP | 62             | 430   |            |                |       |
| A 690                  | 50             | 345   |             |                |       | S 460 AP | 67             | 460   |            |                |       |
| A 690*                 | 57             | 390   |             |                |       |          |                |       |            |                |       |

\*Not available for AZ48/50/52-700. \*\* Corrosion resistant steel, check for availability

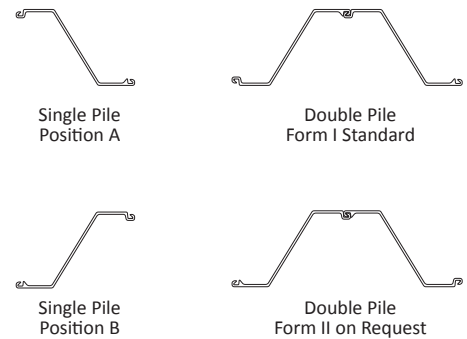
Corner Piles



Delivery Conditions & Tolerances

|                    | ASTM A 6           |            | EN 10248 |          |
|--------------------|--------------------|------------|----------|----------|
| Mass               | ± 2.5%             |            | ± 5%     |          |
| Length             | + 5 inches         | - 0 inches | ± 200 mm |          |
| Height             | ± 7 mm             |            |          |          |
| Thickness          |                    |            | ≤ 8.5 mm | ± 0.5 mm |
|                    |                    |            | > 8.5 mm | ± 6%     |
| Width              | ± 2%               |            |          |          |
| Double Pile Width  | ± 3%               |            |          |          |
| Straightness       | 0.2% of the length |            |          |          |
| Ends out of Square | 2% of the width    |            |          |          |

Delivery Forms



Maximum Rolled Lengths\*

|          |            |          |
|----------|------------|----------|
| AZ       | 101.7 feet | (31.0 m) |
| E 22     | 59.1 feet  | (18.0 m) |
| C 14     | 59.1 feet  | (18.0 m) |
| Delta 13 | 55.8 feet  | (17.0 m) |
| Omega 18 | 52.0 feet  | (16.0 m) |

\* Longer lengths may be possible upon request.

**APPENDIX C**  
**CULTURAL RESOURCES IDENTIFICATION STUDY**

**ARASTRADERO ROAD REPAIR  
PROJECT  
PORTOLA VALLEY,  
SANTA CLARA COUNTY, CALIFORNIA  
CULTURAL RESOURCES IDENTIFICATION STUDY**

---

*Prepared for:*

HERBERT NARAVAL, PE, QSD  
SENIOR CIVIL ENGINEER  
COUNTY OF SANTA CLARA  
ROADS AND AIRPORTS DEPARTMENT

*Prepared by:*

MARGO NAYYAR, MA  
NICHOLE JORDAN DAVIS, MA, RPA

**Michael Baker**

**INTERNATIONAL**

2729 PROSPECT PARK DRIVE, SUITE 220  
RANCHO CORDOVA, CA 95670

**SEPTEMBER 2018**

**TABLE OF CONTENTS**

1.0 Abstract ..... 1

2.0 Project Description ..... 2

    2.1 Undertaking ..... 2

    2.2 Area of Potential Effect/Permit Area ..... 2

3.0 Background ..... 3

    3.1 Environmental Setting ..... 3

    3.2 Prehistoric Background ..... 3

    3.3 Ethnography ..... 3

    3.4 History ..... 4

3.0 Identification Methods and Results ..... 6

    3.1 Records Search ..... 6

    3.2 Literature Review ..... 7

    3.3 Interested Parties Consultation ..... 8

    3.4 Archaeological Field Survey ..... 8

4.0 Summary and Recommendations ..... 9

    4.1 Encountering Archaeological Deposits or Human Remains ..... 9

5.0 Professional Qualifications ..... 10

6.0 References Cited ..... 17

**Appendix A** – Figures

**Appendix B** – Native American Heritage Commission Response

**Appendix C** – Historical Society Consultation



This page intentionally left blank.

**1.0 ABSTRACT**

The County of Santa Clara (County) proposes the Arastradero Road Repair Project, Portola Valley, Santa Clara County, California (project). The project proposes permanent repair of storm damage to an embankment adjacent to Arastradero Road near Los Trancos Creek. Since the project will affect waters of the United States, the County must meet the requirements of Sections 401 and 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act as well as Section 106 of the National Historic Preservation Act (NHPA), which requires that every federal agency account for the effects of its undertakings on historic properties. Since the US Army Corps of Engineers (USACE) is a federal agency and since the project is an “undertaking” as defined by 36 Code of Federal Regulations (CFR) 800.16(y), and the undertaking has the potential to cause effects on historic properties (36 CFR 800.3[a]), it is necessary to identify, evaluate, and mitigate effects to cultural resources within the Area of Potential Effects (APE). This Cultural Resources Identification Study is produced compliant with the March 24, 2014, Sacramento District Regulatory Division USACE Section 106 Standards, sans the requirement for Native American coordination, because, currently, this is not a requirement of the USACE (USACE Section 106 guidelines).

This study consists of background and archival research, a records search, interested parties consultation, a Native American Heritage Commission Sacred Lands File search, and an archaeological field survey. No archaeological resources were identified within the APE.

## 2.0 PROJECT DESCRIPTION

Santa Clara County requests authorization for permanent and temporary impacts on approximately 600 square feet (approximately 0.014 acres) of waters of the United States in Los Trancos Creek, in association with the permanent repair of storm damage to an embankment adjacent to Arastradero Road under Nationwide Permits (NWP) 13 Bank stabilization, 18 Minor discharges, 25 Structural discharges, 27 Aquatic habitat restoration, enhancement, and establishment activities, and 33 Temporary construction, access, and dewatering. The project would include installing a soldier pile retaining wall. This technique would provide a reliable permanent repair while leaving Los Trancos Creek in its current alignment with minimal disturbance laterally from the roadway, avoiding excavating in the creek bed, avoiding relocating the creek, and minimizing the amount of fill. The project would comply with the requirements of the NWPs listed above and the associated General Conditions and all applicable San Francisco District Regional Conditions.

The County previously completed a temporary repair of this damage in October 2017 under Regional General Permit No. 5, Repair and Protection Activities in Emergency Situations. The repair included placement of temporary riprap and several avoidance and minimization measures to protect special-status species.

### 2.1 UNDERTAKING

Since the project will affect waters of the United States, the project proponent must meet the requirements of Sections 401 and 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, and therefore is seeking a permit from the USACE, San Francisco District.

The USACE has been designated the lead and only federal agency for compliance with Section 106 of the NHPA.

### 2.2 AREA OF POTENTIAL EFFECT/PERMIT AREA

Michael Baker International completed a Section 106-compliant cultural resources study of the APE for the project. The APE is coterminous with the USACE permit area and includes the maximum extent of ground disturbance (see **Appendix A: Figures 1 and 2**). The vertical APE for the project—defined as the maximum depth of project activities—measures approximately 20 feet deep for the drilled soldier piles. An indirect APE with viewshed analysis was not established because the project is below road grade and will not be visible to nearby historic properties.

### **3.0 BACKGROUND**

#### **3.1 ENVIRONMENTAL SETTING**

The APE is located in Portola Valley on the north side of Arastradero Road, west bank of Los Trancos Creek, at approximately 375 feet above sea level. Los Trancos Creek is a small tributary flowing northwest into San Francisquito Creek and then San Francisco Bay. Geologic deposits at the surface of the APE include marine sedimentary rock consisting mainly of Paleocene to Oligocene aged mudstone and sandstone. Surface sediments consist of Flaskan sandy clay loam composed of alluvial fan deposits. General age of landforms within the APE date to the pre-Holocene period, which dates to greater than 11,800 years. Generally, pre-Holocene landforms are not likely to contain buried archaeological deposits; however, the APE is located within and adjacent to a natural waterway. Waterways elevate geoarchaeological sensitivity of an area. Because of this, the APE is sensitive for the occurrence of geoarchaeological resources (California Department of Conservation 2018; California Soil Resource Lab 2018; Meyer and Rosenthal 2007: 16–26).

#### **3.2 PREHISTORIC BACKGROUND**

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (1974) and recalibrated by Rosenthal, White, and Sutton (2007) is commonly used to interpret the prehistoric occupation of the APE. The recalibrated sequence is divided into three broad periods: the Paleoindian period (11,550–8550 cal B.C.); the three-staged Archaic period, consisting of the Lower Archaic (8550–5550 cal B.C.), Middle Archaic (5550–550 cal B.C.), and Upper Archaic (550 cal B.C.–cal A.D. 1100); and the Emergent period (cal A.D. 1100–Historic).

The Paleo period began with the first entry of people into California. These people probably subsisted mainly on big game and minimally processed plant foods, and had no trade networks. Current research, however, indicates more sedentism, plant processing, and trading than previously believed. The Archaic period is characterized by increased use of plant foods, elaboration of burial and grave goods, and increasingly complex trade networks. The Emergent period is marked by the introduction of the bow and arrow, the ascendance of wealth-linked social status, and the elaboration and expansion of trade networks, signified in part by the appearance of clam disk bead money (Bennyhoff and Fredrickson 1994; Moratto 1984).

#### **3.3 ETHNOGRAPHY**

Ethnographically, the project area is in Costanoan territory (Levy 1978).

The APE was formerly the territory of the Costanoan within the Ohlone language group. The basic Ohlone social unit was the patrilineal family household. Households grouped together to form villages, and villages combined to form tribelets. There were approximately 40 Ohlone tribelets that traded goods such as obsidian, shell beads, and baskets; participated in ceremonial and religious activities together; intermarried; and maintained extensive reciprocal obligations to one another involving resource collection (Levy 1978:492; Milliken 1995).

For the Ohlone, acorns served as a dietary staple. Acorns were knocked from trees with poles, leached to remove bitter tannins, and eaten as mush or bread. The Ohlone used a range of other plant resources including buckeye, California laurel, elderberries, strawberries, manzanita berries, gooseberries, toyon berries, wild grapes, wild onion, cattail, amole, wild carrots, clover, and an herb called chuchupate. The Ohlone also hunted black-tailed deer, Roosevelt elk, antelope, and marine mammals; smaller mammals such as dog, skunk, raccoon, rabbit, and squirrel; birds, including geese and ducks; and fish such as salmon, sturgeon, and mollusks (Levy 1978:492).

The Ohlone lived in dome-shaped shelters thatched with ferns, tule, grass, and carrizo. The Ohlone also built small sweathouses dug into creek banks and roofed with brush, and circular dance areas enclosed by fences woven from brush or laurel branches. Basket making was generally done by women who crafted cooking and storage containers. Tightly woven baskets, decorated with feathers or shell, were valued exchange items (Levy 1978:492).

Animal bones, teeth, beaks, and claws were used to make awls, pins, knives, and scrapers. Pelts and feathers were used to make clothing and bedding; sinews were used for cordage and bow strings. Feathers, bone, and shells were crafted into ornaments (Levy 1978:492).

By the late eighteenth century, Spanish settlers established the mission system in Northern California. Mission records indicate that the first tribelet arrived at Mission San Francisco in the fall of 1794. Following the secularization of the missions in 1834, many Ohlone worked as manual laborers on ranchos (Milliken 1995:243; Levy 1978:486).

The nearest ethnographic village site to the APE was Puyson (Arroyo de San Francisco) located in the vicinity of Palo Alto (Levy 1978:485).

The nearest known prehistoric village site (P-43-000557/CA-SCL-562) is located approximately 700 feet north of the APE, along Los Trancos Creek. The Northwest Information Center records search, discussed further in Section 4.1, identified several prehistoric sites along Los Trancos Creek and San Francisquito Creek. Los Trancos Creek terminates at San Francisquito Creek approximately 2 miles north of the APE.

### 3.4 HISTORY

Unless otherwise noted, the following context was adapted from the Basin Research Associates, Inc. (2006) *Historic Properties Survey Report/Finding of Effect (Historic Properties Affected) Steelhead Habitat Enhancement Project (SHEP) Stanford University, Santa Clara and San Mateo Counties, California*.

#### 3.4.1 Early American Period and Statehood

Beginning in the eighteenth century, California was a territory of Spain, and later of Mexico. In the mid-1840s, Mexico's interest in developing and strengthening its hold on California decreased as the Mexican government became distracted by political developments in central Mexico. The native-born Spanish speakers of Alta California, known as Californios, long accustomed to governmental neglect, experienced relative peace and enjoyed minimal intrusion into their social, political, and economic affairs (Monroy 1990: 113–116). During this period, the United States aggressively sought access to the Pacific Ocean, resulting in the Mexican-American War.

Following the American victory and ratification of the Treaty of Guadalupe Hidalgo in 1848, California became a United States territory and, on September 9, 1850, formally joined the Union as the thirty-first state. Santa Clara County was one of the original 27 California counties established by the legislature the same year (Coy 1923:294).

The population of the San Francisco Bay region expanded as a result of the Gold Rush (1848), followed later by the construction of the railroad to San Francisco (1864) and the completion of the transcontinental railroad in 1869. Throughout the late nineteenth century, rancho, pueblo, and mission lands were subdivided as the result of population growth and the Anglo-American takeover.

Stock raising predominated between 1847-1876, but declined after the drought of 1863-1864, after which wheat growing became the primary agricultural activity along with dairy farms and orchards in the 1860s-1870s. The arrival of the San Francisco and San Jose Railroad (1863-1864), followed by the development of the refrigerator railroad car (ca. 1880s) had major impacts on Santa Clara County. The need for an expanding market from 1875 onward led to innovations in fruit preservation and shipping including drying fruit, canning fruit, and shipping fresh fruit in refrigerated cars.

Between 1876-1940s, horticulture/fruit production became a major industry and continued until after World War II. This agrarian land use pattern has been gradually displaced by urban and suburban development of recent decades.

The present-day Alpine Road was established by Antonio Buelna in 1839 to connect Rancho San Francisquito with Rancho San Gregorio, located coastside. Felix Buelna built a tavern at the intersection of Alpine and Arastradero Roads in 1852, which was the "undisputed center" of community life. This building, known as Alpine Inn (P-41-000177/CA-SMA-177H), is listed in the National Register of Historic Places (National Register) and California Register of Historical Resources (California Register); is California Landmark #825 and State of California Mexican-American Ethnic Site #11; and on the Historic Sites Master List for San Mateo County (H-77) and Geologic, Scenic, and Historic Points of Interest in San Mateo County, California (#54). Its landmark description notes the building "was strategically located on the earliest trail used by both rancheros and American settlers crossing the peninsula to the coast."

The APE was located within Rancho Corte de Madera, variously translated as "The Place Where Lumber is Cut," "The Lumber Cutting," "The Timber Clearing," or "Timber Choppings." This rancho was initially part of Rancho Cañada del Corte de Madera granted to Jose Domingo Peralta and Maximo Martinez in 1833. Peralta divided his share to Martinez and Cipriano Thurn on May 19, 1834. Rancho Corte de Madera was patented in 1879 to Thurn and Horace W. Carpentier (3,566 acres). The lumber from the rancho was transported to both Mission Santa Clara and the Pueblo of San Jose. A new draying road (arrastradero) in the 1830s crossed Los Trancos Creek at present-day Arastradero Road. Searsville, Coon, and Felt Lakes, all named for owners of nearby property, were located within this rancho.

### **3.4.2 Site-Specific History**

No features are depicted in the APE in historic maps. Alpine and Arastradero Roads are depicted adjacent to the APE by at least 1876. In 1890, Alpine Road was known as the Menlo Park and Santa Cruz Turnpike, and Arastradero Road was known as Searsville Road. The first depiction of Alpine Inn (P-41-000177/CA-SMA-177H), discussed in greater detail in Section 3.4.1, is in 1894. By 1899, a bridge is depicted east of the APE crossing Los Trancos Creek, and two buildings are depicted at the southwest corner of Alpine and Arastradero Roads. (San Jose Board of Trade 1887; Herrmann Bros. 1890; Schmidt Label & Lith. Co. 1894; USGS 1899, 1953, 1961, 1973)

**4.0 IDENTIFICATION METHODS AND RESULTS**

A records search, literature review, interested parties consultation, and an archaeological field survey was conducted to identify cultural resources and previous cultural resources studies within and adjacent to the APE.

**4.1 RECORDS SEARCH**

Michael Baker International staff conducted a records search (#18-0048) of the APE at the Northwest Information Center (NWIC) on July 10, 2018. The records search was conducted with a quarter-mile search radius of the APE. The NWIC, as part of the California Historical Resources Information System, California State University, Sonoma, an affiliate of the California Office of Historic Preservation (OHP), is the official state repository of cultural resource records and reports for Santa Clara County. As part of the records search, the following federal and state of California inventories were reviewed:

- California Inventory of Historic Resources (OHP 1976).
- California Points of Historical Interest (OHP 1992 and updates).
- California Historical Landmarks (OHP 1996).
- Archaeological Determinations of Eligibility (OHP 2012a). The directory includes determinations for eligibility for archaeological resources in Santa Clara County.
- Directory of Properties in the Historic Property Data (HPD) File (OHP 2012b). The directory includes the listings of the National Register, National Historic Landmarks, the California Register, California Historical Landmarks, and California Points of Historical Interest in Santa Clara County.

**Results**

No cultural resources were identified within the APE. Three cultural resources were identified within a quarter-mile radius of the APE and are briefly described below.

| Resource Name/#   | Description      | OHP Status Code   | Distance from APE |
|---|------------------|---|-------------------|
| Alpine Inn/ Casa de Tableta/<br>Buelna’s Roadhouse/<br>Chapete’s Place/ The Wunder<br><br>P-41-000177<br><br>SHL-0825 | 3915 Alpine Road | 1S, 1CL – Listed in National Register and California Register | 300 feet          |
| Los Trancos Site<br><br>P-43-000557/CA-SCL-562  | Prehistoric site | N/A   | 700 feet          |

|                        |                |     |          |
|------------------------|----------------|-----|----------|
| P-43-000577/CA-SCL-582 | Bedrock mortar | N/A | 400 feet |
|------------------------|----------------|-----|----------|

One previous cultural resources study has been completed within the APE. The study is summarized below.

Basin Research Associates, Inc. 2006. *Historic Properties Survey Report/Finding of Effect (Historic Properties Affected) Steelhead Habitat Enhancement Project (SHEP) Stanford University, Santa Clara and San Mateo Counties, California.*

This cultural resources study was completed in compliance with Section 106 of the NHPA and included archival research, literature review, archaeological field survey, Native American consultation, and evaluation of one prehistoric site for eligibility to the National Register. The prehistoric site is not within the APE or within the quarter-mile radius of the APE.

Four studies were identified within the quarter-mile search radius of the APE, as identified below.

| Author                             | Date | Title  |
|------------------------------------|------|--|
| Steven Wilson and Stephen A. Dietz | 1976 | <i>Report of the Archaeological Reconnaissance of the Proposed "The Foothills" Developments, Santa Clara County, California.</i> Archaeological Consulting & Research Services, Inc. |
| Paul Hampson and Gary S. Breschini | 1981 | <i>Preliminary archaeological reconnaissance of a parcel near Arastradero and Alpine Roads, south of Highway 280, Santa Clara County, CA.</i> Archaeological Consulting.             |
| Archaeological Resource Management | 1991 | <i>Cultural Resource Evaluation of AKA Construction Project, County of Santa Clara.</i>  |
| Robert Cartier                     | 2006 | <i>Cultural Resource Evaluation of Property at 18 Arastradero Road in the County of Santa Clara.</i> Archaeological Resource Management.   |

## 4.2 LITERATURE REVIEW

Michael Baker International reviewed publications, maps, and websites for archaeological, ethnographic, historical, and environmental information about the APE and its vicinity and included findings in Section 3.0, Background of this report. Reviewed literature includes:

- Soil Survey (California Soil Resource Lab 2018)
- Map of Santa Clara Co., California (Thompson & West 1876)
- Map of Santa Clara County (San Jose Board of Trade 1887)
- Official Map of the County of Santa Clara, California (Herrmann Bros. 1890)
- Official Map of San Mateo County, California (Schmidt Label & Lith. Co. 1894)



- Palo Alto, Calif. 1:62,500 scale topographic quadrangle (USGS 1899)
- Palo Alto, Calif. 7.5-minute topographic quadrangle (USGS 1953)
- Palo Alto, Calif. 7.5-minute topographic quadrangle (USGS 1961)
- Palo Alto, Calif. 7.5-minute topographic quadrangle (USGS 1961 [photorevised 1973])

### 4.3 INTERESTED PARTIES CONSULTATION

#### 4.3.1 Native American Coordination

*Native American Heritage Commission (NAHC):* On July 12, 2018, Michael Baker International sent the NAHC a letter with maps describing the project and asked the NAHC to review its Sacred Lands File for Native American cultural resources that may be affected by the project. Also requested were the names of Native Americans who might have information or concerns regarding the APE. Frank Liener, Associate Governmental Program Analyst, responded on July 12, 2018, informing Michael Baker International that the Sacred Lands File search provided negative results. Mr. Liener also provided a list of Native American contacts (**Appendix B**).

No Native American coordination has been completed.

#### 4.3.2 Historical Society Consultation

On July 13, 2018, Michael Baker International sent a letter describing the proposed project, with maps depicting the APE, to the Santa Clara County Historical and Genealogical Society. The letter requested any information or concerns regarding historic resources in the APE. No response has been received to date (see **Appendix C**).

### 4.4 ARCHAEOLOGICAL FIELD SURVEY

Michael Baker International conducted an archaeological field survey of the APE on July 10, 2018.

Field methods for identifying potential archaeological resources consisted of an intensive pedestrian survey of the APE. The APE was surveyed using two 2-meter north-south transects. Coverage was 100 percent with 100 percent visibility within Los Trancos Creek and 0 percent along the banks of Los Trancos Creek, which are mostly covered in riprap.

#### Results

No archaeological artifacts, features, materials, or residues were identified in the APE.

## 5.0 SUMMARY AND RECOMMENDATIONS

A field survey, NWIC records search, and interested parties consultation identified no historic properties within the APE. A finding of no effect is appropriate for this undertaking.

Below are standard mitigation measures, which are intended to mitigate adverse effects to archaeological resources and human remains identified during project construction.

### 5.1 ENCOUNTERING ARCHAEOLOGICAL DEPOSITS OR HUMAN REMAINS

In the event that any historic surface or subsurface archaeological features or deposits, including locally darkened soil indicative of an archaeological midden that could conceal cultural deposits, animal bone, shell, obsidian, mortars, or human remains, are uncovered during on-site or off-site construction, all work within 100 feet of the find shall cease and Development Services shall be notified. An archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards shall be contacted to determine if the resource is significant and to determine appropriate mitigation. Any artifacts uncovered shall be recorded and removed to a location to be determined by the archaeologist. The discovery of human remains shall also be reported to the county coroner, in accordance with Section 7050.5 of the California Health and Safety Code, and the NAHC for further investigation. If the remains are determined to be Native American, the NAHC shall inform the most likely descendant and will determine the appropriate disposition of the remains and grave goods.

**6.0 PROFESSIONAL QUALIFICATIONS**

This report was prepared by Michael Baker International cultural resources manager Margo Nayyar. She is an architectural historian with seven years of cultural resources management experience in California. Her experience includes built environment surveys, historic context development, archival research, evaluation of historic-era resources using guidelines outlined in the National, California, and various local registers, preparation of cultural resources technical studies pursuant to the California Environmental Quality Act (CEQA) and Section 106 of the NHPA, municipal preservation planning, and providing Certified Local Government (CLG) training to interested local governments. She also specializes in producing HABS/HAER/HALS (Historic American Buildings Survey, the Historic American Engineering Record, and Historic American Landscapes Survey) heritage documentation. Ms. Nayyar meets the Secretary of the Interior's Professional Qualification Standards for history and architectural history.

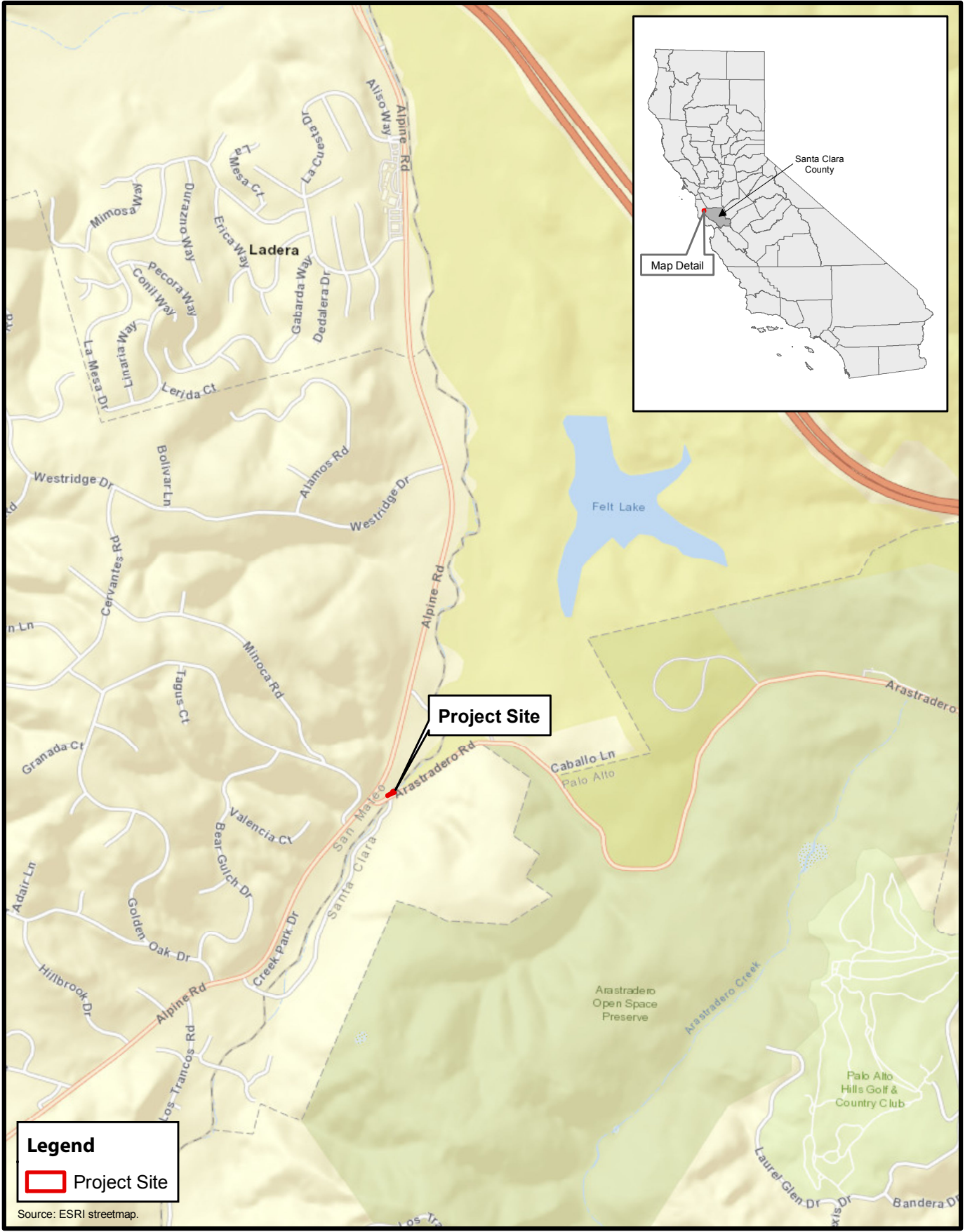
This report was reviewed by senior cultural resources manager Nichole Jordan Davis. She has a BA in anthropology from California State University, Sacramento, and an MA in applied anthropology from California State University, East Bay. She is a registered professional archaeologist (#989208) and a member of the Society for California Archaeology, Society for American Archaeology, Association of Environmental Professionals, and the California Council for the Promotion of History. She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Mrs. Jordan Davis has 15 years of experience in cultural resources management, including project management; personnel management; archival research; laboratory analysis; ethnographic and historical research; field survey; prehistoric and historical excavation; laboratory analysis; collections management; and GIS applications in environmental planning, spatial analysis in archaeological site modeling, and surface analysis in cultural resource management. She has experience in preparation of archaeological research, built environment, and archaeological evaluations for inclusion in the National and California registers, and survey, testing, excavation, and monitoring reports pursuant to the requirements of CEQA, Section 106 of the NHPA, and the National Environmental Policy Act.

### 7.0 REFERENCES CITED

- Archaeological Resource Management. 1991. *Cultural Resource Evaluation of AKA Construction Project, County of Santa Clara*. On file at the Northwest Information Center.
- Basin Research Associates, Inc. 2006. *Historic Properties Survey Report/Finding Of Effect (Historic Properties Affected) Steelhead Habitat Enhancement Project (SHEP) Stanford University, Santa Clara and San Mateo Counties, California*. On file at the Northwest Information Center.
- Bennyhoff, James A., and David A. Fredrickson. 1994. "A Proposed Integrative Taxonomic System for Central California Archaeology." In *Toward a New Taxonomic Framework for Central California Archaeology*, edited by Richard E. Hughes, pp. 15–24. Berkeley: University of California Archaeological Research Facility Contributions No. 51.
- California Department of Conservation. 2018. Geologic Atlas of California – Santa Rosa Sheet. 1:250,000 scale. Electronic resource, <http://www.quake.ca.gov/gmaps/rgm/santarosa/santarosa.html>, accessed multiple.
- California Soil Resource Lab. 2018. Soil Survey. Electronic resource, <http://casoilresource.lawr.ucdavis.edu/>, accessed multiple.
- Cartier, Robert. 2006. *Cultural Resource Evaluation of Property at 18 Arastradero Road in the County of Santa Clara*. Archaeological Resource Management. On file at the Northwest Information Center.
- Coy, Owen C. 1923. *California County Boundaries: A Study of the Division of the State into Counties and Subsequent Changes in their Boundaries*. Sacramento: California State Printing Office.
- Fredrickson, David A. 1974. "Cultural Diversity in Early Central California: A View from the North Coast Ranges." *Journal of California Anthropology* 1 (1): 41–53.
- Hampson, Paul and Gary S. Breschini. 1981. *Preliminary archaeological reconnaissance of a parcel near Arastradero and Alpine Roads, south of Highway 280, Santa Clara County, CA*. Archaeological Consulting. On file at the Northwest Information Center.
- Herrmann Bros. 1890. *Official Map of the County of Santa Clara, California*. Electronic resource, <https://www.loc.gov/resource/g4363s.la000039/?r=0.036,0.118,0.057,0.024,0>, accessed multiple.
- Levy, Richard. 1978. "Eastern Miwok." In *California*, edited by Robert F. Heizer, 398–413. *Handbook of the North American Indians*, vol. 8, William C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.
- Meyer, Jack, and Jeffrey Rosenthal. 2007. *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4*. Davis, CA: Far Western Anthropological Research Group, Inc. Prepared for Caltrans District 4.
- Milliken, Randall. 1995. *A Time of Little Choice: The Disintegrations of the Tribal Culture in the San Francisco Bay Area, 1769–1810*. Ballena Press Anthropological Papers No. 43. Novato, CA: Ballena Press.

- Monroy, Douglas. 1990. *Thrown Among Strangers: The Making of Mexican Culture in Frontier California*. Berkeley: University of California Press.
- Moratto, Michael J. 1984. *California Archaeology*. Orlando, FL: Academic Press.
- OHP (California Office of Historic Preservation). 1976. California Inventory of Historic Resources.
- . 1992. Points of Historical Interest.
- . 1996. California Historical Landmarks.
- . 2012a. Archaeological Determinations of Eligibility.
- . 2012b. Directory of Properties in the Historic Property Data File.
- Rosenthal, Jeffrey, Gregory G. White, and Mark Q. Sutton. 2007. "The Central Valley: A View from the Catbird's Seat." In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar. Plymouth, United Kingdom: AltaMira Press.
- San Jose Board of Trade. 1887. *Map of Santa Clara County*. Electronic resource, <http://digitalcollections.sjlibrary.org/cdm/ref/collection/sjplmaps/id/133>, accessed multiple.
- Schmidt Label & Lith. Co. 1894. *Official Map of San Mateo County, California*. Electronic resource, <https://www.loc.gov/resource/g4363s.la000037/?r=0.656,0.767,0.203,0.084,0>, accessed multiple.
- Thompson & West. 1876. Map of Santa Clara Co., California. Electronic resource, <https://www.davidrumsey.com/luna/servlet/detail/RUMSEY-8-1-21646-660009:Santa-Clara-Co--index-map-?qvq=w4s:/where%2FSanta%2BClara%2BCounty%2B%252528Calif.%252529;q:%3D%22Thompson%20%26%20West%22;lc:RUMSEY-8-1&mi=3&trs=18>, accessed multiple.
- USGS (US Geological Survey). 1899. Palo Alto, Calif. 1:62,500 scale topographic quadrangle.
- . 1953. *Palo Alto, Calif.* 7.5-minute topographic quadrangle.
- . 1961. *Palo Alto, Calif.* 7.5-minute topographic quadrangle.
- . 1973. *Palo Alto, Calif.* 7.5-minute topographic quadrangle. Photorevised.
- Wilson, Steven and Stephen A. Dietz. 1976. *Report of the Archaeological Reconnaissance of the Proposed "The Foothills" Developments, Santa Clara County, California*. Archaeological Consulting & Research Services, Inc. On file at the Northwest Information Center.

**APPENDIX A**  
**FIGURES**



**FIGURE 1**  
Regional Vicinity





**Legend**  
[Red Polygon] Area of Potential Effect

0 50 100  
FEET

**FIGURE 2**  
Area of Potential Effect





**APPENDIX B**  
**NAHC RESPONSE**

**NATIVE AMERICAN HERITAGE COMMISSION**

Environmental and Cultural Department  
1550 Harbor Blvd., ROOM 100  
West SACRAMENTO, CA 95691  
(916) 373-3710  
Fax (916) 373-5471



July 12, 2018

Margo Nayyar

Michael baker International

Sent by Email: margo.nayyar@mbakerintl.com

Re:Arastradero Road Repair, Santa Clara County

Dear Ms. Nayyar,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,



Frank Lienert  
Associate Governmental Program Analyst

**Native American Heritage Commission  
Native American Contacts  
July 12, 2018**

Amah Mutsun Tribal Band  
Valentin Lopez. Chairperson  
P.O. Box 5272  
Galt, CA 95632  
vlopez@amahmutsun.org  
(916) 743-5833

Ohlone/Costanoan  
Northern Valley Yokuts

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

Ohlone/Costanoan

Amah Mutsun Tribal Band of Mission San Juan Bautista  
Irene Zwielerin. Chairperson  
789 Canada Road  
Woodside, CA 94062  
amahmutsuntribal@gmail.com  
(650) 851-7489 Cell  
(650) 851-7747 Office  
(650) 332-1526 Fax

Ohlone/Costanoan

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

Ohlone / Costanoan

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

Ohlone/Costanoan  
Northern Valley Yokuts  
Bay Miwok

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

Ohlone / Costanoan

The Ohlone Indian Tribe  
Andrew Galvan  
P.O. Box 3388  
Fremont, CA 94539  
chochenyo@AOL.com  
(510) 882-0527 Cell  
  
(510) 687-9393 Fax

Ohlone/Costanoan  
Bay Miwok  
Plains Miwok  
Patwin

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 Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed  
**Arastradero Road Repair, Santa Clara County**



**APPENDIX C**  
**HISTORICAL SOCIETY**  
**CONSULTATION**

July 13, 2018

**SANTA CLARA COUNTY HISTORICAL & GENEALOGICAL SOCIETY**

c/o Central Park Library  
2635 Homestead Road  
Santa Clara CA, 95051

**RE: ARASTRADERO ROAD REPAIR PROJECT, PORTOLA VALLEY, SANTA CLARA COUNTY, CALIFORNIA**

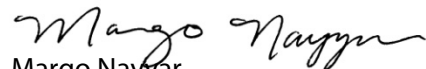
Dear Historical Society:

Michael Baker International is conducting a cultural resources investigation for the above referenced project. The project is located near the intersection of Alpine and Arastradero Roads (see Figures 1 and 2).

The project proposes to repair road damage located along Arastradero Road near Los Trancos Creek. The road damage, dating to the 2016-2017 winter storms, includes embankment erosion and water/gas line exposure.

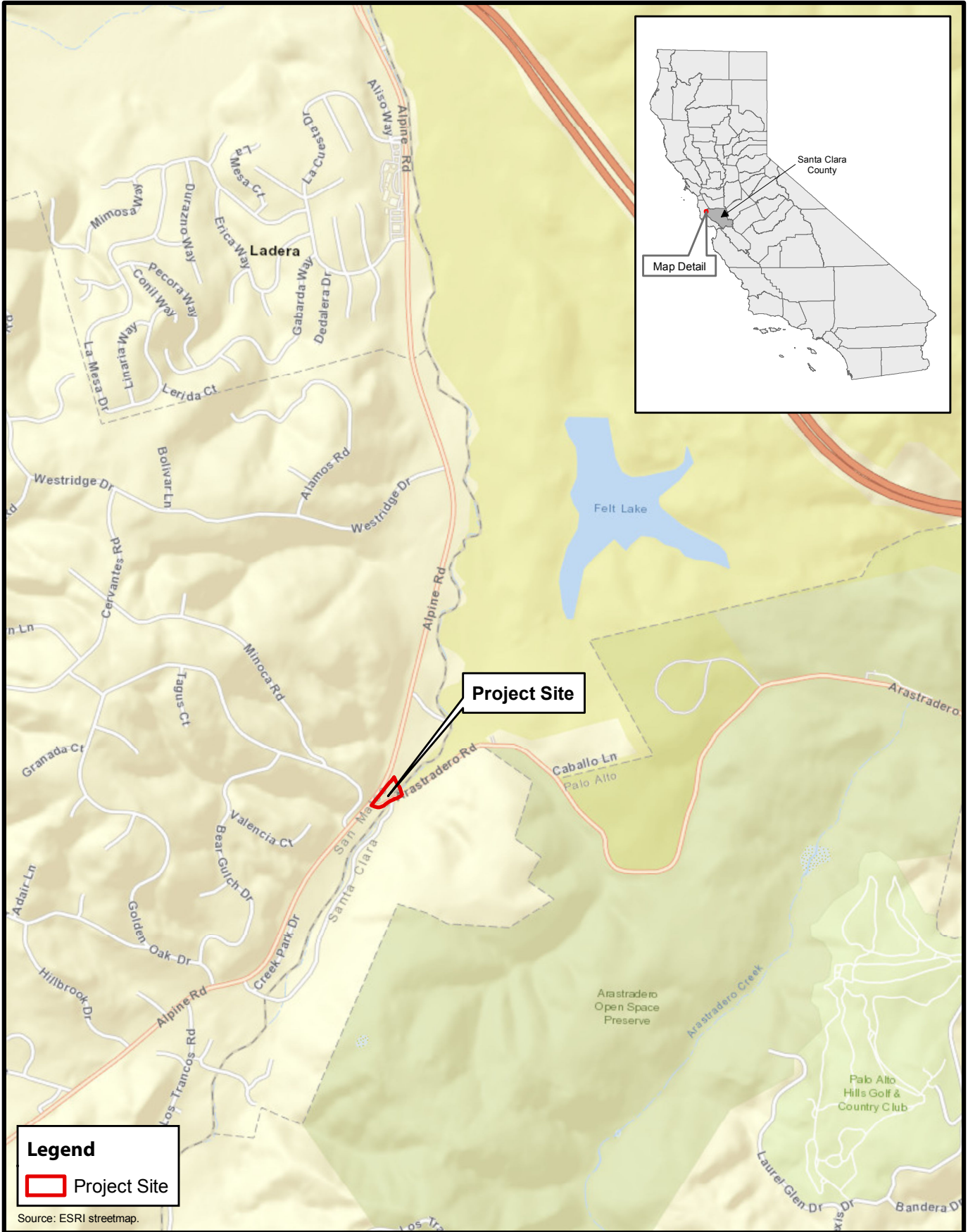
Please notify us if your organization has any information or concerns about historic properties in the area of potential effects. This is not a request for research; it is solely a request for public input related to any concerns that the Historical Society may have. If you have any questions, please contact me at your earliest convenience at [margo.nayyar@mbakerintl.com](mailto:margo.nayyar@mbakerintl.com) or (916) 231-2236.

Sincerely,



Margo Nayyar  
Cultural Resources Manager

Attachments: Figure 1 – Project Location and Vicinity  
Figure 2 – Area of Potential Effects

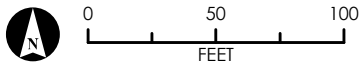


**FIGURE 1**  
Regional Vicinity





Source: Nearmap (2/2018), Santa Clara County, 2018



**FIGURE 2**  
Project Site and APE