INITIAL STUDY

FRONT STREET RESTORATION AND BANK REPAIR PROJECT

TOWN OF DANVILLE
CONTRA COSTA COUNTY, CALIFORNIA

MARCH 2016

PREPARED FOR
TOWN OF DANVILLE
ENGINEERING DEPARTMENT
510 LA GONDA WAY
DANVILLE, CA 94526

PREPARED BY
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CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY
ENVIRONMENTAL CHECKLIST

PROJECT DESCRIPTION

Project Title: Front Street Restoration and Bank Repair Project

Lead Agency Name and Address: Town of Danville
Development Services Department
510 La Gonda Way
Danville, CA 94526

Contact Person and Phone Number: Steven Jones, (925) 314-3339

Project Location: Front Street at San Ramon Creek, just north of Diablo Road (Figure 1)

Project Sponsor: Town of Danville
Development Services Department
510 La Gonda Way
Danville, CA 94526

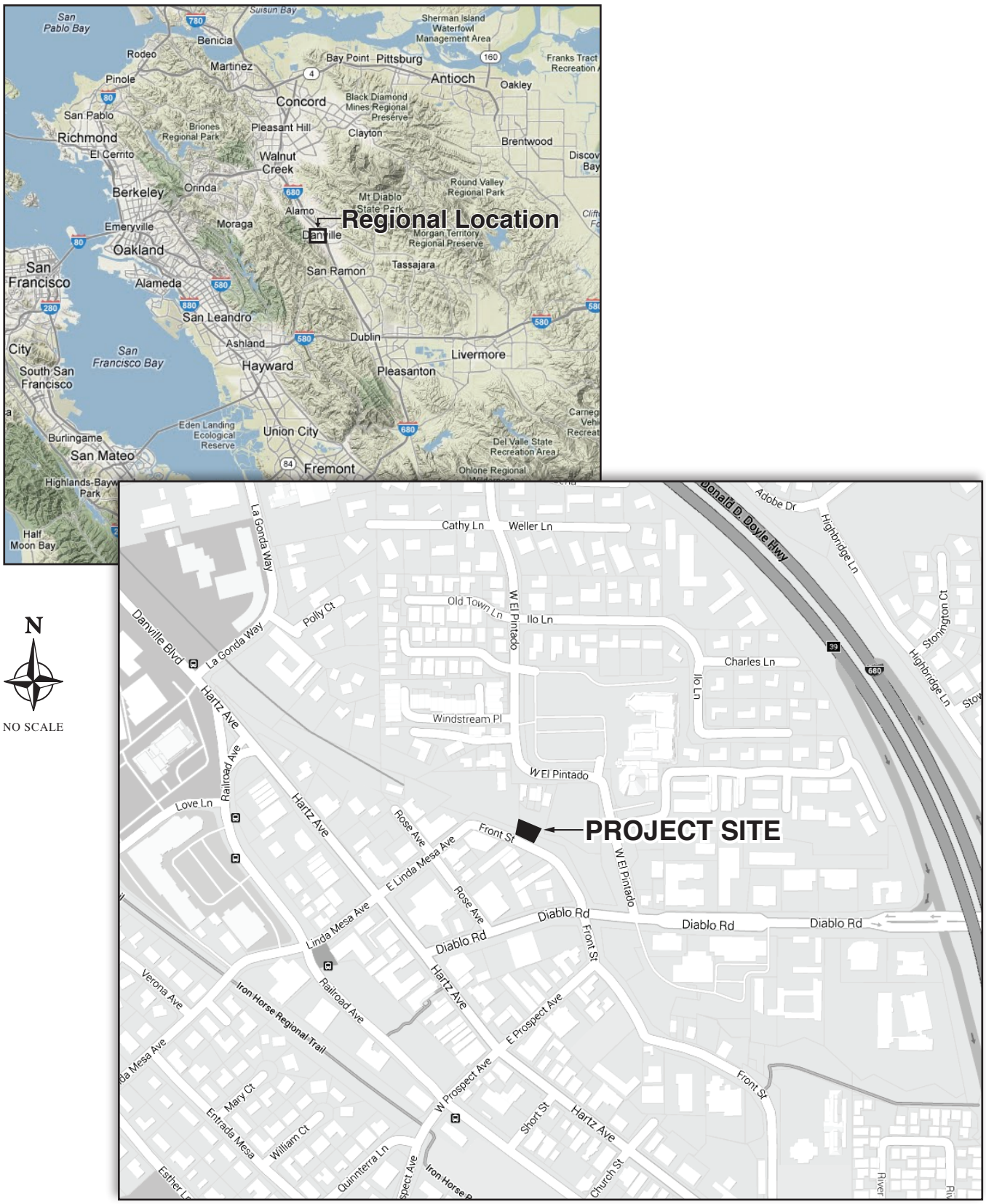
General Plan Designation: The Town of Danville General Plan Land Use Map identifies the Project Site as General Open Space.

Zoning: The Town of Danville Zoning Map indicates that the Project Site is zoned M-12; Multiple Family Residential District

Project Objectives: The proposed project site is located along San Ramon Creek, approximately 350 feet north (downstream) of the Diablo Road Bridge over the creek. The subject site comprises a trapezoidal area that includes 80 feet of frontage along the east side of Front Street, extends approximately 40 feet to the northeast toward the creek channel, and bounds a 130 linear-foot reach of the creek. **Figures 1 and 2** show the regional location of the project site and the affected section of San Ramon Creek, respectively. The estimated total surface area of the recent landslide is approximately 8,000 square feet.

The project site encompasses a section of the creek's southwestern embankment that has been subject to landsliding. According to the Town of Danville, the landslide was triggered following a large storm in December 2014. The landslide movement occurred near a soldier pile wall installation that was constructed in an adjacent area where landsliding occurred along the reach in December 2008. Currently, the landslide does not appear to be undermining Front Street. However, some moderate distress (surface cracks) is noticeable on the existing street pavement located adjacent to the slope failure. Without the repair of the landslide, additional saturation of the creek bank could cause further landsliding, resulting in potential damage to the roadway as well as overhead power lines that are located directly above and parallel to the creek side curb along Front Street.

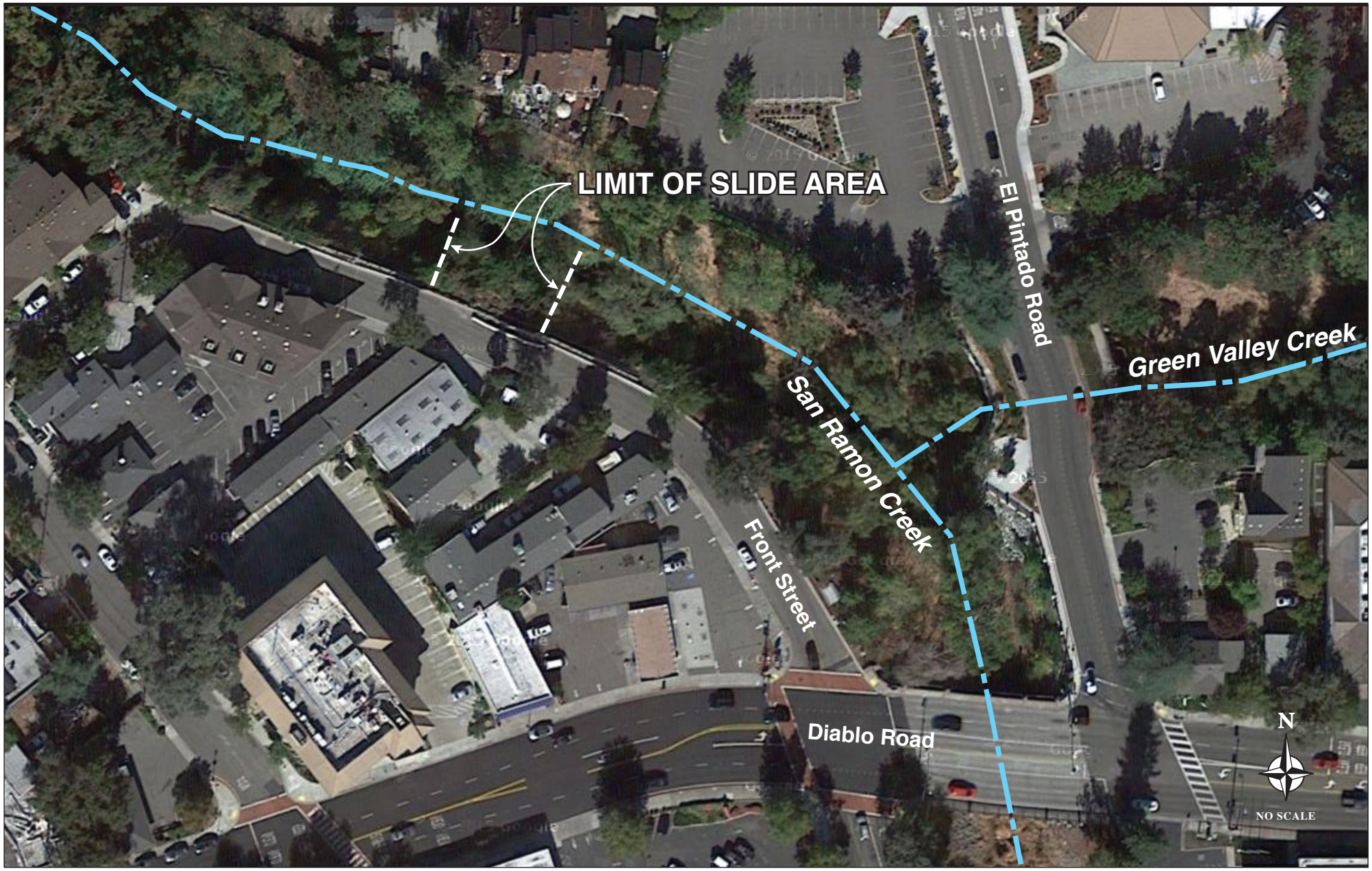
The Front Street Restoration and Bank Stabilization project would improve the slope stability where landsliding has occurred, and improve habitat values in the area by laying back the very steep side slopes in this reach of the creek to an inclination of 2:1 (Horizontal:Vertical). A soldier pile wall with concrete



Source: Geier & Geier Consulting, Inc. (2015)

Aerial Photo of Front Street Restoration and Bank Repair Project

Figure 2



Source: ENGEO, Inc. (2015)

lagging and tie-backs would be built near the top of bank in order to stabilize Front Street. A buried rock veneer would extend along the new bank from the soldier pile wall to below the flowline of the creek as a scour countermeasure; however, rock placement would be setback horizontally from the creek low-flow channel. The planned wall and slope stability improvements would conform to existing repairs which have been completed on either side of the project site, reducing further stream flow impacts in this reach of the creek and the need for future maintenance activities in the project area.

The project would include minor vegetation removal and replanting. Revegetation of the site's repaired slopes would replace existing non-native plant species with native plant species along the reshaped creek bank. This would involve removal of Chinese trees-of-heaven (Ailanthus spp.), black locust (Robinia spp.) trees, and coyote brush (Baccharis spp.) that have established in the reach of creek. Revegetation plans also include the replacement of two oak trees (Quercus spp.) and two bay laurel trees (Umbellularia spp.) at a minimum in conformance with the Town of Danville tree ordinance standards.

The project has the following goals:

- Remove unstable soil material and slope inclinations with high erosion/landslide potential along the reach of creek where the project is proposed.
- Provide biotechnical bank stabilization at the toe of slope, along the creek low-flow channel and appropriate revegetation measures on regarded slopes.
- Install a soldier pile wall along Front St. Road in order to minimize future maintenance needs in the area where creek improvements are proposed.
- Includes a long term operations and maintenance manual component for the project, for use by the Town of Danville after the project is complete.

Project History: In December 2005, a significant winter storm resulted in two similar bank failures on the same creek bank to the north and south of the present failed slopes. Those slides were declared an emergency and their repair received federal assistance through the Federal Emergency Management Agency (FEMA). Repair of those two bank failures was implemented in 2008 and received authorization from federal, state, and local agencies with jurisdiction over these two adjoining areas. Additionally, a revegetation plan was developed, approved, and implemented for the repaired slopes. The repairs and revegetation planting were completed in 2008.

Subsequently, on December 12, 2014, a substantial storm passed through Danville, causing flows within San Ramon Creek to saturate the creek bank between two previously-installed soldier pile retaining walls that support Front Street. The 80 ft. long segment between the two walls subsequently collapsed leaving the area over-steepened and denuded. The bank failure also undermined the guardrail, curb and gutter, and a portion of the pavement on Front Street. The Town installed k-rail barriers above the failure area as an interim measure until a permanent repair is made. As an emergency repair, the void at the primary failure has been covered with plastic sheeting secured in place with sandbags.

The location of the proposed slide repair is situated on privately owned land (APN 200-200-023), which overlaps both sides of the creek. The Town has a right-of-entry agreement with the property owner for purposes of maintaining the channel. The Town is responsible for making the proposed repairs.

Proposed Improvements: The concept for repairing the present bank failure is the same as that undertaken in 2008. The proposed project would consist of three specific components to achieve the required slope repairs (**Figures 3 and 4**). These elements would include the following tasks.

- A soldier pile wall would be constructed on Front Street. Solider piles would be placed in drilled holes filled with concrete along the top-of-slope at the roadway alignment. Concrete lagging would be placed within the soldier piles to form a wall. Geotechnical tie-backs would be installed using auger equipment. The relocation of overhead lines would need to be coordinated with utilities, e.g. PG&E and AT&T.

- As deemed necessary by the project contractor, the creek would be dewatered using cofferdams. Excavation equipment would reform the bank grades. Minor off-haul of soil material is anticipated. A non-woven filter fabric would be placed in areas where rock rip-rap is proposed prior the backfilling with rock. Prior to reintroducing stream flows into the creek, the contractor would verify that all deleterious construction materials would be removed from the creek. One lane of Front Street would be closed during construction of the first two phases.

- After water is re-introduced to the creek, willow poles would be planted to minimize the impact of the rock veneer of the grade control structure along the channel and banks of the creek.

The slide area would be excavated and loose rock riprap placed on top of geo-textile fabric. The repaired slope would be backfilled to reduce the slope to 2:1 (horizontal:vertical) to prevent further bank failure. The soldier pile and lagging wall would be installed Front Street across the top of the slide to a depth of approximately 10 ft. below the street grade at the site of the slide. The soldier pile and lagging wall would connect to the existing wall to the south and would be extended to the north, connecting with the other existing wall. This section of wall would pass through a natural section of creek bank at risk of future failure. The total length of the proposed new lagging wall is 88 ft. The wall construction and slope repair would involve the placement of 200 cubic yards (CY) of rock rip-rap over 90 lineal feet in a 4,751 s.f. area below Front Street. The buried rock would be covered with compacted soil, entailing approximately 800 CY of earthwork.

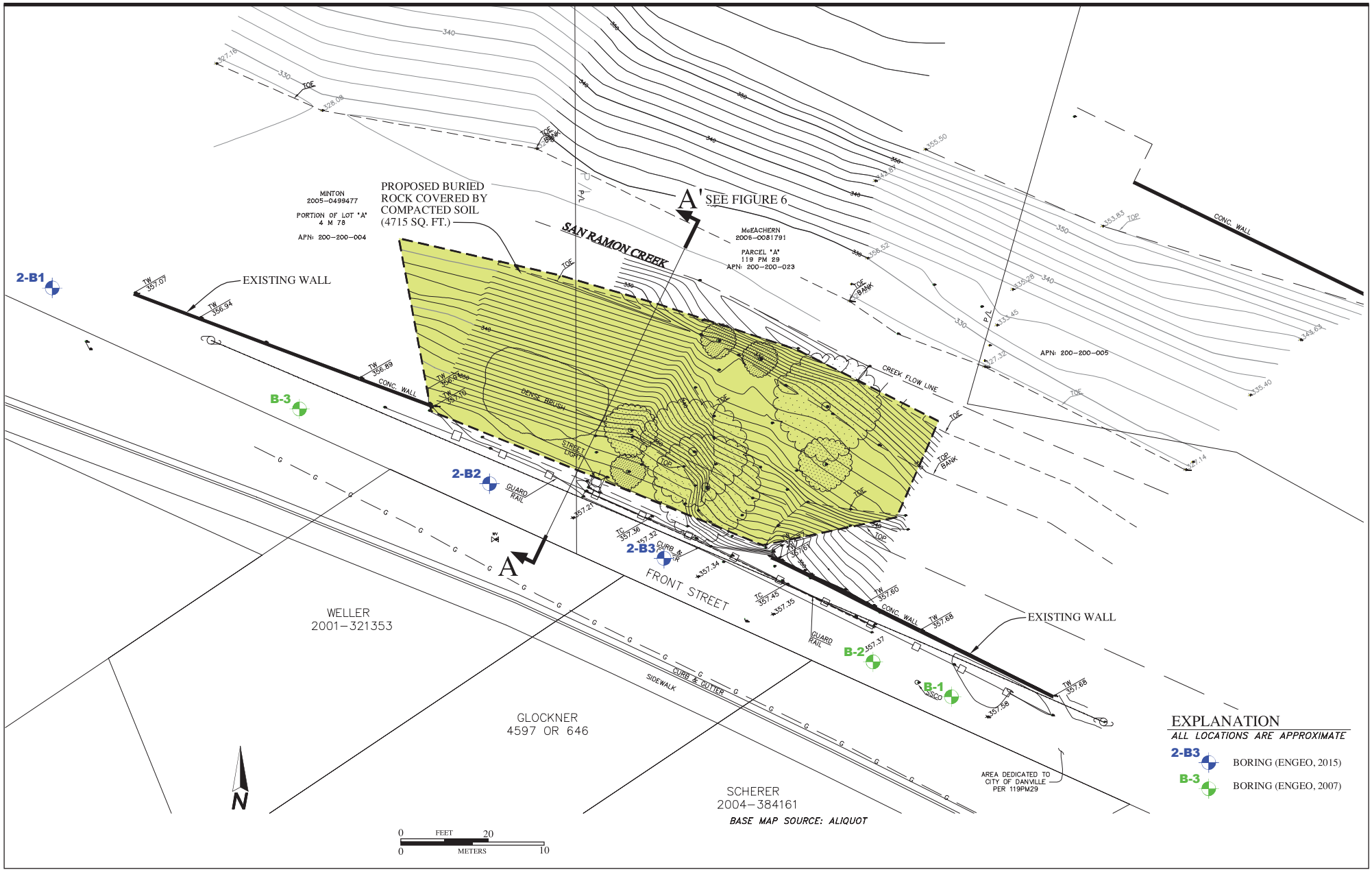
Following construction, erosion bio-engineering techniques would be implemented by planting native riparian species in the backfilled area of the regarded slopes. A separate revegetation plan requires the installation of native, locally indigenous riparian plant species and seeding with an appropriate seed mix.

As currently proposed, project implementation would not result in direct impacts below the Ordinary High Water Mark (OHWM) of the creek; however, temporary dewatering may be necessary to facilitate equipment access and construction. Temporary dewatering would be achieved by the installation of cofferdams upstream and downstream of the work area; by-pass piping would preserve stream flows. The cofferdam would be removed when the project is completed and bank slopes restored.

Project plans indicate that the project would require two months of construction for completion, with construction scheduled for September-October 2016. Revegetation of the creek bank would be performed after the rainy season begins. The project would use Front Street to stage materials and equipment. Mechanical equipment is not anticipated to be staged below the top-of-bank, except if dewatering of the creek is performed.

Front Street Conceptual Repair Plan

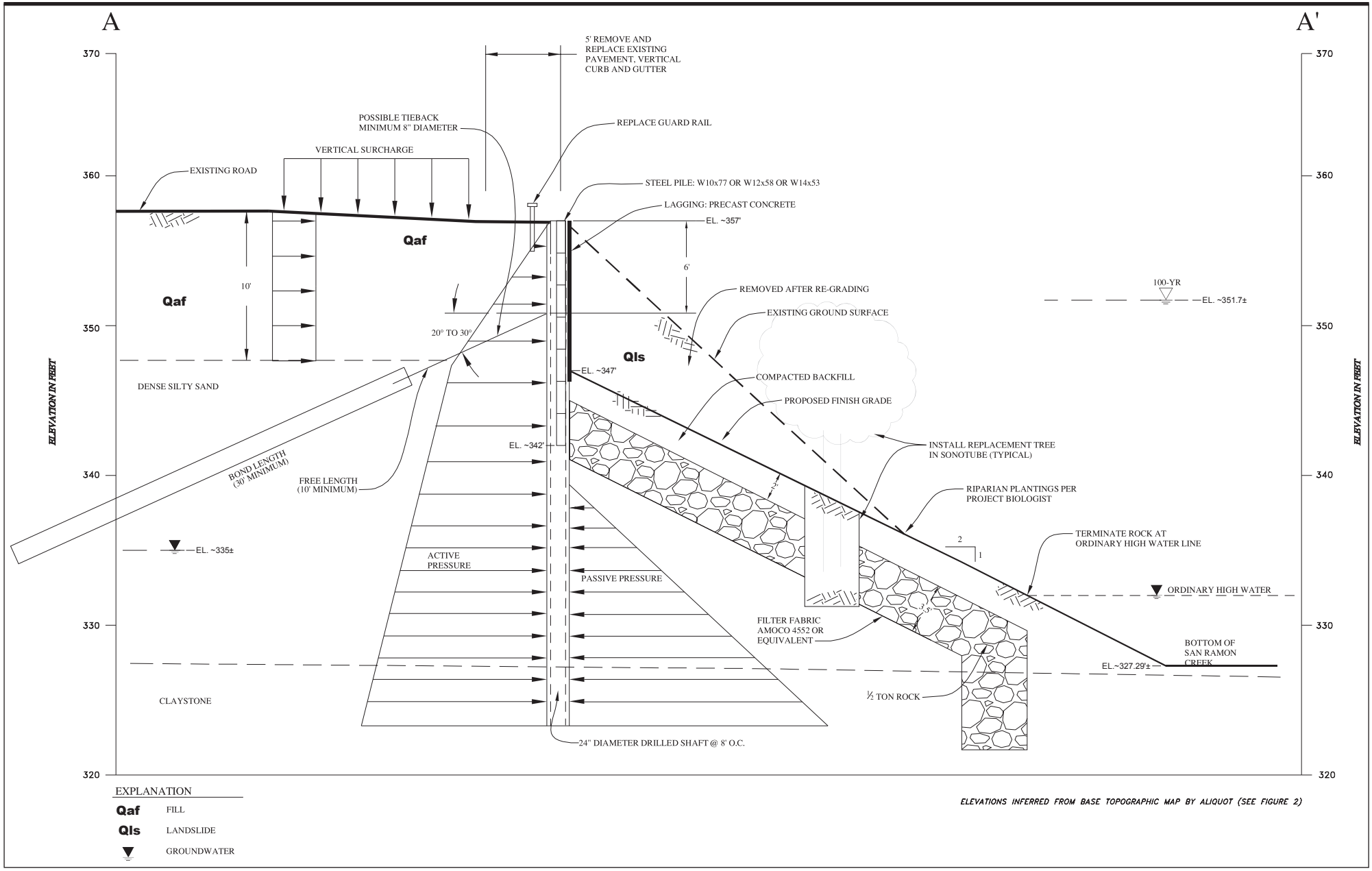
Figure 3



Source: ENGEO, Inc. (2015)

Cross-section of Proposed Front Street Restoration and Bank Repair Project

Figure 4



Source: ENGEO, Inc. (2015)

Surrounding Land Uses and Setting: The project area consists of a section of San Ramon Creek that has been highly disturbed for flood control and embankment protection. Immediately adjoining the site are Front Street and commercial uses on the west side of the street, with the creek channel and opposite stream embankment to the northeast. The commercial uses in the project vicinity are part of Danville's Downtown Business District (DBD) 4, Residential-Serving Commercial and DBD 2, Old Town Retail Transition. Low-density multi-family residential uses and a parking lot adjoin the northeast side of San Ramon Creek. West El Pintado Pocket Park is located 280 ft. southeast of the project site, on the east side of West El Pintado.

Other agencies whose approval is required (e.g., permits, financing approval, or participation agreements): U.S. Army Corps of Engineers (Section 404 Nationwide Permit), California Water Quality Control Board (Section 401 Water Quality Certification), California Department of Fish and Wildlife (Section 1601 Permit).

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

For public safety purposes, the Town proposes to implement the proposed Front Street Restoration and Bank Repair Project. In order to proceed with the project, the Town needs to conduct a review and analysis of the potential environmental effects of the project through the preparation of this Initial Study and subsequent, appropriate environmental documents.

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages:

	Aesthetics		Agriculture Resources	X	Air Quality
X	Biological Resources	X	Cultural Resources	X	Geology/Soils
	Hazards & Hazardous Materials		Hydrology/Water Quality		Land Use/Planning
	Mineral Resources	X	Noise		Population/Housing
	Public Services		Recreation		Transportation/Traffic
	Utilities/Service Systems		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.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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.

Steven Jones, Senior Civil Engineer Date

EVALUATION OF ENVIRONMENTAL IMPACTS

Environmental Checklist and Discussion of Impacts

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Aesthetics - Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

1a. Scenic Vistas

The project site encompasses a portion of the southwest embankment of San Ramon Creek in the town of Danville. Views of San Ramon Creek in the project vicinity are available primarily to drivers, bicyclists, and pedestrians using Front Street, Diablo Road, and West El Pintado. The presence of the creek is indicated by the bridge on Diablo Road between Front Street and West El Pintado, and by the riparian vegetation that lines the creek banks downstream of the bridge.

Due to the location of the project site along the creek and the nature of the project, the proposed landslide repairs would not affect scenic vistas or views of them. The landslide area is below the grade of Front Street and not directly visible to motorists or pedestrians using Front Street. Bicyclists may be able to view the landslide area briefly while travelling in the north – northwest direction on Front Street. Views of project site from locations to the east and northeast of the creek, such as a private parking lot and homes on West El Pintado, and from West El Pintado Pocket Park, approximately 300 ft. southeast of the project site, are screened and filtered by the dense canopy of riparian vegetation along San Ramon Creek. The project plans propose the revegetation of the landslide area with native species plantings that would augment and supplement the existing riparian vegetation along the creek. This would be a beneficial impact of the proposed project.

1b. Scenic Resources

There are no state-designated scenic highways in the project vicinity and, therefore, the project would not affect scenic resources within a state scenic highway.

1c. Visual Character

The visual character of the project area, i.e. creek channel and banks as well as channel modifications, is defined by mature riparian vegetation. Vegetation within the project area contains a mix of mature and young trees dominated by the non-native and invasive tree of heaven *(Ailanthus altissima)*. Scattered individuals of native tree species are present, including a large valley oak, a few young coast live oaks, and a California bay laurel. Non-native Himalayan blackberry *(Rubus discolor)* forms dense stands and dominates the understory along with several other non-native species.

The majority of San Ramon Creek has been significantly modified for flood control purposes, and includes both grade control structures and channelization of the creek. A drop structure exists immediately upstream of the confluence of San Ramon Creek and Green Valley Creek. The visual character and views of the creek are substantially influenced by both upstream and downstream creek modifications for stream bank protection and flood control. As a result, the project area consists of highly disturbed lands.

The project site consists of a failed bank slope and is currently covered with black plastic sheeting anchored with sand bags to prevent further bank failure. The aesthetics in this section of San Ramon Creek would be improved from its present condition by stabilizing severe bank failure and replacing the existing vegetation dominated by non-native species with a more robust native community.

A survey of the riparian vegetation on the project site included a tree survey to determine the potential effects of the project proposal on riparian resources. The assessment of these biological impacts is presented in Section 4, *Biological Resources*, below. This evaluation identifies specific tree locations and plans for the removal of trees to accommodate stream bank repairs. The proposed project would result in the removal of 14 trees identified by the tree survey. Construction activities would require the removal of five native trees with a trunk diameter greater than 10 cm (4 in).[1] Only one of these, a California bay laurel, is classified as a "protected tree under the Town of Danville's Tree Protection Ordinance.[2] Construction would also result in the removal of nine invasive non-native trees; these include eight tree-of-heaven[3] and one black locust[4]. Due to generally small sizes of these trees (less than 8 in. diameter), the removal of these trees would have a minimal impact on the views of the creek for drivers, bicyclists, and pedestrians passing San Ramon Creek.

In addition, the project plans involve extensive riparian planting efforts that would enhance the visual character of the creek. The *Revegetation and Monitoring Plan for the Front Street Landslide Repair Project* (Wood Biological Consulting, 2015) specifies a comprehensive revegetation program that would restore and enhance areas disturbed during the embankment slope repair work. The appearance of the embankment repairs would be consistent with the visual character of existing bank modifications in the project area downstream and upstream of the project site.

1d. Light and Glare

The design plans for the proposed bank repairs do not include new sources of light or glare as part of the project. Views of San Ramon Creek would continue to be available to pedestrians upon completion of the bank repairs. Therefore, the project would have a *less than significant* effect on scenic vistas, or the visual character or quality of the site.

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[1] Under the terms of the Lake and Streambed Alteration Program, impact on trees with a dbh ≥ 4" typically require mitigation at a 6:1 ratio for oaks and 3:1 ratio for other native species.

[2] Municipal Code § 32-79.3(a); includes specific tree species with a dbh ≥10".

[3] Tree-of-heaven is listed as a "moderate" invasive species by the California Invasive Plant Council.

[4] Black locust is listed as a "limited" invasive species by the California Invasive Plant Council.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Agriculture and Forestry Resources – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Dept. of Forestry and Fire Protection regarding the state's inventory of forest land, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

2a, 2b, 2c, 2d, 2e. Farmland, Agricultural, and Forestry Uses

The Danville 2030 General Plan currently designates the project site as Open Space use and is also zoned for this use. The 4,715 s.f. project site presently constitutes a northeast-facing embankment of San Ramon Creek adjoining Front Street north of Diablo Road. The project site is located contiguous commercial uses in Downtown Danville. Given the small size of this parcel, current commercial uses immediately adjacent to the site, current zoning, and the extensive urban development surrounding the project site, the project would have a less-than-significant effect on the conversion of the site to a non-agricultural use.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
3. Air Quality - Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

3a. Air Quality Planning

The San Francisco Bay Area Air Basin (SFBAAB) is classified by the Bay Area Air Quality Management District (BAAQMD) as non-attainment for ozone and inhalable particulates (PM_{10}). To address these exceedances, the BAAQMD, in cooperation with the MTC and ABAG, prepared the *Bay Area 2005 Ozone Strategy (BAOS)* in September 2005 and *Particulate Matter Implementation Schedule (PMIS)* in November 2005. The PMIS discusses how the BAAQMD implements the California Air Resources Board's 103 particulate matter control measures. The most recently adopted air quality plan in the Basin is the *2010 Bay Area Clean Air Plan* (*CAP*). This *CAP* outlines how the SFBAAB will attain air quality standards, reduce population exposure and protect public health, and reduce greenhouse gas (GHG) emissions.

The consistency of the proposed project with the most recently adopted regional air quality plan, the *CAP,* is determined by comparing the project's consistency with pertinent land use and transportation control measures contained in the *CAP*. Pertinent measures relate to evaluating impacts according to the BAAQMD's CEQA Guidelines and this impact evaluation is presented below.

The project's construction-related and operational emissions were determined to not exceed the BAAQMD's CEQA significance thresholds for criteria air pollutants and diesel particulate matter. Therefore, the proposed project's emissions would be consistent with the BAAQMD's *CAP* (the most recently adopted regional air quality plan). The consistency of the proposed project with the most recently adopted regional air quality plan, the *CAP,* is also determined by comparing the project's consistency with the Danville General Plan. Since the *CAP* is based on population projections of the Association of Bay Area Governments (ABAG) that are based on the Town's General Plan in effect at the time the *CAP* was approved, consistency of the project with the General Plan would indicate consistency with the *CAP*. Since there would be no population growth associated with the proposed project, the project would have a less-than-significant impact on regional air quality planning efforts.

3b. Air Quality Standards

Regulatory and Planning Framework. The BAAQMD is responsible for attaining and/or maintaining air quality in the San Francisco Bay Area Air Basin (SFBAAB) within Federal and State air quality

standards. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Basin and to develop and implement strategies to attain the applicable Federal and State standards. In June 2010, the BAAQMD adopted CEQA thresholds of significance and updated its CEQA Air Quality Guidelines, which provides guidance for assessing air quality impacts under CEQA. However, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the Thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the Thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. On August 13, 2013, the California Court of Appeal reversed the Alameda County Superior Court judgment that invalidated the BAAQMD's CEQA thresholds of significance. The Court directed that the Superior Court vacate the writ of mandate issued in March 2012, ordering the BAAQMD to set aside its June 2010 resolution (Res. #2010-06) "Adopting Thresholds for Use in Determining the Significance of Projects' Environmental Effects Under the California Environmental Quality Act." Although the California Supreme Court has granted review in the litigation to hear one particular issue of law, the granting of review does not alter the result in the Court of Appeal, though the latter court's decision is no longer a published, citable precedent. And the legal cloud created by the trial court decision no longer exists. Local agencies such as the City of Morgan Hill may rely on the BAAQMD thresholds.

Significance Thresholds. Exercising its own discretion as lead agency and similarly to multiple other San Francisco Bay Area jurisdictions, the Town of Danville has decided to rely on the thresholds within the *Options and Justification Report* (dated October 2009) prepared by the BAAQMD.[5] The BAAQMD *Options and Justification Report* establishes thresholds based on substantial evidence and are consistent with the thresholds outlined within the 2011 CEQA Air Quality Guidelines. Although BAAQMD failed to comply with CEQA before completing its 2010 recommendations, City staff believes that these recommendations, which are listed as follows, still represent the best available science on the subject of what constitute significant air quality effects in the SFBAAB:

a. NO_X and ROG: 54 pounds/day
b. PM_{10}: 82 pounds/day
c. $PM_{2.5}$: 54 pounds/day

In addition to establishing the above significance thresholds for criteria pollutant emissions, the BAAQMD also recommended (BAAQMD, 2009) the following quantitative thresholds to determine the significance of construction-related and operational emissions of toxic air contaminants from individual project and cumulative sources on cancer and non-cancer health risks:

a. Increased cancer risk of >10.0 in a million for individual projects and >100 in a million (from all local sources) for cumulative sources;
b. Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) for individual projects and >10.0 Hazard Index (from all local sources) for cumulative sources; and
c. Ambient $PM_{2.5}$ increase: >0.3 $\mu g/m^3$ annual average for individual projects and >0.8 $\mu g/m^3$ annual average (from all local sources) for cumulative sources.

Project Emissions. Proposed repair of the existing creek banks and associated street reconstruction would generate fugitive dust (including PM_{10} and $PM_{2.5}$) and other criteria pollutants, primarily as a result of a

[5] Bay Area Air Quality Management District, 2009. *Revised Draft Options and Justification Report*. October. Available online at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx.

variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. The project's construction-related and operational emissions are estimated and compared to the above significance thresholds in **Table 1**. As shown in this table, the project's construction-related and operational air pollutant emissions would not exceed the BAAQMD significance thresholds for criteria pollutants, a less-than-significant impact. However, the BAAQMD recommends that all Basic Construction Mitigation Measures be implemented for all construction projects, whether or not construction-related emissions exceed these significance thresholds. Therefore, the project's construction-related and operational increases in criteria pollutant emissions would be less than significant with implementation of Mitigation Measure AQ-1.

TABLE 1

PROJECT-RELATED CONSTRUCTION AND OPERATIONAL CRITERIA POLLUTANT EMISSIONS

	Average Daily Emissions (pounds/day)					
Project Activity	**ROG**	**NO_X**	**CO**	**SO_2**	**PM10 (Total)**	**PM2.5 (Total)**
Project Construction (Off-Road Equipment Emissions[a]) – 2016	1.4	13.7	8.7	0.0	1.7	1.1
Significance Thresholds	54	54	-	-	82	54
Exceeds Significance Thresholds?	No	No	-	-	No	No
	Average Annual Emissions (tons/year)					
Project Activity	**ROG**	**NO_X**	**CO**	**SO_2**	**PM10 (Total)**	**PM2.5 (Total)**
Project Construction (Off-Road Equipment Emissions[a]) – 2016	0.02	0.22	0.14	0.0	15	10
Significance Thresholds	10	10	-	-	15	10

NOTES: ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; exhaust PM_{10} = particulate matter less than 10 microns; exhaust $PM_{2.5}$ = particulate matter less than 2.5 microns.

[a] Construction assumptions: Construction would occur over 2 months. Site prep would occur over 1 week using 1 grader, 1 loader/backhoe; excavation and grading (200 cy of rip rock import and 800 cy of soil export) would occur over 2 weeks using 1 grader and 1 loader/backhoe; installation of anchors and piles would occur over 1 month using 1 bore/drill rig, 1 crane, 1 cement mixer, and 1 pump; and new pavement would occur over 1 week using 1 roller, 1 paver, 1 paving equipment, and 1 mixer.

[b] CO: If localized carbon monoxide estimated emissions exceed 550 pounds/day, more detailed analysis is required. Therefore, emissions below this threshold indicate that CO emissions would be less than significant.

[c] SO_2: The SO_2 state and federal standards are currently being met throughout the Bay Area and have been met in recent decades. Therefore, the project's estimated emissions would be less than significant.

SOURCE: CalEEMod Output (see **Attachment 1**)

3c. Cumulative Air Quality Impacts

To address cumulative impacts on regional air quality, the BAAQMD has established thresholds of significance for construction-related and operational criteria pollutants and precursor emissions. These thresholds represent the levels at which a project's individual emissions of criteria pollutants and precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If daily average or annual emissions exceed these thresholds, the project would result in a cumulatively significant impact. There would be no operational emissions associated with the proposed slide repair project and the project's construction-related criteria pollutant emissions would not exceed BAAQMD significance thresholds. Therefore, the project's contribution is also considered to be less than cumulatively considerable, a *less-than-significant* impact.

In addition, when the project's construction-related diesel particulate matter (DPM) emissions are considered with other existing stationary and mobile sources of toxic air contaminants (TACs), cumulative health risks were determined to be less than significant. Therefore, the project's contribution to cumulative DPM emissions would be less than cumulatively considerable, a *less-than-significant* impact (see Section 3d below for more discussion).

3d. Exposure of Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. There are sensitive residential receptors located as close as 75 feet north of the project site.

Potential TAC emissions would be associated solely with proposed landslide repair activities. Combustion emissions from construction equipment and haul trucks would be generated during proposed slide repair activities, which could expose sensitive receptors to DPM and other TACs. DPM emissions were estimated for this project and are presented in **Table 2**. As indicated in this table, the project's construction-related DPM emissions would not exceed the above significance thresholds for health risks and therefore, the health risks associated with the project's construction-related DPM emissions would be *less than significant*.

TABLE 2

CANCER RISK HEALTH RISKS AT THE CLOSEST SENSITIVE RECEPTORS DUE TO DPM EXPOSURE DURING PROJECT CONSTRUCTION

	$PM_{2.5}$ Exposure,[a] Excess Cancer Risk,[b] and Non-Cancer Chronic Hazard Index from Project Construction Activities at Closest Receptors
Maximum One-Hour $PM_{2.5}$	1.470 $\mu g/m^3$
Annual Average $PM_{2.5}$ (one-hour x 0.1)	0.1470 $\mu g/m^3$
Annual Average $PM_{2.5}$ Significance Threshold	0.3 $\mu g/m^3$
Exceeds Significance Threshold?	No
Age-Weighted Excess Risk for Infants	6.300 in a million
Children	1.890 in a million
Adults	0.630 in a million
Cancer Risk Significance Threshold	Excess Cancer Risk >10 x 10^{-6}
Exceeds Threshold?	No
Chronic/Acute Non-Cancer Hazard Index	0.029/0.171
Chronic Non-Cancer Significance Threshold	Hazard Index >1.0
Exceeds Threshold?	No

NOTES:

[a] The predicted maximum one-hour DPM concentration is 1.470 $\mu g/m^3$ resulting from on-site total project DPM emissions of 0.101 tons. The hourly to annual scaling factor is 0.1. AERSCREEN output thus indicates that project construction would produce a maximum annual DPM concentration of 0.1470 $\mu g/m^3$.

[b] The excess individual cancer risk factor for DPM exposure is approximately 300 in a million per 1 $\mu g/m^3$ of lifetime exposure (DPM ($\mu g/m^3$) x ASF x 300 x 10^{-6}) / 70 years. More recent research has determined that young children are substantially more sensitive to DPM exposure risk. If exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers though mid-teens, the ASF is 3.

SOURCES: A screening-level individual cancer analysis was conducted to determine the maximum PM2.5 concentration from diesel exhaust. This concentration was combined with the DPM exposure unit risk factor to calculate the inhalation cancer risk from project-related construction activities at the closest sensitive receptor. The EPA AERSCREEN air dispersion model was used to evaluate concentrations of DPM and PM2.5 from diesel exhaust. The AERSCREEN model was developed to provide an easy to use method of obtaining pollutant concentration estimates and is a single source Gaussian plume model which provides a maximum one-hour ground-level concentration. The model output for this analysis is included in the **Attachment 1** of this report.

In addition to the above construction-related risk and hazard impacts, sensitive receptors in the project vicinity would be exposed to cumulative risk and hazard impacts from the project's construction-related emissions in combination with existing stationary and mobile sources within approximately 1,000 feet of the project area. Therefore, in addition to project construction, possible local stationary or vehicular source emissions must be added to this concentration to determine the cumulative total. Specifically, the BAAQMD recommends that existing stationary and mobile emissions sources (i.e. freeways or roadways with more than 10,000 vehicles per day) within 1,000 feet of the project area also be considered. Any potential cumulative health risk would, therefore, derive from project activities plus any existing identified risk sources within the project vicinity. According to BAAQMD records, there are two stationary sources within 1,000 feet of the project site (**Table 3**), and two roadways within 1,000 feet of the site with average daily traffic volumes exceeding 10,000 (**Table 4**). As shown in **Table 5**, when emissions from these existing sources are added to project emissions, cumulative emissions would not exceed the cumulative significance thresholds for risk and hazard impacts at new on-site sensitive receptors or existing nearby receptors, a less-than-significant cumulative impact. Therefore, the project's contribution to cumulative construction-related risk and hazard impacts would be less than cumulatively considerable, a *less-than-significant* impact.

TABLE 3

CUMULATIVE RISK AND HAZARD IMPACTS FROM EXISTING PERMITTED STATIONARY SOURCES

Site #	Facility Name	Street Address	City	Distance	Excess Cancer Risk	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
8685	B-Line Cleaners	120 Hartz Avenue	Danville	220 feet	42.10	0.112	0.00	0.00
G11929	Tosco Facility #11142	198 Diablo Road	Morgan Hill	200 feet	2.07[a]	0.003	0.00	0.00
Total – Stationary Sources					**44.17**	**0.115**	**0.00**	**0.00**

[a] Adjusted for distance per BAAQMD Distance Multiplier Tool for Gasoline Dispersing Facilities.
SOURCES: BAAQMD Stationary Source Screening Analysis Tool (May 30, 2012) and Distance Multiplier Tool for Gasoline Dispersing Facilities (June 13, 2012). Available online at http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

TABLE 4

CUMULATIVE RISK AND HAZARD IMPACTS FROM EXISTING MOBILE SOURCES

Direction	Roadways with ADT of >10,000	Distance	ADT	Excess Cancer Risk (cases in a million)[a]	$PM_{2.5}$ Concentration ($\mu g/m^3$)
N-S	Hartz Avenue	510 feet	12,660	0.57	0.015
E-W	Diablo Road	230 feet	17,780	2.74	0.071
Total – Mobile Sources				**3.31**	**0.086**

NOTES: There were no freeways located within 1,000 feet of the project site.
[a] Interpolated for site-specific distances and ADTs on roadways near the project site were obtained from the *Town of Danville 2030 General Plan, Chapter 4, Mobility, Figure 12, Traffic Volumes 2010.*
SOURCE: BAAQMD Roadway Screening Analysis Calculator, April 16, 2015. Available online at Available online at http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

TABLE 5

CUMULATIVE RISK AND HAZARD IMPACTS

	Excess Cancer Risk[a]	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Stationary Sources (see Table 3 above)	44.17	1.115	0.00	0.00
Roadways (see Table 4 above)	3.31	0.00	0.00	0.074
Proposed Project (worst-case)	6.30	0.029	0.171	0.147
Maximum Cumulative	53.78	1.144	0.171	0.221
Threshold	100	10	10	0.8
Exceeds Threshold?	No	No	No	No

NOTES:
[a] Cancer cases in a million
SOURCES: Tables 2, 3, and 4

3e. Odors

According to the BAAQMD CEQA Guidelines, land uses associated with odor complaints typically include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The project would not include any uses identified by the BAAQMD as being associated with odors, nor would any new or unusual sources of nuisance odors would be associated with the proposed landslide repair project. Therefore, the project's potential for nuisance odor problems would be *less than significant*.

During project construction, however, nuisance diesel odors associated with operation of diesel construction equipment on-site (primarily during initial grading phases), but this effect would be localized, sporadic, and short-term in nature. Therefore, temporary impacts from nuisance diesel odors on adjacent residential receptors would be l*ess than significant*.

Mitigation Measures – Air Quality (AQ)

Although the project's construction-related air pollutant emissions would not exceed the BAAQMD's applicable significance thresholds, the following measures are recommended by the BAAQMD to reduce the project's construction emissions to a less-than-significant level:

AQ-1: BAAQMD-Recommended Basic Construction Mitigation Measures. *To limit the project's construction-related dust and criteria pollutant emissions, the following BAAQMD-recommended Basic Construction Mitigation Measures shall be included in the project's grading plan, building plans, and contract specifications:*

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. Recycled water should be used wherever feasible.

b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 mph.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the Town regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4. Biological Resources - Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The following evaluation of biological resources is based upon a detailed assessment prepared by Wood Biological Consulting, Inc. (WBC, 2015a). The full report is on file with the Engineering Division of the Town's Development Services Department. A second report, *Revegetation and Monitoring Plan for the Front Street Landslide Repair Project* (WBC, 2015b), is included in this study as Attachment 1.

The study area supports a mix of riparian and upland plant species characteristic of a variety of natural and non-natural plant communities. Typically, riparian woodland overlapping the tops of bank of a stream

course is considered a regulated plant community and impacts would be regarded as significant pursuant to the guidelines of the California Environmental Quality Act (CEQA).[6]

San Ramon Creek is a "blue-line", perennial, fourth-order stream and is classified as a relatively permanent, non-navigable tributary to Suisun Bay, and a "traditional navigable waters" of the U.S. As such, San Ramon Creek falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) pursuant to the Clean Water Act (CWA)[7], and the California Department of Fish and Wildlife (CDFW), pursuant to the California Fish and Game Code (CFGC)[8]. At the project site, the San Ramon Creek channel is on average 27.5 m (90 ft) wide at the tops of bank and 4.6 m (15 ft) wide at the Ordinary High Water Mark (OHWM).[9] The channel is approximately 9.7 m (32 ft) below grade on the Front Street side, with 1:0.7 horizontal:vertical earthen side slopes. The project site encompasses a section of the creek channel 24.5 m (113 ft) long. The total area of the project below the OHWM is approximately 195.3 m^2 (2100 ft^2). The total area below the tops of bank but above the OHWM covers 763 m^2 (8207 ft^2). No stands of wetland vegetation are present in the project site. A map illustrating the preliminary limits of jurisdiction within the study area is presented in Figure 1.

4a. Special-Status Species

A total of 72 special-status plant species have been recorded in the nine USGS quadrangles surrounding the project site (CNDDB, 2015; USFWS, 2015; CNPS, 2015). Based on the level of disturbance, soils, existing habitats and geographic location of the project site, the presence of all 72 of the target special-status plants can be ruled out due to a lack of suitable habitat or substrate, geographic isolation from known populations, or the fact that they would have been detectable during the site reconnaissance. Project implementation would result in a *less than significant* impact on special-status plant species.

A total of 39 special-status animal species have been recorded in the nine USGS quadrangles surrounding the project site (CNDDB, 2015; USFWS, 2015). Based on site conditions and geographic location, the potential for occurrence of 20 of the target special-status animals can be completely ruled out due to a lack of suitable habitat or substrate, or geographic isolation from known populations. No special-status fish species are considered to have any potential to occur in San Ramon Creek at the project site. The presence of another five species is not expected due to the presence of only marginally suitable habitat, the high level of disturbance on site, and/or the site's relative isolation from more likely occupied sites. One special-status species, Pacific pond turtle, is known to occur in the immediate vicinity of the project site. Although not detected during the site reconnaissance, the potential exists for another 12 of the target species to occur on site. Potentially occurring special-status animal species are discussed below.

Special-Status Amphibians and Reptiles. Construction activities could result in direct and indirect impacts on California red-legged frog *(Rana draytonii)* and Pacific pond turtle (*Emys marmorata)*[10].

Suitable breeding and non-breeding aquatic habitat for the federally listed threatened species California red-legged frog is present in both San Ramon Creek and Green Valley Creek. The associated riparian

[6] CEQA Section15062-Mandatory Findings of Significance

[7] CWA Sections 401 and 404

[8] CFGC Section 1600, et seq.

[9] The OHWM is defined in USACE (2006)

[10] Pacific pond turtle is also commonly referred to as western pond turtle.

corridors provide suitable upland refugia and foraging habitat and also may function as potential movement corridors for dispersing or migrating California red-legged frogs. However, San Ramon Creek and Green Valley Creek support a variety of known competitors and predators including bullfrog, crayfish, mosquitofish and raccoon. No California red-legged frogs of any life history stage were observed during the surveys conducted for the proposed project or during pre-construction surveys and construction monitoring efforts conducted as part of an adjacent project.[11] The project area is not located within designated or proposed critical habitat; proposed critical habitat CCS-2 is located approximately three miles to the northeast.[12]

San Ramon Creek provides suitable breeding and foraging habitat and serves as a movement corridor for Pacific pond turtle. The species has been documented in San Ramon Creek in the immediate vicinity of the project site for the past six years (Wood, pers. obs.) and is presumed to be present at the project site, at least of dispersing or foraging individuals.

Due to the presence of suitable aquatic habitat in the project site and the occurrence of the species in the vicinity, the potential exists for the occurrence of resident or transient California red-legged frogs and Pacific pond turtles on site. If present at the time of construction, project implementation could result in *potentially significant* impacts on these species.

Impacts to California red-legged frogs, Pacific pond turtle, and native fish can be avoided and/or minimized by implementing the conservation measures outlined by the USFWS (2014).

BIO-1: Conservation Measures Specified by USFWS. *Consistent with these measures, the following measures shall be implemented:*

a. Compliance with the Programmatic Biological Opinion. No more than 30 calendar days prior to the initiation of ground-disturbing activities, the name and telephone number of applicant's point of contact shall be submitted to the USFWS, along with a signed letter verifying that the applicant has read and understands the responsibilities outlined in the Programmatic Biological Opinion.

b. Seasonal Avoidance. Work below the top of bank shall be limited to the period between April 1 to October 31, during which the species is least likely to move through the project site.

c. Climatic Conditions. To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a USFWS-approved biologist (see below) shall inspect the action area and all equipment/materials for the presence of California red-legged frogs.

d. Minimize Nighttime Work. To the maximum extent practicable, night-time construction shall be minimized or avoided by the applicant. Because dusk and dawn are often the times when the California red-legged frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and construction activities will cease no less than 30 minutes before

[11] Diablo Road Bridge/West El Pintado Road Bank Stabilization Project, surveys performed 2010 and 2011 by Wood Biological Consulting, Inc.

[12] USFWS, Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the California Red-legged Frog (Rana aurora draytonii); Proposed Rule. Federal Register 73(180):53492-53680. September 16, 2008.

sunset and will not begin again prior to no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety, to the maximum extent practicable, artificial lighting at a project site will be prohibited during the hours of darkness.

e. Designated Biologist. The names and qualifications of each biologist that will serve as a monitor for the project shall be submitted to the USFWS and CDFW no less than 30 calendar days prior to the initiation of ground-disturbing activities. The approved project biologist(s) shall keep a copy of the Programmatic Biological Opinion in his/her possession whenever working on site.

f. California Red-Legged Frog Relocation Protocol. Prior to the initial ground disturbance, the applicant will obtain approval of the relocation protocol from the Service in the event that a California red- legged frog is encountered and needs to be moved away from the project site. Under no circumstances will a California red-legged frog be released on a site unless the written permission of the landowner has been obtained by the applicant.

g. Preconstruction Surveys. Preconstruction surveys for California red-legged frog, Pacific pond turtle and other native aquatic species (e.g., fish) shall be conducted by the USFWS-approved biologist no more than 24-hours prior to the initiation of any ground-disturbing activities. Preconstruction surveys shall consist of walking the project limits and within the project site to ascertain the possible presence of the species. The UDFES-approved biologist(s) shall investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as California ground squirrels or gophers. If any adults, subadults, juveniles, tadpoles, or eggs are found, the USFWS-approved biologist(s) shall contact the USFWS to determine if moving any of the individuals is appropriate.

h. Construction Monitoring. The USFWS-approved biologist(s) shall be present on site during all activities that may result in take of the California red-legged frog. Trenches or pits left uncovered for 48 hours or more shall be inspected by the USFWS-approved biologist(s) immediately prior to filling or further excavation.

i. Communications and Authorities. The USFWS-approved biologist(s) shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, CDFW, or their designated agents. The Service-approved biologist will have oversight over implementation of all the conservation measures in the programmatic biological opinion, and, through the applicant, will have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the USFWS-approved biologist(s) exercises this authority, the USFWS shall be notified by telephone and electronic mail within twenty-four (24) hours. The USFWS contact is the Coast Bay Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at telephone (916) 414-6600.

j. Onsite Construction Personnel Education Program. Before commencement of ground-disturbing activities, the USFWS-approved biologist(s) shall conduct an environmental awareness program for all construction personnel. At a minimum the training shall include a description of the California red-legged-frog, avoidance, minimization, and conservation measures, legal protection of the animal, work boundaries, lines of communication, reporting

requirements, and the implications of violations of applicable laws. Attendees shall sign an attendance sheet and include their printed name, company or agency, email address, and telephone number. The original sign-in sheet will be sent to the USFWS within seven (7) calendar days of the completion of the training.

k. *Wildlife Exclusion Fencing. Prior to the start of construction, wildlife exclusion fencing (WEF)*[13] *shall be installed to isolate the work area from any habitats potentially supporting special-status animals or areas through which such species may move. The actual placement of WEF shall be based on site conditions and the best judgment of the USFWS-approved biologist. The final project plans shall indicate where and how the WEF is to be installed. Special provisions shall be added to the bid solicitation package to provide instructions to the contractor about acceptable fencing material. The fencing shall remain throughout the duration of the work activities, and be regularly inspected and properly maintained by the contractor. Fencing and stakes shall be completely removed following project completion.*

l. *Dewatering. During dewatering, intake pumps shall be completely screened with wire mesh not larger than 5 mm (1/4 in) to prevent California red-legged frog larvae or native fish from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.*

m. *Best Management Practices. Erosion control BMPs shall be developed and implemented to ensure that there is no release of contaminants into the stream and that all materials used are not likely to be injurious to wildlife. At the very least, protective measures shall include the following:*

    i. *No discharge of pollutants from vehicle or equipment cleaning will be allowed into any storm drains or watercourses.*

    ii. *Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.*

    iii. *Construction equipment shall be well-maintained to prevent leaks of fuel, lubricants, or other fluids.*

    iv. *Concrete waste and water from curing operations will be collected in washouts and will be disposed of and not allowed into water courses.*

    v. *Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.*

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[13] WEF should provide a barrier for terrestrial wildlife gaining access to the project work areas. The fencing may vary to meet the needs of a particular species, but should be buried and/or backfilled to prevent animals passing under the fence and should be high enough to deter reptiles, amphibians or small mammals from climbing or jumping over the fence. Acceptable fencing materials include Animex® animal exclusion fencing, ERTEC E-Fence®, plywood, corrugated metal, silt fencing or other suitable materials.

vi. Dust control measures will include use of water trucks and organic tackifiers to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require it.

n. Construction Site Restrictions. The following site restrictions shall be implemented to avoid adversely affecting sensitive habitats and harm or harassment to listed species:

i. Any fill material shall be certified to be non-toxic and weed free.

ii. All food and food-related trash items shall be enclosed in sealed trash containers and removed completely from the site at the end of each day to avoid attracting predators.

iii. No pets from project personnel shall be allowed anywhere in the project site during construction.

iv. No firearms shall be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.

o. Proper Use of Erosion Control Devices. To prevent California red-legged frog, Pacific Pond Turtle or any other native wildlife species from becoming entangled, trapped or injured, erosion control materials utilizing polypropylene netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, burlap, or tackified hydroseeding compounds.

p. Protocol for Species Observation - California red-legged frog. If California red-legged frogs in any life stage are encountered in the project site, all activities that have the potential to result in harassment, injury, or death must cease immediately. Any observations of California red-legged frog require the immediate notification of the USFWS by calling (916) 930-5603. Individuals may not be handled, relocated, shooed away or otherwise harassed. Based on the professional judgment of the USFWS-approved Biological Monitor and pending authorization from the USFWS, work may only proceed if project activities can be conducted without harming or harassing the detected species. All project personnel shall be notified of the finding and at no time may work occur within 15 m (50 ft) of the individual without a Biological Monitor present.

q. Protocol for Species Observation – Pacific Pond Turtle. If a Pacific Pond Turtle is encountered in the project site, work must cease immediately until the animal either moves out of harm's way of its own accord or is safely relocated well upstream or downstream of the project site. Only a qualified biologist with a scientific collection permit issued by the CDFW may handle and relocate Pacific Pond Turtle. Any sightings and relocation of Pacific Pond Turtle shall be reported to the CDFW and the CNDDB.

r. Protocol for Species Observation – Fish. In portions of the channel subject to water diversions, a CDFW-approved biologist shall be present to capture and move all stranded native aquatic life. Native species (with the exception of those protected under federal or State law) shall be captured and immediately relocated downstream of the work area. Exotic species and especially predators such as bullfrogs, crayfish, and centrarchid fishes shall be

removed and euthanized in conformance with the CFGC; they may not be relocated into any natural water course.

Special-Status Birds. Construction activities could result in direct and indirect impacts to special-status birds, a *potentially significant* impact. A wide variety of special-status bird species are known to occur in the project region. Special-status bird species include those protected under the federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), those listed as "Special Animals" by the CDFG,[14] and species covered under the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA). The densely wooded banks of San Ramon Creek provide suitable nesting and/or foraging habitat for a variety of special-status bird species. Species considered to have a potential to occur on or adjacent to the project area and to be potentially directly or indirectly affected during construction include the state-listed fully protected species white-tailed kite (*Elanus leucurus*) and other special-status species including Allen's hummingbird (*Selasphorus sasin*), Cooper's hawk (*Accipiter cooperii*),), Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus*), sharp-shinned hawk (*Accipiter striatus*), and yellow warbler (*Dendroica petechia*). If present at the time of construction, project implementation could result in *potentially significant* impacts on these species.

BIO-2: Protection of Special-status Bird Species. *In order to minimize and avoid impacts on special-status bird species, the following measures shall be implemented:*

a. White-tailed Kite. White-tailed kite is a State-listed fully protected species and incidental take of the species is not allowed. If an active nest is present on site, work may not proceed. If an active nest is found within 32 m (300 ft) of the project site, the nest must be monitored by a qualified biologist for the duration of construction activities or until young birds have fledged, in consultation with the CDFW (see #5. below).

b. Raptor Nests. Prior to the removal or significant pruning of any trees, they should be inspected by a qualified biologist for the presence of raptor nests. This is required regardless of season. If a suspected raptor nest is discovered, the CDFW should be notified. Pursuant to CFGC Section 3503.5, raptor nests, whether or not they are occupied, may not be removed until approval is granted by the CDFW.

c. Site Clearing – Non-Breeding Season. If clearing, grubbing or tree removal/pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds is necessary.

d. Site Clearing – Breeding Season. If clearing and grubbing and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey should be conducted. The survey should be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 76 m (250 ft) for raptors and 15 m (50 ft) for passerines should be mapped.

e. Active Nesting. For any active nests found near the construction limits (76 m [250 ft] for raptors and 15 m [50 ft] for passerines) a qualified biologist should make a determination as

[14] Species protected under the California Fish and Game Code (§3503, §3503.5, §3511, §3513).

to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, a no-construction buffer zone should be designated on the grading plans. Avoidance of impacts on nesting migratory birds is the only acceptable mitigation; take of nesting birds is a violation of State and federal law. The ultimate size of the no-construction buffer zone may be adjusted by a qualified biologist based on the species involved, topography, lines of site between the work area and the nest, physical barriers, and the ambient level of human activity. Site evaluations and buffer adjustments should be made in consultation with the CDFW and/or the USFWS Division of Migratory Bird Management, as appropriate. If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the qualified biologist determines that the nest is long longer occupied.

f. Nest Monitoring. If construction activities must occur within the optimal no-construction buffer zone, a qualified biologist should monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities may lead to nest abandonment, work must cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

Special-Status Bat Species. Construction activities could result in direct and indirect impacts to special-status bat species, a *potentially significant* impact. Several special-status bat species are known to occur in the project region. Special-status bat species include those protected under FESA or CESA, those listed as "Special Animals" by the CDFG,[15] the California Code of Regulations (Title 14, §251.1, Article 20; §15380; and §15382), and the California Public Resources Code (Division 13). The densely wooded banks of San Ramon Creek provide suitable roosting and foraging habitat for four special-status bat species, including hoary bat (*Lasiurus cinereus*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and Yuma myotis bat (*Myotis yumanensis*). If present at the time of construction, project implementation could result in *potentially significant* impacts on these species

BIO-3: Protection of Special-status Bat Species. *In order to minimize and avoid impacts to special-status bat species, the following measures shall be implemented:*

a. Bat Habitat Assessment. If work is to take place during the bat breeding season (April 1 through August 31), a qualified biologist should conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey should be conducted no more than 14 days prior to the initiation of work.

b. Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW and/or the USFWS. Passive exclusion of roosting bats would be required and this may only be performed during the non-breeding season (i.e., between October 1 and March 30).

c. Preconstruction Survey. A preconstruction survey should be conducted by a qualified biologist to identify suitable bat roosting sites. The survey should be conducted no more than

[15] Species protected under the California Fish and Game Code §2000, §2014, §3007, and §4150.

48 hours prior to the initiation of work and should include an area extending up to 61 m (200 ft) of the limits of work, access permitting.

d. *Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractor or others may not attempt to disturb (e.g., shake, prod) roosting features to coax bats to leave. Such actions would constitute "harassment" under the CCR.*[16]

e. *Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats should be identified and marked on site plans. Such roosting sites include snags, rotten stumps, and decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures should be conducted in coordination with CDFW:*

   i. *A qualified biologist should survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures.*

   ii. *If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps should be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate.*

   - *Tree limbs smaller than 7.6 cm (3 in) in diameter should be removed and any loose bark should be peeled away.*
   - *Any competing limbs that provide shelter around the potential roost site should be removed to create as open of an area as possible.*
   - *The tree should then be alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period.*
   - *Trees should be re-surveyed 48 hours after trimming.*
   - *If no bats are present, work may proceed.*
   - *If bats remain on site, additional measures would be prescribed by the biologist.*

Other Special-Status Mammal Species. Although not detected, the potential exists for the San Francisco dusky-footed woodrat to take up residence at the project site prior to the start of construction. If present at the time of construction, direct and indirect impacts to the species could result. As a Special-Animal species, impacts would be considered significant under CEQA guidelines. If present at the time of construction, project implementation could result in *potentially significant* impacts on this species

BIO-4: Protection of Special-status Mammal Species. *In order to minimize and avoid impacts to the San Francisco dusky-footed woodrat, the following measures shall be implemented:*

[16] 14 CCR § 251.1 states: Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal or furbearing mammal. For the purposes of this section, harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.

a. Pre-Construction Surveys. A pre-construction wildlife survey shall be performed at the project site to search for woodrat nests. If no nests are detected, no further avoidance measures are warranted.

b. Nest Detection and Avoidance. If a woodrat nest is detected, it shall be mapped in relation to the proposed limits of work. If the nest can be avoided, it shall be isolated from the work zone by installation of wildlife exclusion fencing, as described above.

c. Nest Removal – Non-Breeding Season. If a woodrat nest is detected in the work zone and it cannot be avoided, site clearing shall be performed during the non-breeding season (e.g., September 1 through November 30). During the non-breeding season, the nest shall be disassembled by hand and the nest materials (e.g., sticks) removed and disposed of off-site. Any adult animals present shall be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW.

d. Nest Removal – Breeding Season. If site clearing must proceed during the breeding season, it will be necessary to determine whether or not the nest is occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of wildlife cameras at the nest or by a biologist on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials shall be replaced on top of the nest and the effort abandoned. Nest may not be disassembled if young woodrats are present. Construction must then be postponed until the end of the breeding season.

4b. Riparian or Other Sensitive Natural Communities

Although no typical riparian habitats are present within the project area, native upland trees rooted on the channel banks are typically considered riparian by the CDFW and USFWS. The proposed project calls for the excavation of the channel bank to competent, stable soil. In the process, construction would impact five native riparian trees and result in the removal of channel bank vegetation. Project implementation would result in *potentially significant* impacts on riparian habitat.

BIO-5: Protection of Riparian Habitat. *In order to compensate for impacts to riparian trees and channel bank vegetation, the following measures shall be implemented:*

a. Revegetation. A Revegetation and Monitoring Plan has been developed to restore native riparian vegetation on the landslide repair site (Wood Biological Consulting Inc., 2015b). As compensation for temporary and permanent impacts on native trees and the riparian environment resulting from the proposed slope repair, a 61 cm (2 ft) thick layer of topsoil will be placed on top of loose rock slope protection. To accommodate the planting of trees through the rock, tree wells will be installed providing contact with the native, underlying earth. The earthen cover will be planted and seeded with native species.

b. Area to be Revegetated. A total area of 439 m^2 (4715 ft^2) of riparian habitat will be restored on the left (west) bank of San Ramon Creek.

c. *Tree Replacements. Replacement trees shall be installed for trees with a dbh[17] of 10 cm (4 in) or greater at a ratio of at least 6:1 for native oaks, 3:1 for other native trees and 2:1 for nonnative trees (excluding species considered invasive by the California Invasive Plant Council[18]). Additional conditions may be imposed by the regulatory agencies.*

d. *Long-Term Monitoring. Long-term monitoring of the revegetation effort shall be conducted for a minimum of five years after installation.*

e. *Reporting. Site monitoring observations and the results of the habitat monitoring effort shall be presented in annual reports to be submitted to the USACE, CDFW, and RWQCB no later than December 31 of each year. Annual reports shall describe conditions on site, present a summary of the monitoring data, identify problems, and outline any remedial measures implemented or needed. The reports will include photographs of the revegetation area and representative species.*

f. *Performance Standards. The revegetation effort shall be considered successful if, at the end of the five-year establishment period, the plantings are self-sustaining (i.e., able to survive without supplemental irrigation or human intervention), and plant survivorship and growth data illustrate a positive trend. At a minimum, the project may be deemed successful if at the end of five years, 100% of the trees and 80% of the planted shrubs and vines have survived, and growth parameters (i.e., tree stem diameter, plant height, and canopy spread) have increased by at least 100% compared to the first year of monitoring.*

4c. Wetlands and Waters of the U.S.

A formal wetland delineation was performed by Wood Biological Consulting, Inc. (WBC, 2015a); a formal jurisdictional determination by the USACE is pending. No habitats meeting the definition of a wetland are present within the study area, although overhanging and adjacent trees considered riparian are present (see discussion above). Although no permanent fill would be placed below the OHWM, the installation of cofferdams to temporarily dewater the left (west) shoreline of San Ramon Creek may be necessary to facilitate construction. Project implementation could therefore result in *potentially significant* impacts on waters of the U.S. A summary of impacts follows.

Construction would require equipment excavation of the left (west) bank of San Ramon Creek. To accommodate the work, dewatering would occur along a section of San Ramon Creek approximately 160 ft in length. The anticipated duration of dewatering is two to three weeks and would occur during the dry season of 2016. Dewatering would be achieved by the installation of sandbag cofferdams approximately 10-15 ft upstream and downstream of the work area. A pump system would be installed at the upstream end to divert impounded surface flows. The discharge line would terminate downstream of the work area in a manner that would minimize the potential for erosion. The entire cofferdam and dewatering system would be removed promptly upon the completion of work and original channel contours restored. A summary of federal and state jurisdictional areas and impacts is presented in **Table 6**.

[17] Diameter at breast height, usually considered to be 1.4 m (4.5 ft) above ground surface.

[18] Refer to the Cal-IPC Inventory available online at http://www.cal-ipc.org/paf/

TABLE 6

IMPACTS ON USACE AND STATE JURISDICTIONAL HABITATS

		Permanent Impacts						Temporary Impacts		
		below TOB*			below OHWM**			below OHWM**		
fill material	purpose	area (sf)	volume (cy)	lin. ft.	area (sf)	volume (cy)	lin. ft.	area (sf)	volume (cy)	lin. ft.
concrete	ret. wall	28.3	15.5	85	0	0	0	0	0	0
rock	slope protection	4715	600	130	0	0	130	0	0	0
earth	revegetation	"	800	"	0	0	0	0	0	0
sand bags	cofferdams	0	0	0	0	0	0	480	35.5	160
total		4743.3	1415.5	130	0	0	130	480	35.5	160

* Waters of the state. Totals are inclusive of impact below the OHWM

** Waters of the U.S.

Source: ENGEO Impact Map Figure 1.

Design features and specific measures have been incorporated into the project design to avoid and minimize potential adverse effects on the riparian environment. These features and measures include:

- *Selection of a design that replaces soil on top of slope repairs to support riparian plantings.*
- *Selection of a design that stabilizes the creek bank without substantially altering the channel capacity or bank roughness.*
- *Timing of work to correspond to the non-rainy seasons when creek flows are at their lowest.*
- *Performance of preconstruction surveys to ensure that site preparation and creek dewatering do not harm special-status species.*
- *Performance of biological monitoring to ensure that construction activities do not harm special-status species.*
- *Channel contours shall be restored to approximately the pre-slide condition.*
- *Revegetation of the repaired slope with native riparian species.*
- *Seeding of all bare ground along the temporary access route.*
- *Performance of long-term monitoring of the revegetated slope.*
- *Impacts to the live channel of San Ramon Creek are essentially temporary in nature and self-mitigating. The channel contours shall be returned to the pre-project condition without substantially altering the channel capacity or bank roughness, thereby avoiding future downstream effects. Furthermore, the stabilized slopes shall reduce erosion and downstream sedimentation.*

- *Water quality effects shall be minimized by the implementation of an erosion control plan and Best Management Practices (BMPs); these measures shall also comply with the Town of Danville's erosion control standards (Danville Municipal Code §19-4).*

BIO-6: Wetlands Protection. *To preserve downstream water quality and reduce impacts on wetlands to a less-than-significant level, the following mitigation measures shall be implemented:*

a. *Prior to construction, the project proponent will need to secure authorization from the USACE, CDFW and RWQCB in conformance to the federal Clean Water Act and the State Lake and Streambed Alteration Program.*

b. *As compensatory mitigation for temporal and permanent impacts on riparian habitat and native trees, the restoration and monitoring plan, as submitted to and approved by the regulatory agencies, shall be implemented. Any additional mitigation measures stipulated by the regulatory agencies and incorporated as permit conditions shall be implemented, see section b), above.*

c. *Best management practices (BMPs) shall be incorporated into the project design to minimize environmental effects. These shall include the following:*

    i. *Construction in the active channel shall be restricted to the dry season (April 15-October 15).*

    ii. *Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub shall be trained by a qualified biologist to ensure compliance with all permit conditions.*

    iii. *If dewatering is necessary, water released downstream of work areas shall be as clean as or cleaner than flows entering the work area. Sediment-laden water shall be either pumped onto a suitable upland site for infiltration or into Baker tanks for settling, prior to being released back into the channel. Cofferdams shall consist of clean, silt-free sand or gravel in sand bags, or a comparable material. Cofferdams and non-natural materials must be promptly removed when no longer needed.*

    iv. *All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities shall be identified in the field by a qualified biologist and isolated by the use of high visibility construction fencing. Temporary construction fencing and stakes must be removed upon the completion of work.*

    v. *Grading or construction near channels shall be isolated with silt fencing to prevent sedimentation. Silt fencing shall be regularly inspected.*

    vi. *Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas.*

    vii. *All equipment shall be maintained such that there are no leaks of automotive fluids such as gasoline, oils or solvents and a Spill Response Plan shall be prepared. Hazardous materials such as fuels, oils, solvents, etc. shall be stored in sealable containers in a designated location that is isolated from wetlands and aquatic habitats.*

viii. *Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance shall occur only at sites isolated from any aquatic habitat unless separated by topographic or drainage barrier or unless it is an already existing gas station. Staging areas may occur closer to the project activities as required.*

ix. *Concrete washings may not be permitted to enter any stream channel or storm drain inlet.*

x. *Any concrete structures must be allowed to cure before coming in contact with storm flows.*

xi. *Construction debris and materials shall be stockpiled away from watercourses.*

xii. *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used on site to prevent siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion control measures shall be placed between the outer edge of the buffer zone and the project site.*

xiii. *Fiber rolls or straw wattles shall be installed along or at the base of slopes during construction to capture sediment. All erosion control fabrics and materials may not be constructed with monofilament netting which does not bio-degrade and can trap wildlife; appropriate alternative materials are burlap or other natural fiber. Erosion control materials must be certified as free of noxious weed seed.*

xiv. *Construction staging areas shall be sited above the top of bank and outside of any wetlands or other sensitive habitats as identified by a qualified biologist.*

xv. *Only clean rock shall be used for rock slope protection.*

xvi. *Newly graded earthen channel slopes shall be revegetated with a native seed mix. Seed mixtures applied for erosion control shall not contain invasive nonnative species and shall be composed of native species or sterile non-native species. Straw or mulch shall also be applied to all bare surfaces. The seed mix and mulch shall be applied prior to the onset of the first winter-season rains.*

d. *Herbicide shall not be applied within 30 m (100 ft) of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control non-native invasive species (e.g., tree-of-heaven, black locust, periwinkle). Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible.*

4d. Native Resident/Migratory Fish or Wildlife Species

Although San Ramon Creek includes pools and riffles potentially suitable for anadromous fish species, several drop structures in San Ramon Creek and Walnut Creek prevent the upstream migration of salmonids from Suisun Bay; salmonids are not expected to occur within the project area. The study area does not correspond with any significant wildlife movement corridors for native resident or migratory fish or wildlife species. Therefore, the project would have a *less than significant* impact on fish species.

4e. Consistency with Local Plans and Ordinances

The Town of Danville's General Plan[19] outlines policies that specifically address rare and endangered species, creeks, trees and riparian habitats. The specific policies relevant to the proposed project include the following:

18.01 The Town shall seek to preserve and enhance natural habitat areas that support wildlife, including large continuous areas of open space and wetland and riparian habitat.

18.02 Maintain open space in appropriate areas, including areas of scenic beauty, areas of economically viable agriculture, and areas where natural hazards such as flooding and land stability preclude safe development.

18.06 Discourage activities that would harm the health of existing trees. Prevent the unnecessary removal and alteration of trees, including protected trees as defined by the Town's Tree Preservation Ordinance and other trees that contribute to the scenic beauty of the Town. Public and private improvements will be designed to avoid removal of trees of any type. If removal is necessary, trees will be replaced with an appropriate number and species.

18.07 Protect rare and endangered plant and animal species and encourage the retention and reestablishment of native vegetation in development projects and public facility construction where appropriate.

22.01 Take all appropriate steps in the Development Review process to protect life and property from flooding and erosion along local creeks.

Danville Municipal Code[20] Section 32.79.4(a) states that "no person may destroy or remove a protected tree on any property within the Town of Danville without obtaining a Tree Removal Permit from the Planning Division." Section 32-79.3 defines a protected tree as:

a. Any of the following native trees having a trunk or main stem which measures ten (10) inches or greater in diameter measured four and one-half (4-1/2) feet above natural grade or, for a multiple trunked tree, a combination of trunks totaling twenty (20) inches or greater in diameter measured four and one-half (4-1/2) feet above natural grade, on any type of lot or property:

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[19] Danville, Town of. 1999. *The Town of Danville 2010 General Plan*. Adopted August 3. Available on line at http://www.ci.danville.ca.us/default.asp?serviceid1=461&Frame=L1.

[20] Available online at: http://www.amlegal.com/nxt/gateway.dll/California/danville_ca/danvillecaliforniamunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:danville_ca

Coast Live Oak	(*Quercus agrifolia*)
Valley Oak	(*Quercus lobata*)
Canyon Live Oak	(*Quercus chrysolepis*)
Blue Oak	(Quercus doulgasii)
California Black Oak	(*Quercus kelloggii*)
Interior Live Oak	(*Quercus wislizenii*)
White Alder	(*Alnus rhombifolia*)
California Bay	(Umbellularia california)
California Buckeye	(*Aesculus californica*)
California Sycamore	(*Platanus racemosa*)
Madrone	(*Arbutus menziesii*)
London Plane Tree	(*Platanus acerifolia*)

b. Any Heritage Tree.

c. Any Memorial Tree.

d. A tree shown to be preserved on an approved Development Plan or specifically required by the Planning Commission to be retained as a condition of approval of an entitlement. A tree specifically required to be preserved by the Planning Commission shall require a subsequent Planning Commission approval for removal.

e. A tree required to be planted as mitigation for the removal of a protected tree, as established under subsection 32-79.6.d.

Section 32-79.2(c) defines a Heritage Tree as "any single trunked tree in Town, regardless of species, which has a trunk diameter of thirty-six (36) inches or greater measured four and one-half (4-1/2) feet above the ground." Section 32-79.2(f) defines a Memorial Tree as "a tree planted on public property in memory of or commemoration of an individual or individuals."

Potential impacts on special-status species, riparian habitat and waters of the U.S./waters of the state are discussed above. Project implementation could conflict with the goals and policies of the Town's General Plan and Tree Protection Ordinance. Construction-related activities (i.e., clearing and grubbing to facilitate site access and construction) would result in impacts on native and non-native riparian trees.

Construction activities will require the removal of five native trees with a trunk diameter greater than 10 cm (4 in).[21] Only one of these, a California bay laurel, is classified as a "protected tree under the Town of Danville's Tree Protection Ordinance.[22] Construction will also result in the removal of nine invasive non-native trees; these include eight tree-of-heaven[23] and one black locust[24]. A summary of impact on all tree species is provided in **Table 7**.

[21] Under the terms of the Lake and Streambed Alteration Program, impact on trees with a dbh ≥ 4" typically require mitigation at a 6:1 ratio for oaks and 3:1 ratio for other native species.

[22] Municipal Code § 32-79.3(a); includes specific tree species with a dbh ≥10".

[23] Tree-of-heaven is listed as a "moderate" invasive species by the California Invasive Plant Council.

[24] Black locust is listed as a "limited" invasive species by the California Invasive Plant Council.

TABLE 7

SUMMARY OF TREE IMPACTS AND MITIGATION

Tree #	Scientific Name	Common Name	dbh[1] (in)	Repl. Ratio[2]	Repl. Trees Req'd	Protected Tree[3]
1	*Ailanthus altissima**	tree-of-heaven	2	0:1	0	no
2	*Ailanthus altissima**	tree-of-heaven	2	0:1	0	no
3	*Ailanthus altissima**	tree-of-heaven	2	0:1	0	no
4	*Ailanthus altissima**	tree-of-heaven	2	0:1	0	no
5	*Robinia pseudoacacia**	black locust	18	0:1	0	no
6	*Ailanthus altissima**	tree-of-heaven	6	0:1	0	no
7	*Ailanthus altissima**	tree-of-heaven	6	0:1	0	no
8	*Juglans hindsii*	CA black walnut	24	3:1	3	no
9	*Umbellularia californica*	CA bay laurel	4	3:1	3	no
10	*Ailanthus altissima**	tree-of-heaven	8	0:1	0	no
11	*Quercus lobata*	valley oak	4	6:1	6	no
12	*Umbellularia californica*	CA bay laurel	12	3:1	3	yes
13	*Ailanthus altissima**	tree-of-heaven	18	0:1	0	no
14	*Quercus agrifolia*	coast live oak	6	6:1	6	no
TOTAL					21	1

[1] dbh: trunk diameter at 4.5' above ground level
[2] Replacement ratios are based on the following: 6:1 ratio for oaks; 3:1 ratio for other native species; 0:1 for invasive species.

[3] per Danville Municipal Code 32-79

* non-native species regarded as invasive by the CA Invasive Plant Council

Source: ENGEO, Inc.

BIO-7: Replacement of Protected Trees. *In order to mitigate for incidental impacts to protected trees, the following measures shall be implemented:*

a. Permits. The Town of Danville shall obtain a tree removal permit, as appropriate, pursuant to Danville Municipal Code §32-79.

b. Tree Replacements. Impacts to trees with a dbh ≥ 4" will be compensated for by the onsite planting of replacement trees at a 6:1 ratio for oaks and at a 3:1 ratio for other native species. There would be no replacements installed for impacts to invasive non-native tree species as their eradication is considered to improve the riparian habitat. Because project implementation would impact two native oaks and three other native trees, a minimum of 21 replacement trees would be planted on the restored section of creek bank.

c. Revegetation. A Revegetation and Monitoring Plan has been developed to restore native riparian vegetation on the landslide repair site (Wood Biological Consulting Inc., 2015b). In

addition to the tree replacement plantings, the restored slope will be revegetated with a variety of native shrubs and vines, as well as a native seed mix.

d. Monitoring and Reporting. The revegetation effort will be monitored by a qualified restoration ecologist for a period of at least five years after installation. Data on survivorship and plant growth will be collected annually. Annual reports will be submitted to the regulatory agencies.

e. Performance Standards. The revegetation effort will be deemed successful if after five years, plant survivorship is 100% for trees and 80% for shrubs and vines; and if plant growth parameters have increased at least 100% compared to the Year 1 baseline measurements. If the performance standards are not met, remedial measures will be developed in consultation with the permitting agencies.

4f. Consistency with Habitat Plans

The proposed project is not in conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would have a *less than significant* impact.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
5. Cultural Resources - Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Historical Resources. The project area encompasses a section of San Ramon Creek north of Diablo Road Bridge and adjoining Front Street near Diablo Road. Previous analyses of cultural resources in the project vicinity were conducted in 2007 for the embankment repair project along Front Street, immediately north and south of the project site. Tremaine & Associates, Inc. prepared the assessment of cultural resources for the Front Street project and concluded that the project area is not known to have "any resources of historical, cultural, archaeological, paleontological or geological significance." (Danville, 2007).

Archaeological Resources. An archaeological consulting firm, Holman & Associates, evaluated the project site to determine the potential for project impacts on cultural resources. A similar analysis was prepared as part of the 2007 Tremaine & Associates, Inc. study for an embankment repair project proposed for Front Street, approximately 150 feet north of Diablo Road. The 2007 evaluation of cultural resources in the project vicinity included an examination of background information for the project area, but only included a site survey of the project area along Front Street. The study by Holman & Associates included a review of the earlier cultural resources report, a review of cultural resources records, and a field inspection of the project site.

Literature Review. Holman & Associates conducted an archaeological literature review at the Northwest Information Center on December 18, 2015 (File No. 15-095) to obtain information about recorded prehistoric archaeological sites in and around the project area, and information about formal archaeological surveys of the improvement area.

There are no recorded archaeological sites within the proposed project area, but there is one recorded site near to it. This site, identified as Cco-352, was first recorded in the1960s, and later became known widely to archaeologists after the publication of a report by David Fredrickson in 1975 entitled "Archaeological Investigations at CCo-352, Danville, Contra Costa County, California." Fredrickson had done extensive research on prehistoric villages located along San Ramon Creek during the previous decade, most notably at CCo-30, a village located along the banks of the creek approximately two kilometers to the north. Analysis of these two archaeological sites by Fredrickson revealed at least two episodes of occupation in the area spanning several thousand years. Cco-352 was described as follows:

> "In the town of Danville, on the northeastern bank of San Ramon Creek approximately 30 meters south of Diablo road and 150 meters southeast of the Diablo Road bridge crossing of San Ramon Creek.
>
> "Intensive occupation midden site with many artifacts and evidence of a cemetery function, weapon maintenance and repair, food processing and preparation, basketry manufacture, and housing"

Excavations carried out by Fredrickson and later by James Lowe in 1976 revealed a dark ashy midden soil containing visible amounts of shellfish on the surface and extending as much as two meters below the surface. It should be noted that both CCo-30 and 352 were originally found because of the discovery of archaeological materials on the surface of what was then farm land, additional materials and human remains had also been spotted eroding out of the creek banks, in particular at the location of CCo-30.

There is no record of a systematic formal archaeological survey of the creek banks in the vicinity of Danville in the latter half of the 20th century. As discussed above, the only recent formal survey was done by Tremaine & Associates, Inc. for the Front Street repair project in 2007. The Tremaine analysis did not find any cultural resources, with the report stating that the area had a low archaeological sensitivity in spite of its proximity to the creek; no mention of nearby CCo-352 was made.

Field Inspection. A visual inspection of the project area was conducted by Holman & Associates on December 28, 2015. All of the creek bank was inspected for visible cultural resources, as were the bank areas where improvements would occur. Unfortunately, the entire project area is covered by a dense layer of vegetation, making it extremely difficult to inspect the underlying soils.

No visual evidence of archaeological resources was found in or adjacent to the proposed project area. However, a substantial portion of the project area is currently covered by dense vegetation obscuring the ground surface and preventing a complete examination of surface conditions in the project area. The current conditions of the project area precluded an extensive and comprehensive field survey.

As a consequence, there is some uncertainty as to whether or not future earthmoving inside the project borders would affect buried prehistoric cultural resources. The only known archaeological site, CCo-352, was originally located approximately 150 meters south of the Diablo Road Bridge, out side of the zone where future improvements would occur. Both Fredrickson and Lowe describe a classic prehistoric midden site, with shellfish remains, stone and bone tool fragments and other forms of cultural activity visible on the surface.

None of the studies completed in the early 1970s sought to produce accurate borders of the archaeological deposits. The existing mapped locations of CCo-352 are only suggestive in terms of how far to the north it might have extended towards the bridge.

The cultural resources evaluation indicates that the proposed stream bank repairs could uncover previously unrecorded archaeological resources, either an extension of CCo-352 or the remains of additional, unrecorded archaeological site locations, a *potentially significant* impact. Since the planned soil disturbance of the bank areas is so limited, however, mechanical testing for subsurface presence/absence of buried deposits is not recommended.

In order to reduce potential impacts on buried cultural resources to a less-than-significant level, the following measures shall be implemented:

CUL-1: Monitoring of Soils Removal for Archaeological Resources. *A qualified archaeological monitor shall be retained to observe soils removal during the initial excavation stage of the project to search for buried deposits. In the event that any archaeological indicators (e.g. darker than surrounding soils of a friable nature, any concentrations of stone, bone or shellfish, artifacts of these materials and any evidence of fires) are discovered, work will be stopped in the area designated by the project archaeologist as archaeologically sensitive until the extent of additional damage to cultural deposits is determined.*

CUL-2: Archaeological Resource Monitoring. *If the level of damage is minimal, archaeological monitoring will continue in order to identify, record and/or remove for analysis any significant archaeological materials. Archaeological monitoring also serves to identify and limit damage to human burials and associated grave goods, both found in the nearby archaeological sites excavated to date.*

In the event that continued bank repair would affect significant amounts of cultural materials, a plan for mitigation of impacts to the resource will be submitted to the Danville Planning Department for approval before work is allowed to recommence inside the zone designated archaeologically sensitive. Mitigation can take the form of data retrieval through limited hand excavation coupled with continued archaeological monitoring to insure that significant archaeological materials and information are recorded and/or retrieved for future analysis.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
6. Geology and Soils - Would the project:				
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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
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 wastewater?	☐	☐	☐	☒

Geological and soils information for the project site and surrounding area was compiled by ENGEO Incorporated (ENGEO), a geotechnical consultant to the Town of Danville, in a technical report[25] and from the environmental review documents prepared by EDAW|AECOM[26] in 2007 for the Front Street landslide repair project adjoining the project site immediately to the north and south.

Local Geology. The site is situated in the Coast Ranges geomorphic province of California, which is characterized by a series of parallel, northwesterly trending, folded and faulted mountain ranges and valleys. Locally, the site is situated within the San Ramon Valley, west of the Dougherty Hills. Quaternary alluvium deposits (Qa) underlain by Tertiary Orinda formation are mapped on the site by Dibblee (2006). Alluvial deposits generally consist of unconsolidated gravels, sands, silts, and clays. Landslide deposits have not been previously mapped by either Dibblee (2005) or Nilsen (1975) along this section of Front Street.

Topography of the project area is very steep and elevations range from approximately 330 feet to 360 feet above sea level. Soils within the proposed project area are classified as Botella clay loam, 0 to 2 percent slopes (USDA 1977). This soil map unit is not classified as hydric by the USDA (1993) and the hazard of erosion is none to slight where the soil is tilled and exposed. The creek banks are very steep and sections of the bank have become denuded where bank failure has occurred. Quaternary alluvium deposits (Qa) underlain by Tertiary Orinda formation are mapped on the site by Dibblee (2006). Alluvial deposits generally consist of unconsolidated gravels, sands, silts, and clays. No areas of landslide deposits were mapped by either Dibblee (1980) or Milsen (1975) along this section of Front Street.

The site is located in a region that contains numerous active earthquake faults; however, it is not located within a State of California Earthquake Fault Hazard Zone. The known active surface faults closest to the site are the Calaveras fault located approximately 0.5 mile to the southwest, the Concord-Green Valley fault located approximately five miles to the north, the Hayward fault located approximately 9.6 miles to

[25] ENGEO Incorporated, 2015. *Recommendations for Mitigation of Landslide: Front Road Landslide, Danville, California*. September 15, revised October 2.

[26] EDAW|AECOM, 2007. *Proposed Initial Study/Mitigated Negative Declaration: San Ramon Creek Bank and Front Street Repair, Town of Danville, Contra Costa County, California*. June.

the southwest, and the Greenville fault located approximately 9.3 miles to the east. Because of the presence of nearby active faults, the region is considered seismically active.

Existing Conditions. A landslide feature is located on the north-to-northeast-facing slope between the Front Street alignment and San Ramon Creek, approximately 80 feet in length. According to the Town of Danville, the landslide was triggered following a large rain event in December 2014. The landslide movement occurred near a soldier pile wall installation that was constructed in another adjacent area where landsliding occurred along the reach in December 2008. We estimate the total surface area of the recent landslide to be approximately 8,000 square feet.

Presently, the landslide does not appear to be undermining Front Street. However, some moderate distress (surface cracks) is noticeable on the existing street pavement located adjacent to the failure. Additional saturation of the creek bank could cause additional landsliding resulting in detrimental damage to the roadway if the landslide is not repaired. Overhead power lines exist directly above and parallel to the creek side curb along Front Street.

ENGEO has concluded that the proposed bank and road repairs would be feasible provided the geotechnical concerns raised in the study are addressed by the project design, and recommendations contained in the study are implemented. The primary geotechnical and geologic concerns are: (1) the need to consider anticipated seismic shaking at the site and the potential for localized seismic settlement; (2) the potential for lateral spreading in creek bank deposits and the need for appropriately designed foundations to provide adequate lateral resistance and prevent settling during strong seismic shaking; and (3) continued downslope movement or retrogressive failure of the observed landslides will continue to impact the existing street improvements.

The following measure shall be required to reduce identified potentially significant geologic, soils, and geotechnical constraints to less-than-significant levels:

6a. Seismic Hazards and Landslides

Fault Rupture. The project site is not located within an Alquist-Priolo Earthquake Fault Zone[27] and based on mapping of geologic hazards by Santa Clara County, the proposed project site is not crossed by any active fault zones and the closest fault rupture hazard zone is approximately 4.25 miles to the north.[28] Therefore, impacts related to the potential for fault rupture would be less than significant.

Groundshaking. Ground shaking is the cause of most damage during earthquakes and an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. The three faults that would most likely produce strong groundshaking at the project site include the San Andreas Fault located about 11

[27] California Division of Mines and Geology, 1982. State of California Special Studies Zones, Morgan Hill, Revised Official Map. January 1. Available online at http://gmw.consrv.ca.gov/shmp/download/quad/MORGAN_HILL/ maps/ MORGANHILL.PDF

[28] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones, Map 53. October 26. Accessed at https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf on November 13, 2015.

miles to the southwest, the Calaveras Fault located approximately 4 miles to the northeast, and the Sargent Fault located approximately 6 miles to the southwest.[29]

Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. Therefore, structures designed in accordance with the CBC should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. While conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake, it is reasonable to expect that a well-designed and well-constructed structure would not collapse or cause loss of life in a major earthquake.

Liquefaction. Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary, but essentially total, loss of shear strength because of pore pressure build-up under the reversing cyclic shear stresses associated with earthquakes. The project site is not located within a Santa Clara County Liquefaction Hazard Zone.[30] According to the Association of Bay Area Governments Liquefaction Susceptibility Map (ABAG 2001), the project site is in an area with "Moderately Low" liquefaction potential. Compliance with building and grading regulations would reduce potential impacts to *less than significant*.

Landslides. A geotechnical exploration on the project site was conducted on June 26, 2015 and consisted of observation of the location and extent of the landslide, locating the approximate boundaries of the subject landslide features, and the drilling of three exploratory boreholes. All three borings were performed on the shoulder or travel lane of Front Street, as close as possible to the center of the slide. Borings 2-B2 and 2-B3 were drilled at the vicinity of the slide, while Boring 2-B1 was advanced at the area where possible landsliding may occur in the future, as shown in Figure 2. The exploratory boreholes were drilled up to a maximum depth of 401/2 feet below ground surface and were approximately located by pacing and visual sighting from existing features; they should be considered accurately located only to the degree implied by the method used. The elevations of the borings were estimated from physical features and contours provided on a topographic plan provided for ENGEO.

The soils encountered in the borings underneath the asphalt concrete include a layer of fill material to an approximate depth of 6 to 10 feet. This fill material generally consists of medium stiff to stiff clay of medium to high plasticity with trace gravel and poorly graded sand with gravel. The fill material is underlain by approximately 15 to 27 feet of native soil which predominantly consists of dense to very dense silty sand. Bedrock was found at an average depth of 30 feet below ground surface. The bedrock generally consists of friable and highly to moderately weathered claystone.

Soils and bedrock as described above are present below the theoretical slide plane. This stratigraphy is consistent with borings B-1, B-2, and B-3 performed in 2007, demonstrating that the stratigraphy is relatively consistent along the top of bank of San Ramon Creek in this area.

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[29] U.S. Geological Survey and California Geological Survey, 2006. *Quaternary Fault and Fold Database for the United States*. Accessed at http://earthquake.usgs.gov/hazards/qfaults/map/ on November 13, 2015.

[30] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones, Map 53. October 26. Accessed at https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf on November 13, 2015.

The purpose of the proposed project is to repair active landsliding occurring along the banks of San Ramon Creek that are impacting Front Street. Existing conditions, if not repaired, may pose potential substantial adverse effects to people or structures. Implementation of the project will prevent further landsliding in the area and repair damage to Front Street. Therefore, project impacts will improve existing conditions and reduce impacts to less than significant.

6b. Erosion Hazards

Without proper soil stabilization controls, grading activities could increase the potential for soil loss and erosion by wind and stormwater runoff through the exposure of areas of loose soil. Within the project site, soil erosion hazards vary from none to slight (USDA 1993). Soil exposed by grading or clearing activities could be subject to erosion if exposed to heavy winds or rain. Implementation of an Erosion Control Plan and compliance with Mitigation Measure Geo-l.l would lessen the potential for substantial soil erosion or loss of topsoil during grading activities to less than significant. Additionally, the project involves the excavation of and transportation of sediment. These activities could lead to overall erosion and loss of topsoil.

6c, 6d, 6e. Geologic Stability and Soil Engineering Constraints

Soils within the proposed project area are classified as Botella clay loam, 0 to 2 percent slopes (USDA 1977). Quaternary alluvium deposits (Qa) underlain by Tertiary Orinda fonnation are mapped on the site by Dibblee (2006). The repair of Front Street would not facilitate or lead to on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. The purpose of the proposed project is to prevent these events.

Expansive Soils. Most of the soils encountered during ENGEO's geotechnical evaluations are considered non-expansive. However, if expansive soils are encountered during construction, they will be replaced as compacted engineered fill at above optimum moisture content to mitigate potential future shrink-swell potential.

Soils Incapable of Supporting Septic Tanks or Alternative Wastewater Disposal Systems. The proposed project does not involve the use of septic tanks.

Mitigation Measures – Geology and Soils (GEO)

The following measures are required to reduce the project's geological and soils impacts to less-than-significant levels:

> ***GEO-1: Incorporation of Geotechnical Investigation Recommendations.*** *The project design shall incorporate all applicable recommendations in ENGEO's geotechnical investigation for the proposed project (included as Attachment 1) in order to minimize the potential impacts resulting from regional seismic activity and soil engineering constraints.*
>
> ***GEO-2: Erosion Control Measures.*** *Specific measures including, but not limited to the following, shall be implemented to reduce erosion or the loss of topsoil:*
>
> - *Construction operations shall not be conducted during the rainy season.*
> - *Limits of the area to be cleared and/or graded shall be clearly defined and marked to prevent damage by construction equipment.*
> - *Erosion control blanket shall be installed, and revegetation of the project area shall be accomplished as detailed in the Revegetation Plan described above in Section 4, Biological Resources.*

- *Topsoil overburden shall be stockpiled and redistributed within the graded area after rough grading to provide a suitable base for seeding and planting.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
7. Greenhouse Gases - Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

7a. Greenhouse Gas (GHG) Emissions

Short-term GHG emissions would be generated by project-related construction activities. In addition, project implementation would also contribute to long-term increases in greenhouse gases (GHGs) from direct sources (traffic increases and minor secondary fuel combustion emissions from space heating). Development occurring as a result of the proposed project would also result in other indirect operational increases in GHG emissions as a result of electricity generation to meet project-related increases in energy demand. Electricity generation in California is mainly from natural gas-fired power plants. However, since California imports about 20 to 25 percent of its total electricity (mainly from the northwestern and southwestern states), GHG emissions associated with electricity generation could also occur outside of California. Space or water heating, water delivery, wastewater processing and solid waste disposal also generate GHG emissions.

The CalEEMod 2011.1.1 computer model was used to calculate GHG emissions that would be generated by the construction of the proposed slide repair project (see Attachment 1 for model outputs), and project construction is estimated generate up to approximately 23.7 metric tons of CO_2-equivalents (MT CO_2e) per year.[31] The BAAQMD does not have a quantitative significance threshold for construction-related GHG emissions, but the project's estimated construction-related GHG emissions are expected to have a

[31] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents" or CO_2e, which present a weighted average based on each gas's heat absorption (or "global warming") potential. When CO_2 and non-CO_2 GHG emissions are considered together, they are referenced as CO_2e, which add approximately 0.9 percent to CO_2 emissions from diesel equipment exhaust (California Climate Action Registry, *General Reporting Protocol, Version 3.1,* January 2009. Available online at: http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html. Accessed on November 20, 2015). See Table 1 for other construction assumptions.

less-than-significant impact on global climate change. For comparison purposes, this emissions rate is well below this report's operational significance threshold of 1,100 metric tons (MT) of CO_2e per year,[32] which would be an indication that the project's construction-related GHG emissions would be less than significant. The proposed project would also be subject to the existing CARB regulation (Title 13 of the California Code of Regulations, Section 2485), which limits idling of diesel-fueled commercial motor vehicles, and compliance with this regulation would further reduce GHG emissions associated with project construction vehicles (compliance with idling limits is required under Mitigation Measure AQ-1 in Section 3, Air Quality). The BAAQMD also encourages implementation of construction-related GHG reduction strategies where feasible, such as: using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment such that these vehicles/equipment comprise at least 15 percent of the fleet; using local building materials such that these materials comprise at least 10 percent of all construction materials; and recycling or reusing at least 50 percent of construction waste or demolition materials. None of these measures is specifically proposed as part of the project.

There would be no operational GHG emissions associated with the slide repair project. Therefore, implementation of the proposed landslide repair project would not directly or indirectly contribute to long-term increases in GHG emissions.

7b. Greenhouse Gas Reduction Plans, Policies, and Regulations

California has passed a number of bills related to GHG emissions and the Governor has signed at least three executive orders regarding greenhouse gases. The Governor's Office of Planning and Research has not yet established CEQA significance thresholds for GHG emissions. GHG statutes and executive orders (EO) include EO S-1-07, EO S-3-05, EO S-13-08, EO S-14-08, EO S-20-04, EO S-21-09, AB 32, AB 341, AB 1493, AB 3018, SB 97, SB375, SB 1078 and 107, SB 1368, and SB X12. AB 32 establishes regulatory, reporting, and market mechanisms to reduced statewide GHG emissions to 1990 levels by 2020. Pursuant to this requirement, the California Air Resources Board (CARB) adopted its Scoping Plan, which contains the main strategies to achieve required reductions by 2020.

Consistent with recommendations contained in the AB 32 Scoping Plan (December 2008) adopted by the California Air Resources Board, the Town of Danville established a goal of reducing the Town's current level of GHG emissions by 15% by year 2020. To achieve this goal, the Town adopted a Climate Action Plan (CAP) in May 2009.[33] The CAP outlines Best Practices to address energy efficiency/conservation, water conservation in water and wastewater systems, green building standards, waste reduction and recycling, climate-friendly product purchasing, use of renewable sources of energy and low-carbon fuels, improving transportation efficiency and promoting alternative transportation modes, storing/offsetting carbon emissions, and promoting community and individual actions.

Goals and best practices in the CAP that would pertain to the proposed project include installation of sustainable landscaping to reduce water consumption and salvage/reuse of construction and demolition waste. The proposed revegetation plan includes the use of native species and no landscape irrigation system, which would be consistent with best practices to reduce water use for landscaping. The proposed slide repair project would maximize reuse of on-site soil materials. In addition, as indicated above, the project's construction-related GHG emissions would not exceed the above GHG significance threshold,

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[32] The BAAQMD's *Options and Justification Report* establishes thresholds based on substantial evidence and are consistent with the thresholds outlined within the BAAQMD's 2010 CEQA Air Quality Guidelines, [32] and the recommended GHG threshold for operational GHG emissions is 1,100 MT CO_2e per year.

[33] Available online at http://www.danville.ca.gov/content.aspx?id=5174.

which was established by the BAAQMD in response to AB 32. Therefore, the project's short-term GHG emissions would have a less-than-significant impact on climate change. Since there are no long-term GHG emissions associated with the slide repair project, project operation would have no impact on climate change. Therefore, project-related GHG emissions would not conflict with the Town's CAP or any other plans and policies adopted for the purpose of reducing GHG emissions, a *less-than-significant* impact.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
8. Hazards and Hazardous Materials - Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) 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?	☐	☐	☐	☒

8a. Routine Transport, Use, or Disposal of Hazardous Materials

The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The project does not involve the routine use of such materials.

8b, 8c, 8d. Release of or Exposure to Hazardous Materials, Hazardous Emissions or Use of Acutely Hazardous Materials, Site Included on List of Hazardous Materials Sites

Construction activities required for the proposed project would entail the potential introduction of minor amounts of fuels, lubricants, and solvents on a temporary basis at the site. These materials will be stored and handled according to the Town's standard procedures for construction activities. All such materials

will be contained within a staging area designated on Front Street or Front Street, away from the creek banks and channel. Consequently, the proposed project would not 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.

During the site reconnaissance, no visible use or storage of hazardous materials was observed on-site. The Town has no records of hazardous waste occurring at the project site. An examination of the Envirostor[34] database maintained by the California Department of Toxic Substance Control (DTSC) indicates that there are three recorded cases of leaking underground fuel tanks (LUFT) in the general vicinity of the project site. The DTSC database indicates that there are no state or federal hazardous waste facilities or cleanup sites in the project area. The site is not on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

The State Water Resources Control Board (SWQCB) has jurisdictional authority over these cases and the SWRCB maintains its own database (GEOTRACKER[35]) of Leaking Underground Storage Tank (LUST) Cleanup Sites. The SWQCB's records indicate that two of the LUST Cleanup Sites at 195 and 300 Hartz Avenue have completed the required cleanup and those cases have been closed. The third Lust Cleanup Site is located at 198 Diablo Road, at Front Street, and adjoins the project site. This case (#07-0038) remains open and subject to remediation. The SWQCB maintains six monitoring wells at this site as part of the remediation efforts for this LUST site.

The proposed project is located less than 0.25-mile from the San Ramon Valley Christian Academy, a K-8 school operated at Community Presbyterian Church on West EI Pintado Road. However, as discussed above, the project does not emit hazardous emissions or require handling hazardous or acutely hazardous materials, substances, or waste.

8e, 8f. Airports/Airstrips

The project site is not located within an airport land use plan area. The nearest airports, Oakland International Airport and Buchanan Field Airport in Concord, are approximately 14 and 13 miles away, respectively. The project site is not within the vicinity of a known private airstrip.

8g. Emergency Plans

The project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. According to Figure 18 in the Town of Danville General Plan, Front Street is designated a "Local Street" and carries 3,900 or fewer vehicles daily. The street is 40 feet in width (curb to curb) with two travel lanes, one northbound and one southbound, and pedestrian sidewalks on both sides of the street.

The proposed project will require the approximately 200 feet of Front Street's southbound lane near Diablo Road to be closed for the duration of the construction activities. The Town of Danville will designate alternate routes for vehicles and institute traffic controls. Pedestrians will be able to continue using the sidewalk on the east side of Front Street. Because pedestrian and vehicular traffic will be safely rerouted away from Front Street during the proposed project, the impact to emergency response or evacuation will be less than significant.

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[34] Source: http://www.envirostor.dtsc.ca.gov/public/

[35] Source: http://geotracker.swrcb.ca.gov/

8h. Wildland Fire Hazards

The area surrounding the project site is urban in character, consisting of commercial and residential uses. As a result, the proposed project would not 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.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
9. Hydrology and Water Quality - Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
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)?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

9c, 9d, 9e. Drainage

San Ramon Creek Conditions. An evaluation of the hydrological and hydraulic conditions on San Ramon Creek in the project vicinity was conducted as part of the Town's embankment repair project on Front Street in 2007. The assessment of hydrological characteristics for the stream was conducted in 2007 by a geotechnical engineering consultant, ENGEO, and presented as part of the environmental review

process for the creek bank repair project. The hydraulic analysis[36] is summarized below; the detailed study is available at the Town's Development Services Department offices.

In the project vicinity, San Ramon Creek is a trapezoidal earthen channel that flows northwest through Danville. Green Valley Creek, a tributary of San Ramon Creek, drains to San Ramon Creek immediately downstream of the project area. San Ramon Creek converges with Walnut Creek approximately six miles to the north, eventually discharging into the Suisun Bay 16 miles to the north. The majority of San Ramon Creek has been significantly modified for flood control purposes, and includes both grade control structures and channelization of the creek. A drop structure exists immediately upstream of the confluence of Diablo Road Bridge over San Ramon Creek.

ENGEO conducted a geotechnical evaluation and water surface profile of the site (ENGEO, 2007). The Army Corps of Engineers' HEC-RAS version 3.1.3 was used to estimate the 100-year water surface elevation for the portion of San Ramon Creek immediately downstream from the project area. A projected 100-year 6-hour peak flow rate of 10,900 cubic feet per second for the year 2020 was obtained from the Contra Costa County Public Works Flood Control Department for the subject reach from a 1975 study. The HEC-RAS calculated water surface elevation was 351.7 (a uniform flow depth of 24.42 feet and channel elevation of 327.29), about two feet below the effective top of bank. ENGEO determined the creek velocity in this reach to be 7.71 feet per second. ENGEO concluded that continued bank failure will likely occur along the westerly creek bank of San Ramon Creek in the project vicinity. The proposed project would repair the landslide on the western bank of the creek.

9a, 9f. Water Quality

Project construction would have the potential to degrade local water quality in San Ramon Creek. Due to the proposed construction activities within the creek channel, there would be a high potential for erosion and downstream sedimentation if soil materials exposed during project construction were accidentally released into creek flows. Operation of heavy equipment within or near the creek channel during project construction would also introduce the potential for release of petroleum products into the creek. After completion of the project, exposed slopes would also be subject to erosion if not properly protected.

The Town of Danville operates a Stormwater Pollution Control Program (SPCP) as part of the Contra Costa County Clean Water Program. Since the early 1990s, Contra Costa County municipalities have required contractors to implement temporary Best Management Practices (BMPs) to minimize the amount of sediment and other pollutants from storm run-off that enters drainage networks during construction. In addition, municipalities have encouraged developers to design their projects to minimize new impervious areas and to incorporate into their plans permanent treatment BMP's, features and devices that detain, retain, or treat storm runoff for the life of the project.

To mitigate the potential for erosion and downstream sedimentation of San Ramon Creek, the Town will require the construction contractor to implement an erosion control plan. This plan will outline appropriate measures to address potential erosion hazards during and after construction (including interim measures). The proposed bridge improvements will comply with the Contra Costa Clean Water Program requirements.

[36] ENGEO, *Recommendations for Mitigation of Landslide, Front Road Landslide, Danville, California*. February 22, 2007.

Mitigation Measures – Hydrology and Water Quality (HYD)

The following measures are required to reduce the project's water quality impacts to less-than-significant levels:

> ***HYD-1****: An Erosion Control Plan shall be prepared in order to conform to the water quality standards for the Town and the RWQCB. The Plan shall include the measures listed below as well as all other appropriate Best Management Practices for construction projects:*
>
> *a. Prevent spills and leaks from construction vehicles and equipment.*
>
> *b. Clean up spills immediately when they happen using dry cleanup methods whenever possible and, if water must be used, use just enough to keep the dust down.*
>
> *c. Store materials under cover.*
>
> *d. Cover and maintain dumpsters.*
>
> *e. Clean up paints and solvents, adhesives, and cleaning solutions properly.*
>
> *f. Keep fresh concrete and cement mortars out of gutters, storm drains, and streams.*
>
> *g. Service and maintain portable toilets.*
>
> *h. Dispose of cleared vegetation and soils properly.*
>
> *i. Make sure all demolition waste is properly disposed.*

In addition, grading activities within the channel will be limited to the dry season (June 15th to October 15th).

9g, 9h, 9i, 9j. Flood Hazards

Surface Flows and Flood Hazards. The proposed project would not generate or contribute to increases in runoff flows through the repair of creek banks. The project maintains existing drainage patterns in the project vicinity and does not alter the stream course of San Ramon Creek.

The Town of Danville provides flood hazard information on the Town's web site.[37] This information is based on a flood insurance study (September 2001) prepared by the Federal Emergency Management Agency (FEMA). According to FEMA Flood Insurance Rate Maps, the section of San Ramon Creek within the project area is designated "Zone A Contained in Channel," meaning the base flood elevations and flood hazard factors are not determined (FEMA 2001). The map indicates that a 100-year flood event will be contained within the channel. The Town of Danville will install a retaining wall along the existing edge of roadway to support Front Street and install riprap on the banks of San Ramon Creek. However, these structures will not impede or redirect flood flows.

No housing will be built as a result of this project and, therefore, no housing will be placed within a 100-year flood hazard. Construction for the project will take place during the spring, summer, or fall months when creek levels are lowest. Thus, work along the banks of San Ramon Creek would not expose people or structures to significant risk of loss, injury, or death from flooding.

[37]Source: http://www.ci.danville.ca.us/default.asp?serviceid1=367&Frame=L1

The California Department of Water Resources, Division of Safety of Dams maintains a database of California jurisdictional dams regulated by the agency.[38] There are no jurisdictional dams located on San Ramon Creek or its tributaries upstream of the project area. Consequently, the proposed project would not result in risk of loss, injury, or death related to dam or levee failure.

9b. Groundwater Resources

Groundwater. The project would have no direct or indirect impacts on groundwater supplies or recharge. Therefore, the project would have a *less than significant* impact on surface and groundwater conditions.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
10. Land Use and Planning - Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

10a. Physically Divide a Community

The proposed project would not alter existing use of the project site. Project implementation would ensure transportation access through the community rather than physically divide the community. The proposed bridge and embankment repair would have a beneficial effect for the residents of Danville and the public at large.

The project area consists of a section of San Ramon Creek that has been highly disturbed for flood control and bridge construction. Front Street immediately adjoins the project site. Commercial and residential uses surround the project site. Professional office uses are located opposite the project site, to the east and across Front Street. These commercial uses are part of Danville's Downtown Business District (DBD) 4, Residential-Serving Commercial.

Low and medium density multiple-family residential uses occur to the north and northeast of the project site; these are located approximately 130 to 350 feet from the site, respectively. A General Plan-designated "Public and Semi-Public" use, the Community Presbyterian Church, is situated approximately 300 feet north of the project site.

The Town is divided into 21 Planning Areas, each distinguished by its location, unique characteristics, age and natural or constructed boundaries. The project area is located in Planning Area 6, La Gonda/West El Pintado. This Area is a mixed-use area located west of I-680 and east of San Ramon Creek. The area contains a combination of residential, professional, public, and institutional uses.

[38] Source: http://www.water.ca.gov/damsafety/damlisting/index.cfm

10b. Project Consistency with Land Use Plans and Policies

Town of Danville 2030 General Plan[39].

The purpose of the proposed project is to ensure safe and efficient operation of Front Street through the repair of failing creek embankments and the restoration of the road pavement on the northbound lane of this roadway. The proposed project would also repair road damage resulting from settlement due to stream bank scouring and erosion. The project plans also entail preparation and implementation of a traffic management plan for construction traffic on Front Street, ensuring the safe operation and movement of construction equipment to and from the project area.

The Public Facilities Chapter of the General Plan also provides goals and policies for Infrastructure improvements and maintenance. Goal 20 of the General Plan ensures "that local water supply, storm drainage, sewerage, streets, and similar facilities are well maintained; improvements meet existing and future needs; and land use decisions are contingent on the adequacy and maintenance of such facilities." Goal 20 is supported by the following policies:

20.01 Maintenance and improvement of the street and storm drainage system shall receive high priority during the annual Capital Improvement Program review.

20.05 Continue to provide for flood control, protection from erosion and siltation, and improvements to urban runoff as required by federal law. Continue to explore the recreational potential of flood control facilities and waterways, consistent with public safety and security, and stress aesthetic treatment of needed facilities.

20.08 Protect surface water from pollution by ensuring that stormwater discharges comply with San Francisco Bay Control Program Area Regional Water Quality Control Board limits, establishing nonpoint source pollution control measures as required by federal and state law, controlling erosion and sedimentation, and encouraging retention ponds and other measures which reduce or contain urban runoff.

20.09 Encourage coordination of water, sewer, storm drain, electric, gas, and cable maintenance and repair activities with the Town of Danville's road maintenance and repair projects in order to minimize disruption of streets and reduce infrastructure-related expenses.

The proposed project implements these policies through the repair and maintenance of existing storm drainage facilities that ensure protection from flood hazards, while retaining the aesthetic values that contribute to the Town's quality of life. The project also promotes the protection of water quality through the control of an existing source of water pollution, i.e. eroding stream banks that contribute to sediment loading during moderate to heavy storm events. The restoration and protection of embankments and bridge abutments would reduce the potential for scouring and bank erosion.

The General Plan Public Facilities Chapter presents a discussion concerning the variety of techniques to be used as part of the Implementation Strategy for the Plan's goals and policies. Included among the mechanisms described, the General Plan identifies a Storm Water Pollution Control Program. In

[39] Danville, Town of. 2013. *The Town of Danville 2030 General Plan*. Adopted March 19. Available on line at http://www.ci.danville.ca.us/default.asp?serviceid1=461&Frame=L1.

accordance with the Federal Stormwater Pollution Control Program and in compliance with the state and federal Clean Water Acts, the Town is implementing a number of water pollution control measures. Foremost among these is a nonpoint source program which requires "best management practices" to control the discharge of pollutants to storm drains and creeks. Stormwater pollution control prevention measures are incorporated in the planning, design, construction, and operation of all projects with the potential to create water quality impacts.

Chapter 5, *Public Facilities*, of the General Plan describes creeks as one of the defining elements of Danville's landscape and as an important aesthetic and ecological asset within the community. Major creeks in the Town include San Ramon Creek, Sycamore Creek, Green Valley Creek, and the East and West Branches of Alamo Creek. Physical conditions and ownership patterns along Danville's creeks vary. Some sections have been channelized for flood control purposes, while other sections have been incorporated as recreational amenities or trail corridors within Town parks.

The Resources and Hazards Chapter 6 of the General Plan presents environmental quality and hazards goals and policies that guide planning efforts related to these issues. Relevant goals and policies include the following:

> Goal 21 Protect and enhance Danville's natural features, including its hillsides, ridgelines, creeks, vegetation, and wildlife.
>
> Goal 22 Improve water quality in Danville and the water bodies which receive runoff from Danville, including San Francisco Bay.
>
> 21.01 The Town shall seek to preserve and enhance natural habitat areas that support wildlife, including large continuous areas of open space and wetland and riparian habitat.
>
> 21.06 Discourage activities that would harm the health of existing trees. Prevent the unnecessary removal and alteration of trees, including "protected" trees as defined by the Town's Tree Preservation Ordinance and other trees that contribute to the scenic beauty of the Town. Public and private improvements should be designed to avoid removal of trees of any type. If removal is necessary, trees should be replaced with an appropriate number and species.
>
> 21.07 Protect rare and endangered plant and animal species and encourage the retention and reestablishment of native vegetation in development projects and public facility construction where appropriate.

The proposed project fulfills Goals 21 and 22, and implements its supporting policies through a project design that includes the restoration of vegetation to be removed by grading for embankment slope repair. The revegetation program for the project would enhance the existing riparian habitat along San Ramon Creek. Tree removal has been minimized and limited to only those that would restrict or preclude required stream bank repairs. Tree removal would be mitigated through the replacement of lost trees with native plantings that enhance the habitat value of the riparian zone.

> Goal 26 Reduce the potential for flooding and minimize the risks to life and property resulting from flooding that does occur in Danville.
>
> 26.01 Take all appropriate steps in the Development Review process to protect life and property from flooding and erosion along local creeks.

26.05 Work in conjunction with the CCCFCWCD to maintain natural creek settings to the extent possible while Program providing for adequate drainage capacity. Creeks should be retained in their natural state whenever possible to maintain water quality, wildlife diversity, aesthetic values, and recreational opportunities.

The slope protection and repair project will restore the eroded embankments of San Ramon Creek to sustain the stream's capacity for carrying storm runoff without causing further hazardous erosion along the stream banks. The erosion of the creek embankments has resulted in pavement, sidewalk, and infrastructure settlement that poses safety hazards to the residents and visitors in Danville. Following grading and slope repairs, the riparian zone will be restored through the planting of native species, thereby enhancing the habitat value of this section of San Ramon Creek.

10c. Conflict with Habitat Conservation or Natural Community Conservation Plans

The Danville General Plan does not identify any habitat conservation plans or natural community conservation plans that apply to the project site.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
11. Mineral Resources - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

11a, 11b. Mineral Resources

The Danville 2030 General Plan does not identify any regionally or locally-important mineral resources on the project site or in its vicinity.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
12. Noise - Would the project result in:				
a) 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?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Existing Noise Environment

Noise-Sensitive Receptors. Residential and school uses are generally considered to be noise-sensitive uses or sensitive receptors. There are residential uses located directly north of the project site, across San Ramon Creek and their backyards are located as close as 75 feet north of the project site. The closest building associated with the San Ramon Valley Christian Academy School to the north is located approximately 400 feet from the project site. There are commercial uses located as close as 50 feet to the south, across Front Street.

Applicable Noise Standards and Significance Criteria

Danville 2030 General Plan Resources and Hazards Element. Noise is addressed through implementation of General Plan policies, including noise and land use compatibility guidelines, and through enforcement of noise ordinances. General Plan policies provide guidelines for determining whether a noise environment is appropriate for a proposed or planned land use. Noise ordinances regulate sources such as mechanical equipment and amplified sounds as well as prescribe hours of heavy equipment operation such as for construction.

The Danville 2030 General Plan Resources and Hazards Element specifies an exterior noise compatibility guideline of 60 dBA (CNEL)[40] in new residential areas and supports measures to mitigate future increases in noise levels. Since the project would involve short-term noise impacts of proposed slope repair work, this noise guideline would not be applicable to this project. The Danville Noise Ordinance (Chapter IV, Section 4-2.4(d) of the Danville Municipal Code) would, however, apply to this project and it limits construction or repair work to the following hours: 7:30 a.m. to 7:00 p.m., Monday through Friday; 9:00 a.m. to 7 p.m., Saturday, Sunday, and holidays. The ordinance does not specify any construction noise limits. Proposed construction work would be conducted during the ordinance time limits, and therefore, potential conflicts with noise regulations would be *less than significant*.

12a. Noise Compatibility of Proposed Uses

There would be no noise compatibility issues posed by the proposed landslide repair project since the project would not involve development of a noise-sensitive use.

[40] Time variations in noise exposure are typically expressed in terms of a steady-state energy level (called Leq) that represents the acoustical energy of a given measurement. Leq (24) is the steady-state energy level measured over a 24-hour period. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dBA increment be added to "quiet time" noise levels to form a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL). CNEL adds a 5-dBA "penalty" during the evening hours (7:00 p.m. to 10:00 p.m.) and a 10-dBA penalty during the night hours (10:00 p.m. to 7:00 a.m.). Lmax is the maximum, instantaneous noise level taken during the measurement period.

12b. Groundborne Noise and Vibration

Construction of the proposed project could cause vibration that could disturb local residents or cause cosmetic damage to buildings and structures. The closest existing structures that would be subject to construction-related vibration effects would be commercial structures located to the north, as close as approximately 50 feet from the project site's southern boundary.

In general, cosmetic or threshold damage to modern industrial/commercial structures and recently constructed residential structures can occur at continuous vibration levels over 0.5 inches per second, Peak Particle Velocity (in/sec PPV).[41] Bulldozers, jackhammers, and loaded trucks typically generate vibration levels on the order of 0.003 to 0.089 in/sec PPV at 25 feet. Therefore, at distances of 50 feet or more, groundborne vibration and noise levels generated by most types of construction activities[42] would be even less and would remain well below threshold levels for cosmetic damage to structures.[43] Operation of impact or vibratory pile drivers can generate higher vibration levels (1.1 in/sec PPV at 25 feet). At 50 feet, vibration from operation of such equipment could reach 0.5 in/sec PPV, which could meet but not exceed the 0.5 in/sec PPV threshold for cosmetic damage. However, pile driving equipment is not proposed to be used during project construction (piles are proposed to be drilled). Operation of large truck-mounted vibratory compactors can generate higher vibration levels (0.2 in/sec PPV at 25 feet). At 50 feet, vibration from operation of such equipment could reach 0.1 in/sec PPV, which would not exceed the 0.5 in/sec PPV threshold for cosmetic damage at nearby structures. Therefore, operation of vibratory compactors or any other construction equipment at the project site would have a *less-than-significant* vibration impact.

Groundborne noise refers to a condition where noise is experienced inside a building or structure as a result of vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. Groundborne noise can be problematic in situations where the primary airborne noise path is blocked, such as in the case of a subway tunnel passing in close proximity to homes or other noise-sensitive structures. However, proposed noise and vibration-generating construction activities associated with the proposed project would involve techniques that primarily generate airborne noise and surface vibration. Any potential groundborne noise from construction activities would be imperceptible, and therefore would have *no impact*.

12c. Long-term Noise Increases

There would be no long-term, operational noise increases associated with the proposed landslide repair project.

12d. Short-Term Noise Increases

Construction activities associated with the project would result in temporary noise increases at nearby sensitive receptors. Construction activities would occur over a two-month period. Construction noise levels would fluctuate depending on construction phase, equipment type, and duration of use; distance between noise source and receptor; and presence or absence of barriers between noise source and receptor. Typical construction equipment generates noise levels ranging from about 76 to 88 dBA (Leq) at

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[41] California Department of Transportation (Caltrans). *Transportation and Construction Vibration Guidance Manual*, p 38. September 2013. Available online at

[42] Ibid. p. 37.

[43] The American Association of State Highway and Transportation Officials (AASHTO) recommends a threshold of 0.5 in/sec PPV for transient and intermittent vibrations.

a distance of 50 feet from the source, with slightly higher levels of about 88 to 91 dBA for certain types of earthmoving and impact equipment. While the highest construction-related noise levels are typically associated with operation of impact equipment such as pile drivers, no pile driving activities are proposed as part of project construction. **Table 8** indicates typical construction noise levels at distances corresponding to the closest residential and commercial receptors (located a minimum of 75 and 50 feet, respectively, from equipment noise sources).

Temporary disturbance (e.g., speech interference) can occur if the noise level in the interior of a building exceeds 45 to 60 dBA.[44] To maintain such interior noise levels, exterior noise levels at the closest residences (with windows closed) should not exceed 70 to 80 dBA and this exterior noise level is used as a significance threshold. As indicated in Table 8, maximum construction noise levels from operation of certain types of construction equipment could result in periodic speech interference effects at the closest residential, school, and commercial receptors to the north, northeast, and south, respectively. This would be a *potentially significant* impact. However, with implementation of noise controls (Mitigation Measure 11-1), construction noise levels could be reduced to below the minimum 70-dBA speech interference threshold at the closest receptors, reducing this impact to a less-than-significant level.

Project implementation would result in temporary increases in truck traffic along the proposed access route: Diablo Road and Front Street (east of the site to access the I-680 freeway)). Truck noise level increases along this access route would depend on vehicle speed, load, terrain, and other factors. The effects of construction-related truck traffic would depend on the level of background noise already occurring at a particular receptor site. In quiet noise environments such as residential neighborhoods (Leq averaging 50 dBA), one truck per hour would be noticeable, even though such a low volume would not measurably increase noise levels. In slightly noisier environments (Leq averaging 60 dBA), the threshold level is higher, and 10 trucks per hour would be required to noticeably increase the noise exposure. In moderately noisy environments (Leq averaging 70 dBA), a noise increase would be perceptible with the addition of 100 trucks per hour.[45]

Haul or delivery truck volumes associated with the proposed project would vary from day to day, with the highest volumes generally occurring during the excavation, concrete placement, and backfilling stages of project construction. It is estimated that a maximum of approximately four haul or concrete trucks per hour would be generated during these phases of construction.[46] In quiet environments or during quieter times of the day, truck noise is mainly a single-event disturbance; although the hourly average noise level associated with short single events is not very high, individual noise peaks of 80 to 85 dBA at 50 feet are common during a truck passage. However, in noisy environments or during the less noise-sensitive, daytime hours, truck noise is perceived as part of the total noise environment rather than as an individual

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[44] *In indoor noise environments, the highest noise level that permits relaxed conversation with 100% intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at 3 feet, which occurs when background noise levels exceed 60 dBA* (U.S. Environmental Protection Agency (U.S. EPA), *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Condensed Version),* EPA/ONAC 550/9-74-004, Washington D.C., March 1974).

[45] *California Department of Transportation (Caltrans*), Technical Noise Supplement, a Technical Supplement to the Traffic Noise Analysis Protocol, October 1998. Available online at *http://www.dot.ca.gov/hq/env/noise/pub/Technical%20Noise%20Supplement.pdf*. Accessed February 9, 2016.

[46] This estimate assumes that approximately 15 minutes would be required to fill a haul truck or to empty a concrete mixer truck, resulting a maximum truck volume of approximately four trucks per hour.

disturbance. Based on 2012 noise contours presented in the Danville 2030 General Plan,[47] noise levels along these streets (east of the site) range between 65 and 75 dBA (Ldn). Therefore, noise levels associated with hourly haul truck volumes (rather than a single passing truck) of approximately four trucks per hour would not exceed the threshold guidelines, ranging from 10 to 100 trucks per hour, for such a noise environment, a *less-than-significant* impact. In addition, such an hourly truck volume is not expected to generate noise levels above the 70-dBA speech interference threshold at the closest commercial receptors.

TABLE 8

PROJECT-RELATED CONSTRUCTION NOISE LEVELS (IN DBA)

	Noise Level at 50 Feet		Noise Level at 75 Feet	
Equipment	**Without Controls**	**With Controls[a]**	**Without Controls**	**Without Controls**
Earthmoving				
Front Loaders	79	75	75	71
Backhoes	85	75	81	71
Dozers	80	75	76	71
Graders, Excavators	85	75	81	71
Trucks	91	75	87	71
Materials Handling				
Concrete Mixers	85	75	81	71
Concrete Pumps	82	75	78	71
Cranes	83	75	79	71
Derricks/Drill Rigs	88	75	84	71
Stationary				
Pumps	76	75	72	71
Generators	78	75	74	71
Compressors	81	75	77	71
Other				
Saws	78	75	74	71
Vibrators	76	75	72	71

[a] Estimated levels can be obtained by selecting quieter procedures or machines and implementing noise control features that do not require major redesign or high cost (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures).

SOURCES: U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances,* December 1971.

12e. Airport-Related Issues

The project site is not located within an airport land use plan. There is no public airport, public use airport, or private airstrip located within two miles of the project site. The proposed project would not expose people residing or working in the area to excessive noise levels. Therefore, there would be no airport-related noise impact.

[47] Town of Danville, *Danville 2030 General Plan, Resources and Hazards Element, Figure 24, Noise Contours (2012)*, March 19, 2013.

Mitigation Measures – Noise and Vibration (NOI)

NOI-1: Implement Construction Noise Controls. *The following noise control measures shall be implemented to mitigate construction-related noise impacts on nearby sensitive receptors to a less-than-significant level:*

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) in order to minimize construction noise impacts. Construction equipment shall not generate noise levels above 75 dBA at 50 feet as listed in Table 8.

b. Stationary noise sources shall be located at least 100 feet from adjacent and nearby school and residential receptors if possible. If they must be located closer than 100 feet from these receptors, they shall be enclosed within temporary sheds. Enclosure openings or vents shall face away from sensitive receptors to the north and northeast.

c. Material stockpiles as well as maintenance/equipment staging and parking areas shall be located at least 100 feet away from the closest residential receptors to the extent feasible.

d. A designated project liaison will be responsible for responding to noise complaints during the construction phases. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including conducting periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible.

e. In the event of noise complaints, the contractor will provide information to the Town within 48 hours of being notified of the complaint, regarding the noise levels measured and activities that correspond to the complaints. The contractor will be responsible for the correct installation and use of all implemented noise control measures and for complying with noise specifications.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
13. Population and Housing - Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

13a, 13b, 13c. Population Growth, Displaced Housing and People

The proposed project would not induce substantial population growth in Danville through neither the development of new homes or businesses, nor the extension of roads or infrastructure. The project would not displace substantial numbers of existing housing or people, and would not necessitate the construction of replacement housing elsewhere. The project would restore an existing creek embankment and repair roadway pavement damaged by settlement due to a landslide. Consequently, the project would not have a significant impact on the population and housing characteristics of the Town.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
14. Public Services -				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒

14a. Public Services

The proposed project would benefit the provision of public services to the community by ensuring a reliable and safe movement for to vehicles, bicyclists, and pedestrians on Front Street adjoining San Ramon Creek. The construction of the stream bank reinforcement and the repair of the northbound lane of Front Street, supporting fire, police, and emergency protection service levels requiring reliable access and use of Front Street along the west side of San Ramon Creek. Over the long term, the proposed project would have a beneficial impact on these public services by ensuring reliable access.

Project implementation would require temporary closure of a section of the northbound travel lane on Front Street, which could cause delays in emergency response to the area north of the site as well as access to the CPC School to the north over the five-month construction duration. The Town of Danville will ensure public safety by designating alternate routes for vehicles and instituting traffic controls. Pedestrians will be able to continue using the sidewalk on the west side of Front Street. Also, the Town of Danville will ensure that public services will continue to have access to businesses and structures located along Front Street. Since pedestrian and vehicular traffic will be safely rerouted away from Front Street during the proposed project, the impact to emergency response for fire and police protection will be *less than significant*.

The project proposes to repair Front Street and stabilize the embankment of San Ramon Creek. The proposed project would not 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. The project will not alter public facilities.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
15. Recreation -				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

15a, 15b. Demand for Recreational Facilities, Construction of Recreational Facilities

The proposed project would not affect the demand for recreational services since the project would not generate any new population. As described in Section 9, *Land Use and Planning*, the Town plans to repair bank slopes of San Ramon Creek and associated road infrastructure along Front Street. The repairs planned for Front Street include the replacement of pavement. The proposed project would have a beneficial impact on the recreational use provided by this park facility.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
16. Transportation/Traffic - Would the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

16a, 16b, 16d. Impacts on the Circulation System, Conflicts with Congestion Management Program, and Traffic Hazards

Access to the project site would be provided by the Interstate 680 (I-680) freeway, located approximately one-fourth mile to the east. Diablo Road provides access from I-680 to Front Street. While both Diablo Road and Front Street are located south of the site, Front Street extends along the project's southern boundary.

Diablo Road is identifies as a major arterial in the Danville 2030 General Plan[48] and it extends in an east-west direction, serving as the primary access route between I-680 and the Town's business district. East of the project site and Front Street, Diablo Road is a four-lane roadway with landscaped center median, while west of the site and Front Street, it has four lanes and a parking lane on each side. At the site, the Diablo Road Bridge (approximately 60 feet wide from curb to curb) has six lanes with two through lanes in each direction and a left-turn lane in each direction (no on-street parking is allowed on the bridge). According to the Danville 2030 General Plan, there are currently approximately 21,850 daily trips (both directions) on the section of Diablo Road in the vicinity of Front Street. By 2030, traffic is projected to increase to 23,310 daily trips.[49]

Front Street runs in a northwest-west direction and has one travel lane in each direction with a parking lane along the west (southbound) side of this street. The roadway (approximately 30 feet wide from curb to curb extends for approximately 700 feet between Diablo Road on the south and Rose Avenue to the west. This roadway provides access to both Diablo Road and Rose Avenue for commercial uses located between these two streets and San Ramon Creek.

Diablo Road also provides access to Hartz Avenue, which runs in a north-south direction to the west of the site. In 2010, Hartz Avenue carried 12,660 daily trips to the north of the site and 9.230 daily trips to the south of the site. By 2030, this road is expected to carry 16,500 daily trips to the north of the site and 16,500 daily trips to the south of the site.[50]

Project Trip Generation and Distribution. The proposed slide repair project is expected to generate an average of about 4 truck trips per day[51] and 16 worker trips per day (8 trips during the AM peak hour and

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[48] Town of Danville, *Danville 2030 General Plan,* Chapter 4, Mobility, Figure 11, Classification of Danville Roads by Type. Adopted March 19, 2013.

[49] Town of Danville, *Danville 2030 General Plan,* Chapter 4, Mobility, Figure 12, Existing Traffic Volumes (2010) and Figure 15, Projected Traffic Volumes (2035). Adopted March 19, 2013.

[50] Ibid.

[51] Approximately 800 cubic yards of excavated soils would be hauled from the site, and 200 cubic yards of rock would be imported to the site. Assuming 12 cubic yard haul trucks would be used, a total of 83 truckloads or 166 truck trips would be generated. Assuming trucks would be generated over the entire two-month construction period (40 work days), an average 4 truck trips would be generated per day. If hauling only occurred half the time (20 works days), up to 8.3 truck trips could be generated each workday.

8 trips during the PM peak hour) during the two-month construction period. It is expected that truck volumes could vary substantially depending on the construction phase, ranging from 2 trips per day during early and final stages of construction to a peak volume of 8 trucks per day.

The project would result in temporary traffic increases on Diablo Road, Front Street, and possibly Rose Avenue and Hartz Avenue. Given the small increase in traffic and short duration of the project, temporary increases in truck and worker traffic are expected to have a *less-than-significant* impact on existing traffic conditions along Diablo Road and Hartz Avenue.

The northbound lane of Front Street has been closed for this section of the roadway since the occurrence of the landslide. Street parking was suspended at that time and two-way flows have remained operational as a result. Project implementation would require the continued closure of the northbound lane of Front Street for up to two months during project construction. If needed, flagpersons would be provided by the Contractor to regulate two-way traffic flows along this road section. Although there could be short delays along this section of Front Street during the two-month construction duration, two-way flows would be maintained on Front Street. With two-way flows maintained and because Front Street is not a collector or arterial roadway (providing access to local uses), local traffic on Front Street is not expected to divert onto Diablo Road or Rose Avenue during project construction, a *less-than-significant* impact.

No long-term operational traffic increases would occur with the proposed slide repair project. After proposed slide repair project is completed, Front Street would be repaired and restored to its present width. Since the number of travel, parking, and turn lanes would remain unchanged after project completion and the project would not generate traffic after completion, there would be no long-term traffic impacts associated with this project.

Parking. Project implementation would be expected to generate approximately 4 to 8 worker vehicles per day. Embankment repair work previously conducted on either side of the proposed project required parking for 4 worker vehicles and the currently proposed project would be approximately similar in the scope of work needed. The construction workers would park in the corner parking lot of the gas station at Front Street and Diablo Road, or in the municipal parking lot on Front Street to the south of Diablo Road. Workers are not expected to use on-street parking spaces along west/south side of Front Street since all on-street spaces have time limits.

16c. Air Traffic Patterns

The project site is not located within an airport land use plan, nor is there a public airport, public use airport, or private airstrip located in the project vicinity. Therefore, the project would have *no impact* on air traffic patterns, would not directly increase air traffic levels, nor would there be any change in location that results in substantial safety risks.

16e. Emergency Access

Although the northbound travel lane of Front Street in the site vicinity would be closed, two-way flows would be maintained by shared use of the southbound lane and flagpersons to direct traffic. Although emergency response to commercial uses located along this one-lane section of Front Street could be delayed as a result of this lane closure, emergency vehicle access to either end of Front Street would be facilitated by the availability of access from both Rose Street and Diablo Road. In addition, the presence of flagpersons would enable traffic in both directions to be stopped so that emergency vehicles could access commercial uses along the narrowed section of Front Street without delay. Given these factors, the project's impact on emergency access is considered to be *less than significant*.

16f. Conflicts with Alternative Transportation (Pedestrian, Bicycle, and Transit Access)

There are no transit facilities on Front Street. Therefore, project construction is not expected to adversely affect access to transit services during the two-month construction duration *(no impact)*.

There are no existing or proposed Class I, II, or III bicycle routes designated in the Danville 2030 General Plan for the sections of Diablo Road, Front Street, Rose Street, or Hartz Avenue in the project vicinity. Although the northbound travel lane of Front Street in the site vicinity would be closed, two-way flows would be maintained by shared use of the southbound lane and flagpersons to direct traffic. Likewise, bicycle access along Front Street would also be maintained in both directions, but subject to similar delays. Since Front Street only provides local access to commercial uses on Front Street and bicycle access to these uses would be maintained, potential impacts on bicycle access are considered to be a *less-than-significant* impact.

Pedestrians would not be significantly affected by project construction. The existing sidewalk, which extends along the west side of Front Street, would remain open during project construction. Therefore, no short-term impacts on pedestrians are expected to occur during project construction *(no impact)*.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
17. Utilities and Service Systems – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

17a, 17b, 17c, 17d, 17e. Wastewater, Water, and Storm Drain Facilities and Service

The project would not increase demand for utilities and no increase in utility capacities would be required as a result of this project. However, public utilities in the vicinity of the project site would need to be either relocated or accommodated during the repair of the slope and Front Street, the San Ramon Creek embankments, and the southbound lane and western sidewalk for a section of Front Street. The Town is

coordinating with utility agencies to ensure that no interruption in these utility services would result during project construction.

17f, 17g. Solid Waste

The proposed project would require the removal of approximately 2,941 cubic yards of excavated soils, with transport to an appropriate facility for re-use or disposal. In compliance with Danville and Contra Costa County requirements, the project would comply with all federal, state, and local regulations related to the disposition and re-use of materials removed from the project site.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
18. Mandatory Findings of Significance -				
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?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

18a, 18c. Significant Impacts on the Natural and Man-Made Environments

The Initial Study has evaluated the potential occurrence of significant environmental effects resulting from the implementation of the Front Street Restoration and Bank Repair Project. As required by the California Environmental Quality Act (CEQA), the Initial Study examines the level of impacts that could occur for all of the topics identified by the CEQA checklist and indicates which impacts could be mitigated through the project design to a level that is less than significant, and whether potential impacts would require a more in-depth analysis through the preparation of an Environmental Impact Report. The Initial Study also identifies those areas without potential impacts or less than significant effects.

Project implementation would have no significant adverse impacts on agricultural resources, land use planning, mineral resources, population and housing, and recreation (Sections 2, 10, 11, 13, and 15), as well as less than significant impacts on aesthetics, green house gases, hazards and hazardous materials, hydrology and water quality, public services, transportation, and utilities (Sections 1, 7, 8, 9, 14, 16, and 17).

The assessments for air quality, biological resources, cultural resources, geology and soils, and noise (Sections 3, 4, 5, 6, and 12, respectively) indicated that potentially significant impacts could result from

project implementation during the construction stages only; however, appropriate mitigation measures will be implemented as part of the proposed project design to reduce such impacts to less-than-significant levels.

18b. Cumulative Impacts

The Town has identified one other planned project that could occur within the timeframe anticipated for the currently proposed Front Street landslide repair project. The nearby project is the Rose Street Parking Facility Project (CIP C-592). In general, the project is located at 150 East Linda Mesa Avenue, 341 Rose Avenue, 353 Rose Avenue and 180 Hartz Avenue, and involves the demolition of existing structures (150 E. Linda Mesa Ave., 353 Rose Ave.) and landscaping. The Parking Facility project would renovate abutting parking lots, increasing parking supply and improving traffic circulation. The landscaping and lighting will also be upgraded.

The potentially significant impacts of the Front Street Restoration and Bank Repair project would be limited to the period of construction and would be temporary in nature. The proposed project would not result in impacts that are individually limited but cumulatively considerable. The long-term effects of the project would be beneficial through the stabilization of the failing slopes of the San Ramon Creek embankment along Front Street. Repair of the embankment landslide would prevent further deterioration of stream flow water quality and restore vegetation that contributes to the creek's riparian habitat value.

As required by *CEQA Guidelines* Section 15097 (Mitigation Monitoring or Reporting), in order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program. **Table 9** presents the list of mitigation measures required to avoid or reduce project impacts to less than significant levels.

TABLE 9

MITIGATION MEASURES FOR FRONT STREET RESTORATION AND BANK REPAIR PROJECT

Air Quality

AQ-1: BAAQMD-Recommended Basic Construction Mitigation Measures. *To limit the project's construction-related dust and criteria pollutant emissions, the following BAAQMD-recommended Basic Construction Mitigation Measures shall be included in the project's grading plan, building plans, and contract specifications:*

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. Recycled water should be used wherever feasible.

b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 mph.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the Town regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Biological Resources

BIO-1: Conservation Measures Specified by USFWS. *Consistent with these measures, the following measures shall be implemented:*

a. *Compliance with the Programmatic Biological Opinion. No more than 30 calendar days prior to the initiation of ground-disturbing activities, the name and telephone number of applicant's point of contact shall be submitted to the USFWS, along with a signed letter verifying that the applicant has read and understands the responsibilities outlined in the Programmatic Biological Opinion.*

b. *Seasonal Avoidance. Work below the top of bank shall be limited to the period between April 1 to October 31, during which the species is least likely to move through the project site.*

c. *Climatic Conditions. To the maximum extent practicable, no construction activities shall occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a USFWS-approved biologist (see below) shall inspect the action area and all equipment/materials for the presence of California red-legged frogs.*

d. *Minimize Nighttime Work. To the maximum extent practicable, night-time construction shall be minimized or avoided by the applicant. Because dusk and dawn are often the times when the California red-legged frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety, to the maximum extent practicable, artificial lighting at a project site will be prohibited during the hours of darkness.*

e. *Designated Biologist. The names and qualifications of each biologist that will serve as a monitor for the project shall be submitted to the USFWS and CDFW no less than 30 calendar days prior to the initiation of ground-disturbing activities. The approved project biologist(s) shall keep a copy of the Programmatic Biological Opinion in his/her possession whenever working on site.*

f. *California Red-Legged Frog Relocation Protocol. Prior to the initial ground disturbance, the applicant will obtain approval of the relocation protocol from the Service in the event that a California red- legged frog is encountered and needs to be moved away from the project site. Under no circumstances will a California red-legged frog be released on a site unless the written permission of the landowner has been obtained by the applicant.*

g. *Preconstruction Surveys. Preconstruction surveys for California red-legged frog, Pacific pond turtle and other native aquatic species (e.g., fish) shall be conducted by the USFWS-approved biologist no more than 24-hours prior to the initiation of any ground-disturbing activities. Preconstruction surveys shall consist of walking the project limits and within the project site to ascertain the possible presence of the species. The UDFES-approved biologist(s) shall investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as California ground squirrels or gophers. If any adults,*

subadults, juveniles, tadpoles, or eggs are found, the USFWS-approved biologist(s) shall contact the USFWS to determine if moving any of the individuals is appropriate.

h. *Construction Monitoring. The USFWS-approved biologist(s) shall be present on site during all activities that may result in take of the California red-legged frog. Trenches or pits left uncovered for 48 hours or more shall be inspected by the USFWS-approved biologist(s) immediately prior to filling or further excavation.*

i. *Communications and Authorities. The USFWS-approved biologist(s) shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, CDFW, or their designated agents. The Service-approved biologist will have oversight over implementation of all the conservation measures in the programmatic biological opinion, and, through the applicant, will have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the USFWS-approved biologist(s) exercises this authority, the USFWS shall be notified by telephone and electronic mail within twenty-four (24) hours. The USFWS contact is the Coast Bay Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at telephone (916) 414-6600.*

j. *Onsite Construction Personnel Education Program. Before commencement of ground-disturbing activities, the USFWS-approved biologist(s) shall conduct an environmental awareness program for all construction personnel. At a minimum the training shall include a description of the California red-legged-frog, avoidance, minimization, and conservation measures, legal protection of the animal, work boundaries, lines of communication, reporting requirements, and the implications of violations of applicable laws. Attendees shall sign an attendance sheet and include their printed name, company or agency, email address, and telephone number. The original sign-in sheet will be sent to the USFWS within seven (7) calendar days of the completion of the training.*

k. *Wildlife Exclusion Fencing. Prior to the start of construction, wildlife exclusion fencing (WEF)*[1] *shall be installed to isolate the work area from any habitats potentially supporting special-status animals or areas through which such species may move. The actual placement of WEF shall be based on site conditions and the best judgment of the USFWS-approved biologist. The final project plans shall indicate where and how the WEF is to be installed. Special provisions shall be added to the bid solicitation package to provide instructions to the contractor about acceptable fencing material. The fencing shall remain throughout the duration of the work activities, and be regularly inspected and properly maintained by the contractor. Fencing and stakes shall be completely removed following project completion.*

l. *Dewatering. During dewatering, intake pumps shall be completely screened with wire mesh not larger than 5 mm (1/4 in) to prevent California red-legged frog larvae or native fish from entering the pump system. Water shall be released or pumped*

[1] WEF should provide a barrier for terrestrial wildlife gaining access to the project work areas. The fencing may vary to meet the needs of a particular species, but should be buried and/or backfilled to prevent animals passing under the fence and should be high enough to deter reptiles, amphibians or small mammals from climbing or jumping over the fence. Acceptable fencing materials include Animex® animal exclusion fencing, ERTEC E-Fence®, plywood, corrugated metal, silt fencing or other suitable materials.

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.

m. Best Management Practices. Erosion control BMPs shall be developed and implemented to ensure that there is no release of contaminants into the stream and that all materials used are not likely to be injurious to wildlife. At the very least, protective measures shall include the following:

i. No discharge of pollutants from vehicle or equipment cleaning will be allowed into any storm drains or watercourses.

ii. Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.

iii. Construction equipment shall be well-maintained to prevent leaks of fuel, lubricants, or other fluids.

iv. Concrete waste and water from curing operations will be collected in washouts and will be disposed of and not allowed into water courses.

v. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.

vi. Dust control measures will include use of water trucks and organic tackifiers to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require it.

n. Construction Site Restrictions. The following site restrictions shall be implemented to avoid adversely affecting sensitive habitats and harm or harassment to listed species:

vii. Any fill material shall be certified to be non-toxic and weed free.

viii. All food and food-related trash items shall be enclosed in sealed trash containers and removed completely from the site at the end of each day to avoid attracting predators.

ix. No pets from project personnel shall be allowed anywhere in the project site during construction.

x. No firearms shall be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.

o. Proper Use of Erosion Control Devices. To prevent California red-legged frog, Pacific Pond Turtle or any other native wildlife species from becoming entangled, trapped or injured, erosion control materials utilizing polypropylene netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, burlap, or tackified hydroseeding compounds.

p. Protocol for Species Observation - California red-legged frog. If California red-legged frogs in any life stage are encountered in the project site, all activities that have the potential to result in harassment, injury, or death must cease immediately.

Any observations of California red-legged frog require the immediate notification of the USFWS by calling (916) 930-5603. Individuals may not be handled, relocated, shooed away or otherwise harassed. Based on the professional judgment of the USFWS-approved Biological Monitor and pending authorization from the USFWS, work may only proceed if project activities can be conducted without harming or harassing the detected species. All project personnel shall be notified of the finding and at no time may work occur within 15 m (50 ft) of the individual without a Biological Monitor present.

q. Protocol for Species Observation – Pacific Pond Turtle. If a Pacific Pond Turtle is encountered in the project site, work must cease immediately until the animal either moves out of harm's way of its own accord or is safely relocated well upstream or downstream of the project site. Only a qualified biologist with a scientific collection permit issued by the CDFW may handle and relocate Pacific Pond Turtle. Any sightings and relocation of Pacific Pond Turtle shall be reported to the CDFW and the CNDDB.

r. Protocol for Species Observation – Fish. In portions of the channel subject to water diversions, a CDFW-approved biologist shall be present to capture and move all stranded native aquatic life. Native species (with the exception of those protected under federal or State law) shall be captured and immediately relocated downstream of the work area. Exotic species and especially predators such as bullfrogs, crayfish, and centrarchid fishes shall be removed and euthanized in conformance with the CFGC; they may not be relocated into any natural watercourse.

BIO-2: Protection of Special-status Bird Species. *In order to minimize and avoid impacts on special-status bird species, the following measures shall be implemented:*

a. White-tailed Kite. White-tailed kite is a State-listed fully protected species and incidental take of the species is not allowed. If an active nest is present on site, work may not proceed. If an active nest is found within 32 m (300 ft) of the project site, the nest must be monitored by a qualified biologist for the duration of construction activities or until young birds have fledged, in consultation with the CDFW (see #5. below).

b. Raptor Nests. Prior to the removal or significant pruning of any trees, they should be inspected by a qualified biologist for the presence of raptor nests. This is required regardless of season. If a suspected raptor nest is discovered, the CDFW should be notified. Pursuant to CFGC Section 3503.5, raptor nests, whether or not they are occupied, may not be removed until approval is granted by the CDFW.

c. Site Clearing – Non-Breeding Season. If clearing, grubbing or tree removal/pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds is necessary.

d. Site Clearing – Breeding Season. If clearing and grubbing and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey should be conducted. The survey should be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 76 m (250 ft) for raptors and 15 m (50 ft) for passerines should be mapped.

e. Active Nesting. For any active nests found near the construction limits (76 m [250 ft] for raptors and 15 m [50 ft] for passerines) a qualified biologist should make a

determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, a no-construction buffer zone should be designated on the grading plans. Avoidance of impacts on nesting migratory birds is the only acceptable mitigation; take of nesting birds is a violation of State and federal law. The ultimate size of the no-construction buffer zone may be adjusted by a qualified biologist based on the species involved, topography, lines of site between the work area and the nest, physical barriers, and the ambient level of human activity. Site evaluations and buffer adjustments should be made in consultation with the CDFW and/or the USFWS Division of Migratory Bird Management, as appropriate. If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the qualified biologist determines that the nest is long longer occupied.

f. Nest Monitoring. If construction activities must occur within the optimal no-construction buffer zone, a qualified biologist should monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities may lead to nest abandonment, work must cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

BIO-3: Protection of Special-status Bat Species. *In order to minimize and avoid impacts to special-status bat species, the following measures shall be implemented:*

a. Bat Habitat Assessment. If work is to take place during the bat breeding season (April 1 through August 31), a qualified biologist should conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey should be conducted no more than 14 days prior to the initiation of work.

b. Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW and/or the USFWS. Passive exclusion of roosting bats would be required and this may only be performed during the non-breeding season (i.e., between October 1 and March 30).

g. Preconstruction Survey. A preconstruction survey should be conducted by a qualified biologist to identify suitable bat roosting sites. The survey should be conducted no more than 48 hours prior to the initiation of work and should include an area extending up to 61 m (200 ft) of the limits of work, access permitting.

h. Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractor or others may not attempt to disturb (e.g., shake, prod) roosting features to coax bats to leave. Such actions would constitute "harassment" under the CCR.[2]

i. Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats should be identified and marked on site plans. Such roosting sites

[2] 14 CCR § 251.1 states: Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal or furbearing mammal. For the purposes of this section, harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.

include snags, rotten stumps, and decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures should be conducted in coordination with CDFW:

i. A qualified biologist should survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures.

ii. If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps should be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate.

- *Tree limbs smaller than 7.6 cm (3 in) in diameter should be removed and any loose bark should be peeled away.*
- *Any competing limbs that provide shelter around the potential roost site should be removed to create as open of an area as possible.*
- *The tree should then be alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period.*
- *Trees should be re-surveyed 48 hours after trimming.*
- *If no bats are present, work may proceed.*
- *If bats remain on site, additional measures would be prescribed by the biologist.*

BIO-4: Protection of Special-status Mammal Species. *In order to minimize and avoid impacts to the San Francisco dusky-footed woodrat, the following measures shall be implemented:*

a. Pre-Construction Surveys. A pre-construction wildlife survey shall be performed at the project site to search for woodrat nests. If no nests are detected, no further avoidance measures are warranted.

b. Nest Detection and Avoidance. If a woodrat nest is detected, it shall be mapped in relation to the proposed limits of work. If the nest can be avoided, it shall be isolated from the work zone by installation of wildlife exclusion fencing, as described above.

c. Nest Removal – Non-Breeding Season. If a woodrat nest is detected in the work zone and it cannot be avoided, site clearing shall be performed during the non-breeding season (e.g., September 1 through November 30). During the non-breeding season, the nest shall be disassembled by hand and the nest materials (e.g., sticks) removed and disposed of off-site. Any adult animals present shall be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW.

d. Nest Removal – Breeding Season. If site clearing must proceed during the breeding season, it will be necessary to determine whether or not the nest is occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of wildlife cameras at the nest or by a biologist on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials shall be replaced on top of the nest and the effort abandoned. Nest may not be disassembled if

young woodrats are present. Construction must then be postponed until the end of the breeding season.

BIO-5: Protection of Riparian Habitat. *In order to compensate for impacts to riparian trees and channel bank vegetation, the following measures shall be implemented:*

a. Revegetation. A Revegetation and Monitoring Plan has been developed to restore native riparian vegetation on the landslide repair site (Wood Biological Consulting Inc., 2015b). As compensation for temporary and permanent impacts on native trees and the riparian environment resulting from the proposed slope repair, a 61 cm (2 ft) thick layer of topsoil will be placed on top of loose rock slope protection. To accommodate the planting of trees through the rock, tree wells will be installed providing contact with the native, underlying earth. The earthen cover will be planted and seeded with native species.

b. Area to be Revegetated. A total area of 439 m^2 (4715 ft^2) of riparian habitat will be restored on the left (west) bank of San Ramon Creek.

c. Tree Replacements. Replacement trees shall be installed for trees with a dbh[3] of 10 cm (4 in) or greater at a ratio of at least 6:1 for native oaks, 3:1 for other native trees and 2:1 for nonnative trees (excluding species considered invasive by the California Invasive Plant Council[4]). Additional conditions may be imposed by the regulatory agencies.

d. Long-Term Monitoring. Long-term monitoring of the revegetation effort shall be conducted for a minimum of five years after installation.

e. Reporting. Site monitoring observations and the results of the habitat monitoring effort shall be presented in annual reports to be submitted to the USACE, CDFW, and RWQCB no later than December 31 of each year. Annual reports shall describe conditions on site, present a summary of the monitoring data, identify problems, and outline any remedial measures implemented or needed. The reports will include photographs of the revegetation area and representative species.

f. Performance Standards. The revegetation effort shall be considered successful if, at the end of the five-year establishment period, the plantings are self-sustaining (i.e., able to survive without supplemental irrigation or human intervention), and plant survivorship and growth data illustrate a positive trend. At a minimum, the project may be deemed successful if at the end of five years, 100% of the trees and 80% of the planted shrubs and vines have survived, and growth parameters (i.e., tree stem diameter, plant height, and canopy spread) have increased by at least 100% compared to the first year of monitoring.

BIO-6: Wetlands Protection. *To preserve downstream water quality and reduce impacts on wetlands to a less-than-significant level, the following mitigation measures shall be implemented:*

a. Prior to construction, the project proponent will need to secure authorization from the USACE, CDFW and RWQCB in conformance to the federal Clean Water Act and the State Lake and Streambed Alteration Program.

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[3] Diameter at breast height, usually considered to be 1.4 m (4.5 ft) above ground surface.

[4] Refer to the Cal-IPC Inventory available online at http://www.cal-ipc.org/paf/

b. *As compensatory mitigation for temporal and permanent impacts on riparian habitat and native trees, the restoration and monitoring plan, as submitted to and approved by the regulatory agencies, shall be implemented. Any additional mitigation measures stipulated by the regulatory agencies and incorporated as permit conditions shall be implemented, see section b), above.*

c. *Best management practices (BMPs) shall be incorporated into the project design to minimize environmental effects. These shall include the following:*

    i. *Construction in the active channel shall be restricted to the dry season (April 15-October 15).*

    ii. *Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub shall be trained by a qualified biologist to ensure compliance with all permit conditions.*

    iii. *If dewatering is necessary, water released downstream of work areas shall be as clean as or cleaner than flows entering the work area. Sediment-laden water shall be either pumped onto a suitable upland site for infiltration or into Baker tanks for settling, prior to being released back into the channel. Cofferdams shall consist of clean, silt-free sand or gravel in sand bags, or a comparable material. Cofferdams and non-natural materials must be promptly removed when no longer needed.*

    iv. *All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities shall be identified in the field by a qualified biologist and isolated by the use of high visibility construction fencing. Temporary construction fencing and stakes must be removed upon the completion of work.*

    v. *Grading or construction near channels shall be isolated with silt fencing to prevent sedimentation. Silt fencing shall be regularly inspected.*

    vi. *Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas.*

    vii. *All equipment shall be maintained such that there are no leaks of automotive fluids such as gasoline, oils or solvents and a Spill Response Plan shall be prepared. Hazardous materials such as fuels, oils, solvents, etc. shall be stored in sealable containers in a designated location that is isolated from wetlands and aquatic habitats.*

    viii. *Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance shall occur only at sites isolated from any aquatic habitat unless separated by topographic or drainage barrier or unless it is an already existing gas station. Staging areas may occur closer to the project activities as required.*

    ix. *Concrete washings may not be permitted to enter any stream channel or storm drain inlet.*

    x. *Any concrete structures must be allowed to cure before coming in contact with storm flows.*

    xi. *Construction debris and materials shall be stockpiled away from watercourses.*

xii. *Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used on site to prevent siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh shall be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion control measures shall be placed between the outer edge of the buffer zone and the project site.*

xiii. *Fiber rolls or straw wattles shall be installed along or at the base of slopes during construction to capture sediment. All erosion control fabrics and materials may not be constructed with monofilament netting which does not bio-degrade and can trap wildlife; appropriate alternative materials are burlap or other natural fiber. Erosion control materials must be certified as free of noxious weed seed.*

xiv. *Construction staging areas shall be sited above the top of bank and outside of any wetlands or other sensitive habitats as identified by a qualified biologist.*

xv. *Only clean rock shall be used for rock slope protection.*

xvi. *Newly graded earthen channel slopes shall be revegetated with a native seed mix. Seed mixtures applied for erosion control shall not contain invasive nonnative species and shall be composed of native species or sterile non-native species. Straw or mulch shall also be applied to all bare surfaces. The seed mix and mulch shall be applied prior to the onset of the first winter-season rains.*

d. *Herbicide shall not be applied within 30 m (100 ft) of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control non-native invasive species (e.g., tree-of-heaven, black locust, periwinkle). Herbicide drift shall be minimized by applying the herbicide as close to the target area as possible.*

BIO-7: Replacement of Protected Trees. *In order to mitigate for incidental impacts to protected trees, the following measures shall be implemented:*

a. *<u>Permits</u>. The Town of Danville shall obtain a tree removal permit, as appropriate, pursuant to Danville Municipal Code §32-79.*

b. *<u>Tree Replacements</u>. Impacts to trees with a dbh ≥ 4" will be compensated for by the onsite planting of replacement trees at a 6:1 ratio for oaks and at a 3:1 ratio for other native species. There would be no replacements installed for impacts to invasive non-native tree species as their eradication is considered to improve the riparian habitat. Because project implementation would impact two native oaks and three other native trees, a minimum of 21 replacement trees would be planted on the restored section of creek bank.*

c. *<u>Revegetation</u>. A Revegetation and Monitoring Plan has been developed to restore native riparian vegetation on the landslide repair site (Wood Biological Consulting*

Inc., 2015b). In addition to the tree replacement plantings, the restored slope will be revegetated with a variety of native shrubs and vines, as well as a native seed mix.

d. Monitoring and Reporting. The revegetation effort will be monitored by a qualified restoration ecologist for a period of at least five years after installation. Data on survivorship and plant growth will be collected annually. Annual reports will be submitted to the regulatory agencies.

e. Performance Standards. The revegetation effort will be deemed successful if after five years, plant survivorship is 100% for trees and 80% for shrubs and vines; and if plant growth parameters have increased at least 100% compared to the Year 1 baseline measurements. If the performance standards are not met, remedial measures will be developed in consultation with the permitting agencies.

Cultural Resources

CUL-1: Monitoring of Soils Removal for Archaeological Resources. *A qualified archaeological monitor shall be retained to observe soils removal during the initial excavation stage of the project to search for buried deposits. In the event that any archaeological indicators (e.g. darker than surrounding soils of a friable nature, any concentrations of stone, bone or shellfish, artifacts of these materials and any evidence of fires) are discovered, work will be stopped in the area designated by the project archaeologist as archaeologically sensitive until the extent of additional damage to cultural deposits is determined.*

CUL-2: Archaeological Resource Monitoring. *If the level of damage is minimal, archaeological monitoring will continue in order to identify, record and/or remove for analysis any significant archaeological materials. Archaeological monitoring also serves to identify and limit damage to human burials and associated grave goods, both found in the nearby archaeological sites excavated to date.*

Geology and Soils

GEO-1: Incorporation of Geotechnical Investigation Recommendations. *The project design shall incorporate all applicable recommendations in ENGEO's geotechnical investigation for the proposed project (included as Attachment 1) in order to minimize the potential impacts resulting from regional seismic activity and soil engineering constraints.*

GEO-2: Erosion Control Measures. *Specific measures including, but not limited to the following, shall be implemented to reduce erosion or the loss of topsoil:*

- *Construction operations shall not be conducted during the rainy season.*
- *Limits of the area to be cleared and/or graded shall be clearly defined and marked to prevent damage by construction equipment.*
- *Erosion control blanket shall be installed, and revegetation of the project area shall be accomplished as detailed in the Revegetation Plan described above in Section 4, Biological Resources.*
- *Topsoil overburden shall be stockpiled and redistributed within the graded area after rough grading to provide a suitable base for seeding and planting.*

Hydrology and Water Quality

HYD-1*: An Erosion Control Plan shall be prepared in order to conform to the water quality standards for the Town and the RWQCB. The Plan shall include the measures listed below as well as all other appropriate Best Management Practices for construction projects:*

a. Prevent spills and leaks from construction vehicles and equipment.

b. Clean up spills immediately when they happen using dry cleanup methods whenever possible and, if water must be used, use just enough to keep the dust down.

c. Store materials under cover.

d. Cover and maintain dumpsters.

e. Clean up paints and solvents, adhesives, and cleaning solutions properly.

f. Keep fresh concrete and cement mortars out of gutters, storm drains, and streams.

g. Service and maintain portable toilets.

h. Dispose of cleared vegetation and soils properly.

i. Make sure all demolition waste is properly disposed.

Noise

NOI-1: Implement Construction Noise Controls. *The following noise control measures shall be implemented to mitigate construction-related noise impacts on nearby sensitive receptors to a less-than-significant level:*

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) in order to minimize construction noise impacts. Construction equipment shall not generate noise levels above 75 dBA at 50 feet as listed in Table 8.

b. Stationary noise sources shall be located at least 100 feet from adjacent and nearby school and residential receptors if possible. If they must be located closer than 100 feet from these receptors, they shall be enclosed within temporary sheds. Enclosure openings or vents shall face away from sensitive receptors to the north and northeast.

c. Material stockpiles as well as maintenance/equipment staging and parking areas shall be located at least 100 feet away from the closest residential receptors to the extent feasible.

d. A designated project liaison will be responsible for responding to noise complaints during the construction phases. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including conducting periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular

project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible.

e. *In the event of noise complaints, the contractor will provide information to the Town within 48 hours of being notified of the complaint, regarding the noise levels measured and activities that correspond to the complaints. The contractor will be responsible for the correct installation and use of all implemented noise control measures and for complying with noise specifications.*

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ATTACHMENT 1

AIR QUALITY

CALEE MOD OUTPUTS

Front Street Construction

San Francisco Bay Area Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.10	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - assume 100 x 40 feet disturbance area

Construction Phase - Site Prep: 1 week, Grading: 2 weeks, Construction: 1 month, Pave: 1 week

Off-road Equipment - Prep: 1 grader, 1 backhoe

Off-road Equipment - Grading: 1 grader, 1 loader/backhoe

Off-road Equipment - Construction: 1 crane, 1 drill rig, 1 mixer, 1 pump

Off-road Equipment - Paving: 1 roller, 1 paver, 1 mixer

Trips and VMT - 5 worker trips prep, 10 grading, 18 construc, 18 paving
2 vendor trips/day

Grading - 800 CY Export

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	2.50	0.50
tblGrading	MaterialExported	0.00	800.00
tblLandUse	LotAcreage	0.00	0.10
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Building Construction
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	114.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.3796	13.7314	8.7043	0.0172	1.0680	0.8341	1.7401	0.4983	0.7674	1.1166	0.0000	1,736.4925	1,736.4925	0.2960	0.0000	1,742.7089
Total	**1.3796**	**13.7314**	**8.7043**	**0.0172**	**1.0680**	**0.8341**	**1.7401**	**0.4983**	**0.7674**	**1.1166**	**0.0000**	**1,736.4925**	**1,736.4925**	**0.2960**	**0.0000**	**1,742.7089**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	1.3796	13.7314	8.7043	0.0172	1.0680	0.8341	1.7401	0.4983	0.7674	1.1166	0.0000	1,736.4925	1,736.4925	0.2960	0.0000	1,742.7089
Total	**1.3796**	**13.7314**	**8.7043**	**0.0172**	**1.0680**	**0.8341**	**1.7401**	**0.4983**	**0.7674**	**1.1166**	**0.0000**	**1,736.4925**	**1,736.4925**	**0.2960**	**0.0000**	**1,742.7089**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	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	6/1/2016	6/7/2016	5	5	
2	Grading	Grading	6/8/2016	6/21/2016	5	10	
3	Building Construction	Building Construction	6/22/2016	7/19/2016	5	20	
4	Paving	Paving	7/20/2016	7/26/2016	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	6.00	174	0.41
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Bore/Drill Rigs	1	4.00	205	0.50
Building Construction	Cement and Mortar Mixers	1	4.00	9	0.56
Building Construction	Cranes	1	4.00	226	0.29
Paving	Rollers	1	4.00	80	0.38
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Building Construction	Pumps	1	4.00	84	0.74
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

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	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	114.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	18.00	2.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2016

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					0.1061	0.0000	0.1061	0.0115	0.0000	0.0115			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671		973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.1061**	**0.8338**	**0.9398**	**0.0115**	**0.7671**	**0.7785**		**973.0842**	**973.0842**	**0.2935**		**979.2481**

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	0.0203	0.0243	0.2838	5.8000e-004	0.0472	3.8000e-004	0.0475	0.0125	3.5000e-004	0.0129		48.7362	48.7362	2.5000e-003		48.7886
Total	**0.0203**	**0.0243**	**0.2838**	**5.8000e-004**	**0.0472**	**3.8000e-004**	**0.0475**	**0.0125**	**3.5000e-004**	**0.0129**		**48.7362**	**48.7362**	**2.5000e-003**		**48.7886**

3.2 Site Preparation - 2016

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					0.1061	0.0000	0.1061	0.0115	0.0000	0.0115			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671	0.0000	973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**0.1061**	**0.8338**	**0.9398**	**0.0115**	**0.7671**	**0.7785**	**0.0000**	**973.0842**	**973.0842**	**0.2935**		**979.2481**

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	0.0203	0.0243	0.2838	5.8000e-004	0.0472	3.8000e-004	0.0475	0.0125	3.5000e-004	0.0129		48.7362	48.7362	2.5000e-003		48.7886
Total	**0.0203**	**0.0243**	**0.2838**	**5.8000e-004**	**0.0472**	**3.8000e-004**	**0.0475**	**0.0125**	**3.5000e-004**	**0.0129**		**48.7362**	**48.7362**	**2.5000e-003**		**48.7886**

3.3 Grading - 2016

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					0.7618	0.0000	0.7618	0.4152	0.0000	0.4152			0.0000			0.0000
Off-Road	1.0171	10.2015	5.4934	7.0000e-003		0.6239	0.6239		0.5740	0.5740		728.2688	728.2688	0.2197		732.8819
Total	**1.0171**	**10.2015**	**5.4934**	**7.0000e-003**	**0.7618**	**0.6239**	**1.3857**	**0.4152**	**0.5740**	**0.9892**		**728.2688**	**728.2688**	**0.2197**		**732.8819**

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	0.2461	3.2875	2.4121	8.5600e-003	0.1986	0.0444	0.2430	0.0544	0.0408	0.0952		862.9208	862.9208	6.3700e-003		863.0545
Vendor	0.0226	0.1938	0.2313	4.8000e-004	0.0133	2.9800e-003	0.0163	3.8000e-003	2.7400e-003	6.5300e-003		47.8306	47.8306	3.8000e-004		47.8386
Worker	0.0406	0.0486	0.5676	1.1600e-003	0.0943	7.6000e-004	0.0951	0.0250	7.0000e-004	0.0257		97.4723	97.4723	5.0000e-003		97.5773
Total	**0.3093**	**3.5299**	**3.2110**	**0.0102**	**0.3062**	**0.0481**	**0.3543**	**0.0832**	**0.0442**	**0.1274**		**1,008.2237**	**1,008.2237**	**0.0118**		**1,008.4704**

3.3 Grading - 2016

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					0.7618	0.0000	0.7618	0.4152	0.0000	0.4152			0.0000			0.0000
Off-Road	1.0171	10.2015	5.4934	7.0000e-003		0.6239	0.6239		0.5740	0.5740	0.0000	728.2688	728.2688	0.2197		732.8819
Total	**1.0171**	**10.2015**	**5.4934**	**7.0000e-003**	**0.7618**	**0.6239**	**1.3857**	**0.4152**	**0.5740**	**0.9892**	**0.0000**	**728.2688**	**728.2688**	**0.2197**		**732.8819**

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	0.2461	3.2875	2.4121	8.5600e-003	0.1986	0.0444	0.2430	0.0544	0.0408	0.0952		862.9208	862.9208	6.3700e-003		863.0545
Vendor	0.0226	0.1938	0.2313	4.8000e-004	0.0133	2.9800e-003	0.0163	3.8000e-003	2.7400e-003	6.5300e-003		47.8306	47.8306	3.8000e-004		47.8386
Worker	0.0406	0.0486	0.5676	1.1600e-003	0.0943	7.6000e-004	0.0951	0.0250	7.0000e-004	0.0257		97.4723	97.4723	5.0000e-003		97.5773
Total	**0.3093**	**3.5299**	**3.2110**	**0.0102**	**0.3062**	**0.0481**	**0.3543**	**0.0832**	**0.0442**	**0.1274**		**1,008.2237**	**1,008.2237**	**0.0118**		**1,008.4704**

3.4 Building Construction - 2016

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	0.8987	9.5413	4.6070	0.0109		0.4565	0.4565		0.4349	0.4349		1,086.0333	1,086.0333	0.2588		1,091.4676
Total	**0.8987**	**9.5413**	**4.6070**	**0.0109**		**0.4565**	**0.4565**		**0.4349**	**0.4349**		**1,086.0333**	**1,086.0333**	**0.2588**		**1,091.4676**

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	0.0226	0.1938	0.2313	4.8000e-004	0.0133	2.9800e-003	0.0163	3.8000e-003	2.7400e-003	6.5300e-003		47.8306	47.8306	3.8000e-004		47.8386
Worker	0.0730	0.0874	1.0217	2.0900e-003	0.1698	1.3600e-003	0.1711	0.0450	1.2500e-003	0.0463		175.4501	175.4501	9.0000e-003		175.6391
Total	**0.0956**	**0.2813**	**1.2529**	**2.5700e-003**	**0.1831**	**4.3400e-003**	**0.1874**	**0.0488**	**3.9900e-003**	**0.0528**		**223.2807**	**223.2807**	**9.3800e-003**		**223.4777**

3.4 Building Construction - 2016

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	0.8987	4.4504	4.6070	0.0109		0.4565	0.4565		0.4349	0.4349	0.0000	1,086.0333	1,086.0333	0.2588		1,091.4676
Total	**0.8987**	**4.4504**	**4.6070**	**0.0109**		**0.4565**	**0.4565**		**0.4349**	**0.4349**	**0.0000**	**1,086.0333**	**1,086.0333**	**0.2588**		**1,091.4676**

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	0.0226	0.1938	0.2313	4.8000e-004	0.0133	2.9800e-003	0.0163	3.8000e-003	2.7400e-003	6.5300e-003		47.8306	47.8306	3.8000e-004		47.8386
Worker	0.0730	0.0874	1.0217	2.0900e-003	0.1698	1.3600e-003	0.1711	0.0450	1.2500e-003	0.0463		175.4501	175.4501	9.0000e-003		175.6391
Total	**0.0956**	**0.2813**	**1.2529**	**2.5700e-003**	**0.1831**	**4.3400e-003**	**0.1874**	**0.0488**	**3.9900e-003**	**0.0528**		**223.2807**	**223.2807**	**9.3800e-003**		**223.4777**

3.5 Paving - 2016

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	0.5614	5.7625	3.7209	5.7800e-003		0.3205	0.3205		0.2958	0.2958		582.8036	582.8036	0.1683		586.3378
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5614**	**5.7625**	**3.7209**	**5.7800e-003**		**0.3205**	**0.3205**		**0.2958**	**0.2958**		**582.8036**	**582.8036**	**0.1683**		**586.3378**

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	0.0730	0.0874	1.0217	2.0900e-003	0.1698	1.3600e-003	0.1711	0.0450	1.2500e-003	0.0463		175.4501	175.4501	9.0000e-003		175.6391
Total	**0.0730**	**0.0874**	**1.0217**	**2.0900e-003**	**0.1698**	**1.3600e-003**	**0.1711**	**0.0450**	**1.2500e-003**	**0.0463**		**175.4501**	**175.4501**	**9.0000e-003**		**175.6391**

3.5 Paving - 2016

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	0.5614	5.7625	3.7209	5.7800e-003		0.3205	0.3205		0.2958	0.2958	0.0000	582.8036	582.8036	0.1683		586.3378
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5614**	**5.7625**	**3.7209**	**5.7800e-003**		**0.3205**	**0.3205**		**0.2958**	**0.2958**	**0.0000**	**582.8036**	**582.8036**	**0.1683**		**586.3378**

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	0.0730	0.0874	1.0217	2.0900e-003	0.1698	1.3600e-003	0.1711	0.0450	1.2500e-003	0.0463		175.4501	175.4501	9.0000e-003		175.6391
Total	**0.0730**	**0.0874**	**1.0217**	**2.0900e-003**	**0.1698**	**1.3600e-003**	**0.1711**	**0.0450**	**1.2500e-003**	**0.0463**		**175.4501**	**175.4501**	**9.0000e-003**		**175.6391**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive 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

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546434	0.062864	0.174629	0.123506	0.034170	0.004889	0.015456	0.023695	0.002073	0.003288	0.006639	0.000690	0.001668

5.0 Energy Detail

Historical Energy Use: N

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					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Front Street Construction

San Francisco Bay Area Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.10	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - assume 100 x 40 feet disturbance area

Construction Phase - Site Prep: 1 week, Grading: 2 weeks, Construction: 1 month, Pave: 1 week

Off-road Equipment - Prep: 1 grader, 1 backhoe

Off-road Equipment - Grading: 1 grader, 1 loader/backhoe

Off-road Equipment - Construction: 1 crane, 1 drill rig, 1 mixer, 1 pump

Off-road Equipment - Paving: 1 roller, 1 paver, 1 mixer

Trips and VMT - 5 worker trips prep, 10 grading, 18 construc, 18 paving
2 vendor trips/day

Grading - 800 CY Export

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	2.50	0.50
tblGrading	MaterialExported	0.00	800.00
tblLandUse	LotAcreage	0.00	0.10
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Building Construction
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	114.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0217	0.2166	0.1357	2.6000e-004	7.8400e-003	0.0109	0.0187	3.1200e-003	0.0101	0.0133	0.0000	23.6102	23.6102	4.5600e-003	0.0000	23.7058
Total	**0.0217**	**0.2166**	**0.1357**	**2.6000e-004**	**7.8400e-003**	**0.0109**	**0.0187**	**3.1200e-003**	**0.0101**	**0.0133**	**0.0000**	**23.6102**	**23.6102**	**4.5600e-003**	**0.0000**	**23.7058**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0217	0.1657	0.1357	2.6000e-004	7.8400e-003	0.0109	0.0187	3.1200e-003	0.0101	0.0133	0.0000	23.6101	23.6101	4.5600e-003	0.0000	23.7058
Total	**0.0217**	**0.1657**	**0.1357**	**2.6000e-004**	**7.8400e-003**	**0.0109**	**0.0187**	**3.1200e-003**	**0.0101**	**0.0133**	**0.0000**	**23.6101**	**23.6101**	**4.5600e-003**	**0.0000**	**23.7058**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**23.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-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
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-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
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	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	6/1/2016	6/7/2016	5	5	
2	Grading	Grading	6/8/2016	6/21/2016	5	10	
3	Building Construction	Building Construction	6/22/2016	7/19/2016	5	20	
4	Paving	Paving	7/20/2016	7/26/2016	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	6.00	174	0.41
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Bore/Drill Rigs	1	4.00	205	0.50
Building Construction	Cement and Mortar Mixers	1	4.00	9	0.56
Building Construction	Cranes	1	4.00	226	0.29
Paving	Rollers	1	4.00	80	0.38
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Building Construction	Pumps	1	4.00	84	0.74
Grading	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

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	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	114.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	18.00	2.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2016

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-003	0.0341	0.0184	2.0000e-005		2.0800e-003	2.0800e-003		1.9200e-003	1.9200e-003	0.0000	2.2069	2.2069	6.7000e-004	0.0000	2.2209
Total	**3.4000e-003**	**0.0341**	**0.0184**	**2.0000e-005**	**2.7000e-004**	**2.0800e-003**	**2.3500e-003**	**3.0000e-005**	**1.9200e-003**	**1.9500e-003**	**0.0000**	**2.2069**	**2.2069**	**6.7000e-004**	**0.0000**	**2.2209**

3.2 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	7.0000e-005	6.7000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1029	0.1029	1.0000e-005	0.0000	0.1030
Total	**5.0000e-005**	**7.0000e-005**	**6.7000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1029**	**0.1029**	**1.0000e-005**	**0.0000**	**0.1030**

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-003	0.0341	0.0184	2.0000e-005		2.0800e-003	2.0800e-003		1.9200e-003	1.9200e-003	0.0000	2.2069	2.2069	6.7000e-004	0.0000	2.2209
Total	**3.4000e-003**	**0.0341**	**0.0184**	**2.0000e-005**	**2.7000e-004**	**2.0800e-003**	**2.3500e-003**	**3.0000e-005**	**1.9200e-003**	**1.9500e-003**	**0.0000**	**2.2069**	**2.2069**	**6.7000e-004**	**0.0000**	**2.2209**

3.2 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	7.0000e-005	6.7000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1029	0.1029	1.0000e-005	0.0000	0.1030
Total	**5.0000e-005**	**7.0000e-005**	**6.7000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1029**	**0.1029**	**1.0000e-005**	**0.0000**	**0.1030**

3.3 Grading - 2016

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					3.8100e-003	0.0000	3.8100e-003	2.0800e-003	0.0000	2.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0900e-003	0.0510	0.0275	3.0000e-005		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	3.3034	3.3034	1.0000e-003	0.0000	3.3243
Total	**5.0900e-003**	**0.0510**	**0.0275**	**3.0000e-005**	**3.8100e-003**	**3.1200e-003**	**6.9300e-003**	**2.0800e-003**	**2.8700e-003**	**4.9500e-003**	**0.0000**	**3.3034**	**3.3034**	**1.0000e-003**	**0.0000**	**3.3243**

3.3 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3500e-003	0.0171	0.0147	4.0000e-005	9.6000e-004	2.2000e-004	1.1800e-003	2.6000e-004	2.0000e-004	4.7000e-004	0.0000	3.9103	3.9103	3.0000e-005	0.0000	3.9109
Vendor	1.3000e-004	1.0000e-003	1.4800e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2163	0.2163	0.0000	0.0000	0.2163
Worker	1.9000e-004	2.7000e-004	2.6600e-003	1.0000e-005	4.5000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4116	0.4116	2.0000e-005	0.0000	0.4121
Total	**1.6700e-003**	**0.0183**	**0.0189**	**5.0000e-005**	**1.4700e-003**	**2.3000e-004**	**1.7200e-003**	**4.0000e-004**	**2.1000e-004**	**6.2000e-004**	**0.0000**	**4.5382**	**4.5382**	**5.0000e-005**	**0.0000**	**4.5393**

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					3.8100e-003	0.0000	3.8100e-003	2.0800e-003	0.0000	2.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0900e-003	0.0510	0.0275	3.0000e-005		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	3.3034	3.3034	1.0000e-003	0.0000	3.3243
Total	**5.0900e-003**	**0.0510**	**0.0275**	**3.0000e-005**	**3.8100e-003**	**3.1200e-003**	**6.9300e-003**	**2.0800e-003**	**2.8700e-003**	**4.9500e-003**	**0.0000**	**3.3034**	**3.3034**	**1.0000e-003**	**0.0000**	**3.3243**

3.3 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3500e-003	0.0171	0.0147	4.0000e-005	9.6000e-004	2.2000e-004	1.1800e-003	2.6000e-004	2.0000e-004	4.7000e-004	0.0000	3.9103	3.9103	3.0000e-005	0.0000	3.9109
Vendor	1.3000e-004	1.0000e-003	1.4800e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2163	0.2163	0.0000	0.0000	0.2163
Worker	1.9000e-004	2.7000e-004	2.6600e-003	1.0000e-005	4.5000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4116	0.4116	2.0000e-005	0.0000	0.4121
Total	**1.6700e-003**	**0.0183**	**0.0189**	**5.0000e-005**	**1.4700e-003**	**2.3000e-004**	**1.7200e-003**	**4.0000e-004**	**2.1000e-004**	**6.2000e-004**	**0.0000**	**4.5382**	**4.5382**	**5.0000e-005**	**0.0000**	**4.5393**

3.4 Building Construction - 2016

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	8.9900e-003	0.0954	0.0461	1.1000e-004		4.5700e-003	4.5700e-003		4.3500e-003	4.3500e-003	0.0000	9.8523	9.8523	2.3500e-003	0.0000	9.9016
Total	**8.9900e-003**	**0.0954**	**0.0461**	**1.1000e-004**		**4.5700e-003**	**4.5700e-003**		**4.3500e-003**	**4.3500e-003**	**0.0000**	**9.8523**	**9.8523**	**2.3500e-003**	**0.0000**	**9.9016**

3.4 Building Construction - 2016

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	2.5000e-004	2.0000e-003	2.9600e-003	0.0000	1.3000e-004	3.0000e-005	1.6000e-004	4.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4325	0.4325	0.0000	0.0000	0.4326
Worker	6.8000e-004	9.9000e-004	9.5800e-003	2.0000e-005	1.6300e-003	1.0000e-005	1.6500e-003	4.3000e-004	1.0000e-005	4.5000e-004	0.0000	1.4818	1.4818	8.0000e-005	0.0000	1.4835
Total	**9.3000e-004**	**2.9900e-003**	**0.0125**	**2.0000e-005**	**1.7600e-003**	**4.0000e-005**	**1.8100e-003**	**4.7000e-004**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.9143**	**1.9143**	**8.0000e-005**	**0.0000**	**1.9161**

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	8.9900e-003	0.0445	0.0461	1.1000e-004		4.5700e-003	4.5700e-003		4.3500e-003	4.3500e-003	0.0000	9.8523	9.8523	2.3500e-003	0.0000	9.9016
Total	**8.9900e-003**	**0.0445**	**0.0461**	**1.1000e-004**		**4.5700e-003**	**4.5700e-003**		**4.3500e-003**	**4.3500e-003**	**0.0000**	**9.8523**	**9.8523**	**2.3500e-003**	**0.0000**	**9.9016**

3.4 Building Construction - 2016

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	2.5000e-004	2.0000e-003	2.9600e-003	0.0000	1.3000e-004	3.0000e-005	1.6000e-004	4.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4325	0.4325	0.0000	0.0000	0.4326
Worker	6.8000e-004	9.9000e-004	9.5800e-003	2.0000e-005	1.6300e-003	1.0000e-005	1.6500e-003	4.3000e-004	1.0000e-005	4.5000e-004	0.0000	1.4818	1.4818	8.0000e-005	0.0000	1.4835
Total	**9.3000e-004**	**2.9900e-003**	**0.0125**	**2.0000e-005**	**1.7600e-003**	**4.0000e-005**	**1.8100e-003**	**4.7000e-004**	**4.0000e-005**	**5.1000e-004**	**0.0000**	**1.9143**	**1.9143**	**8.0000e-005**	**0.0000**	**1.9161**

3.5 Paving - 2016

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	1.4000e-003	0.0144	9.3000e-003	1.0000e-005		8.0000e-004	8.0000e-004		7.4000e-004	7.4000e-004	0.0000	1.3218	1.3218	3.8000e-004	0.0000	1.3298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-003**	**0.0144**	**9.3000e-003**	**1.0000e-005**		**8.0000e-004**	**8.0000e-004**		**7.4000e-004**	**7.4000e-004**	**0.0000**	**1.3218**	**1.3218**	**3.8000e-004**	**0.0000**	**1.3298**

3.5 Paving - 2016

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	1.7000e-004	2.5000e-004	2.4000e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3704	0.3704	2.0000e-005	0.0000	0.3709
Total	**1.7000e-004**	**2.5000e-004**	**2.4000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3704**	**0.3704**	**2.0000e-005**	**0.0000**	**0.3709**

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	1.4000e-003	0.0144	9.3000e-003	1.0000e-005		8.0000e-004	8.0000e-004		7.4000e-004	7.4000e-004	0.0000	1.3218	1.3218	3.8000e-004	0.0000	1.3298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-003**	**0.0144**	**9.3000e-003**	**1.0000e-005**		**8.0000e-004**	**8.0000e-004**		**7.4000e-004**	**7.4000e-004**	**0.0000**	**1.3218**	**1.3218**	**3.8000e-004**	**0.0000**	**1.3298**

3.5 Paving - 2016

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	1.7000e-004	2.5000e-004	2.4000e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3704	0.3704	2.0000e-005	0.0000	0.3709
Total	**1.7000e-004**	**2.5000e-004**	**2.4000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3704**	**0.3704**	**2.0000e-005**	**0.0000**	**0.3709**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive 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

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546434	0.062864	0.174629	0.123506	0.034170	0.004889	0.015456	0.023695	0.002073	0.003288	0.006639	0.000690	0.001668

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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	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	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

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			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

AERSCREEN 11126 / AERMOD 1135 02/08/16
15:58:52

TITLE: Front St

********** AREA PARAMETERS **********

SOURCE EMISSION RATE: 0.252E-03 g/s 0.200E-02 lb/hr

AREA EMISSION RATE: 0.848E-06 g/(s-m2) 0.673E-05 lb/(hr-m2)
AREA HEIGHT: 3.05 meters 10.00 feet
AREA SOURCE LONG SIDE: 24.38 meters 80.00 feet
AREA SOURCE SHORT SIDE: 12.19 meters 40.00 feet
INITIAL VERTICAL DIMENSION: 3.05 meters 10.00 feet
RURAL OR URBAN: URBAN
POPULATION: 40000

INITIAL PROBE DISTANCE = 5000. meters 16404. feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

********** FLOW SECTOR ANALYSIS **********
25 meter receptor spacing: 1. meters - 5000. meters

MAXIMUM IMPACT RECEPTOR

Zo SECTOR	SURFACE ROUGHNESS	1-HR CONC (ug/m3)	RADIAL (deg)	DIST (m)	TEMPORAL PERIOD
1*	1.000	1.001	0	1.0	WIN

* = worst case diagonal

********** MAKEMET METEOROLOGY PARAMETERS **********

MIN/MAX TEMPERATURE: 249.8 / 310.9 (K)

MINIMUM WIND SPEED: 2.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE: Average Moisture
DOMINANT SEASON: Winter

ALBEDO: 0.35
BOWEN RATIO: 1.50
ROUGHNESS LENGTH: 1.000 (meters)

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

```
 YR MO DY JDY HR
 -- -- -- --- --
 10 01 01   1 01

   H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-37.34  0.346 -9.000  0.020 -999.  468.     85.2 1.000   1.50   0.35    2.50

   HT  REF TA     HT
- - - - - - - - - - -
  10.0   249.8    2.0
```

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

```
 YR MO DY JDY HR
 -- -- -- --- --
 10 01 01   1 01

   H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-37.34  0.346 -9.000  0.020 -999.  468.     85.2 1.000   1.50   0.35    2.50

   HT  REF TA     HT
- - - - - - - - - - -
```

10.0 249.8 2.0

********** AERSCREEN AUTOMATED DISTANCES **********
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	1.001	2525.00	0.8771E-03
25.00	0.7457	2550.00	0.8653E-03
50.00	0.2684	2575.00	0.8537E-03
75.00	0.1429	2600.00	0.8424E-03
100.00	0.9142E-01	2625.00	0.8313E-03
125.00	0.6492E-01	2650.00	0.8205E-03
150.00	0.4923E-01	2675.00	0.8100E-03
175.00	0.3903E-01	2700.00	0.7997E-03
200.00	0.3197E-01	2725.00	0.7896E-03
225.00	0.2684E-01	2750.00	0.7797E-03
250.00	0.2299E-01	2775.00	0.7700E-03
275.00	0.2000E-01	2800.00	0.7605E-03
300.00	0.1761E-01	2825.00	0.7513E-03
325.00	0.1568E-01	2850.00	0.7422E-03
350.00	0.1408E-01	2875.00	0.7333E-03
375.00	0.1275E-01	2900.00	0.7246E-03
400.00	0.1162E-01	2925.00	0.7161E-03
425.00	0.1065E-01	2950.00	0.7078E-03
450.00	0.9811E-02	2975.00	0.6996E-03
475.00	0.9081E-02	3000.00	0.6916E-03
500.00	0.8439E-02	3025.00	0.6837E-03
525.00	0.7873E-02	3050.00	0.6760E-03
550.00	0.7368E-02	3075.00	0.6684E-03
575.00	0.6918E-02	3100.00	0.6610E-03
600.00	0.6512E-02	3125.00	0.6537E-03
625.00	0.6146E-02	3150.00	0.6466E-03
649.99	0.5815E-02	3174.99	0.6396E-03
675.00	0.5513E-02	3200.00	0.6327E-03
699.99	0.5237E-02	3225.00	0.6260E-03
725.00	0.4984E-02	3250.00	0.6194E-03
749.99	0.4751E-02	3275.00	0.6129E-03
775.00	0.4537E-02	3300.00	0.6065E-03
800.00	0.4339E-02	3325.00	0.6002E-03
825.00	0.4155E-02	3350.00	0.5940E-03
850.00	0.3984E-02	3375.00	0.5880E-03

875.00	0.3826E-02	3400.00	0.5821E-03
900.00	0.3677E-02	3425.00	0.5762E-03
924.99	0.3539E-02	3450.00	0.5705E-03
950.00	0.3409E-02	3475.00	0.5648E-03
975.00	0.3287E-02	3500.00	0.5593E-03
1000.00	0.3173E-02	3525.00	0.5538E-03
1025.00	0.3065E-02	3550.00	0.5485E-03
1050.00	0.2964E-02	3575.00	0.5432E-03
1075.00	0.2868E-02	3600.00	0.5380E-03
1100.00	0.2777E-02	3625.00	0.5329E-03
1125.00	0.2691E-02	3650.00	0.5279E-03
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1175.00	0.2533E-02	3700.00	0.5181E-03
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1575.00	0.1685E-02	4100.00	0.4499E-03
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1800.00	0.1400E-02	4325.00	0.4180E-03
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1875.00	0.1323E-02	4400.00	0.4083E-03
1900.00	0.1299E-02	4425.00	0.4051E-03
1925.00	0.1276E-02	4450.00	0.4020E-03
1950.00	0.1254E-02	4475.00	0.3989E-03
1975.00	0.1232E-02	4500.00	0.3959E-03
2000.00	0.1210E-02	4525.00	0.3929E-03
2025.00	0.1190E-02	4550.00	0.3899E-03
2050.00	0.1170E-02	4575.00	0.3870E-03
2075.00	0.1150E-02	4600.00	0.3841E-03

2100.00	0.1131E-02	4625.00	0.3812E-03
2125.00	0.1113E-02	4650.00	0.3784E-03
2150.00	0.1095E-02	4675.00	0.3757E-03
2175.00	0.1078E-02	4700.00	0.3729E-03
2200.00	0.1061E-02	4725.00	0.3702E-03
2225.00	0.1045E-02	4750.00	0.3675E-03
2250.00	0.1028E-02	4775.00	0.3649E-03
2275.00	0.1013E-02	4800.00	0.3623E-03
2300.00	0.9977E-03	4825.00	0.3597E-03
2325.00	0.9829E-03	4850.00	0.3572E-03
2350.00	0.9685E-03	4875.00	0.3547E-03
2375.00	0.9545E-03	4900.00	0.3522E-03
2400.00	0.9408E-03	4924.99	0.3497E-03
2425.00	0.9274E-03	4950.00	0.3473E-03
2449.99	0.9144E-03	4975.00	0.3449E-03
2475.00	0.9017E-03	5000.00	0.3426E-03
2500.00	0.8892E-03		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	1.470	1.470	1.470	1.470	N/A

DISTANCE FROM SOURCE 13.00 meters

IMPACT AT THE AMBIENT BOUNDARY	1.001	1.001	1.001	1.001	N/A

DISTANCE FROM SOURCE 1.00 meters

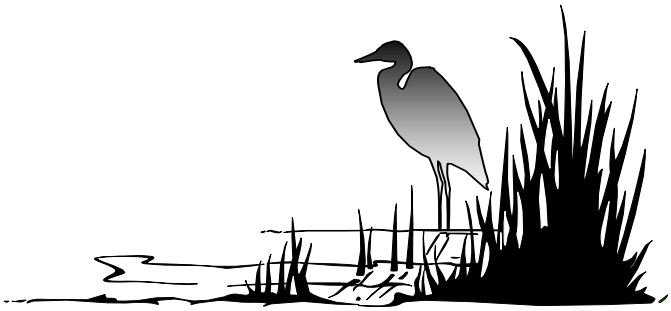
ATTACHMENT 2

BIOLOGICAL RESOURCE ASSESSMENT
FOR THE
FRONT STREET SLIDE REPAIR PROJECT
AT SAN RAMON CREEK
TOWN OF DANVILLE, CONTRA COSTA COUNTY
CALIFORNIA

BY
WOOD BIOLOGICAL CONSULTING
65 ALTA HILL WAY
WALNUT CREEK, CA 94595

JULY 18, 2015

BIOLOGICAL RESOURCE ASSESSMENT FOR THE FRONT STREET SLIDE REPAIR PROJECT AT SAN RAMON CREEK TOWN OF DANVILLE, CONTRA COSTA COUNTY, CALIFORNIA



July 18, 2015

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No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided herein, without the express written consent of Wood Biological Consulting, Inc.

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SUMMARY

This report presents the results of an assessment of existing or potential biological constraints to the proposed San Ramon Creek Slide Repair Project at Front Street in the Town of Danville, Contra Costa County, California. The report provides background and site-specific information pertaining to potentially occurring special-status wildlife and plant species and other regulated biological resources (e.g., wetlands), and identifies biological constraints to the proposed project. The conclusions contained herein are based on background research, a single reconnaissance-level site survey performed by qualified biologists and review of the proposed site improvements.

The concept for repairing the present bank failure is the same that was undertaken in 2008. The slide area will be excavated for rock riprap placement on geo-textile fabric and backfilled to reduce the slope to 2:1 (horizontal:vertical) to prevent further bank failure. A soldier pile and lagging wall will be installed Front Street across the top of the slide. The soldier pile and lagging wall will connect to the existing walls to the south and north. Following construction, erosion bio-engineering techniques will be implemented by backfilling 0.6 m (2 ft) of soil on top of the riprap and planting of native riparian species.

The project site is located in San Ramon Creek on the east side of Front Street, just north of the Diablo Road Bridge. San Ramon Creek is a highly modified and urbanized channel, with numerous drop-structures, armoring, and bridge crossings. The section of San Ramon Creek that passes through the study area appears as a "blue-line" stream and falls under the jurisdiction of federal and state regulatory agencies.

The study area supports a mix of riparian and upland plant species. At the point of the slide, existing vegetation is ruderal, comprised of primarily non-native grasses and forbs, with an overhanging canopy of native oaks, bay trees, and the invasive species tree-of-heaven and black locust. Although regularly scoured during peak winter flows, patches of emergent wetland vegetation are currently present in the active channel bottom within the study area.

Riparian habitat such as is present within the study area, provides suitable nesting and roosting habitat for a wider variety of birds and bats. The understory provides cover, forage and movement opportunities for a variety of mammals, reptiles and amphibians. Although San Ramon Creek does not support native anadromous fish, it is known to support a variety of native and non-native fish species. Despite its confinement to a narrow space surrounded by development, the San Ramon Creek channel is regarded as a significant movement corridor for wildlife.

The potential for occurrence of a total of 72 special-status plant species was evaluated. No federally or state-listed plant species were detected within the study area and none is expected to occur within the development areas. No target special-status plant species are considered to have a potential for occurrence in the study area due to the history of disturbance of the site, the lack of suitable habitat and/or the fact that they would have been recognizable during the present survey.

The potential for occurrence of a total of 39 special-status animal species was evaluated. Of these, the presence of 20 can be completely ruled out base on a lack of suitable habitat or the fact that the project site is outside of their geographic range. The presence of five of the target species is not expected due to the presence of only marginally suitable habitat, the high level of disturbance on site, and/or the site's relative isolation from more likely occupied sites. One special-status species, Pacific pond turtle, is known to occur in the immediate vicinity of the project site. **Although unlikely, the potential exists for the occurrence of another 12 special-status species on site.** The potential also exists for the presence of numerous migratory bird species.

In order to avoid, minimize or mitigate for direct or indirect impacts on these biological resources, specific measures are detailed in this report. With the incorporation of these measures, potentially significant biological impacts may be reduced to a less-than-significant level pursuant to the guidelines the California Environmental Quality Act.

LIST OF ABBREVIATED TERMS USED IN THIS DOCUMENT

acronym	explanation	acronym	explanation
ac	acre	ha	hectare
APN	assessor's parcel number	in	inches
AWS	Alameda whipsnake	km/km^2	kilometers/square km
BGEPA	Bald/Golden Eagle Protection Act	LSAP	Lake and Streambed Alteration Program
BLM	Bureau of Land Management	$m/m^2/m^3$	meters/square meters/cubic meters
BMPs	Best Management Practices	MBTA	Migratory Bird Treaty Act
CCR	CA Code of Regulations	MBTRA	Migratory Bird Treaty Reform Act
CDFG	CA Dept. of Fish and Game	mi/mi^2	mile/square miles
CDFW	CA Dept. of Fish and Wildlife	NGO	non-governmental organization
CEQA	CA Environmental Quality Act	NMFS	National Marine Fisheries Services
CESA	CA Endangered Species Act	Occ. #	CNDDB species occurrence no.
CFGC	CA Fish and Game Code	OHWM	ordinary high water mark
CFR	Code of Federal Regulations	PE	polyethylene
cm	centimeters	PPT	Pacific pond turtle
CNDDB	CA Natural Diversity Database	RSP	rock slope protection
CNPPA	CA Native Plant Protection Act	RWQCB	Regional Water Quality Control Board
CNPS	CA Native Plant Society	SSC	Species of Special Concern
CRF	CA red-legged frog	USACE	U.S. Army Corps of Engineers
CWA	Clean Water Act	USC	United States Code
dbh	diameter at breast height	USEPA	U.S. Environmental Protection Agency
ESU	Evolutionarily Significant Unit	USFS	U.S. Forest Service
FEMA	Federal Emergency Management Agency	USFWS	U.S. Fish and Wildlife Service
FESA	Federal Endangered Species Act	USGS	U.S. Geological Survey
FR	Federal Register	WBWG	Western Bat Working Group
$ft/ft^2/ft^3$	feet/square feet/cubic feet	WEF	wildlife exclusion fencing

LIST OF SCIENTIFIC PLANT NAMES

Scientific names of the plants referred to in the text

Common Name	Scientific Name	Common Name	Scientific Name
arroyo willow	*Salix lasiolepis*	Douglas' mugwort	*Artemisia douglasiana*
bedstraw	*Galium aparine*	elmleaf blackberry*	*Rubus ulmifolius*
Bermuda grass**	*Cynodon dactylon*	English ivy**	*Hedera helix*
black cottonwood	*Populus trichocarpa*	field hedge parsley**	*Torilis arvensis*
black locust**	*Robinia pseudoacacia*	giant reed**	*Arunda donax*
black walnut	*Juglans californica*	gooseberry	*Ribes* sp.
blue elderberry	*Sambucus nigra* spp. *caerulea*	Himalayan blackberry**	*Rubus armeniacus*
box elder	*Acer negundo*	Italian thistle**	*Carduus pycnocephalus*
bull thistle**	*Cirsium vulgare*	periwinkle**	*Vinca major*
CA bay	*Umbellularia californica*	poison hemlock**	*Conium maculatum*
CA blackberry	*Rubus ursinus*	red willow	*Salix laevigata*
CA rose	*Rosa californica*	ripgut brome**	*Bromus diandrus*
CA sycamore	*Platanus racemosa*	smilograss*	*Sipa mileacea*
California bulrush	*Schoenoplectus californicus*	toyon	*Heteromeles arbutifolia*
cattail	*Typha* sp.	tree-of-Heaven**	*Ailanthus altissima*
cherry plum**	*Prunus cerasifera*	valley oak	*Quercus lobata*
coast live oak	*Quercus agrifolia*	white alder	*Alnus rhombifolia*
coffeeberry	*Frangula californica*	wild lettuce*	*Lactuca serriola*
common snowberry	*Symphoricarpos albus* var. *laevigatus*	wild oats**	*Avena fatua*
coyote brush	*Baccharis pilularis*	wild radish**	*Raphanus sativus*
creeping wildrye	*Elymus triticoides (Leymus t.)*		

* indicates non-native species

** indicates invasive non-native species per CAL-IPC

Special-status species appear in BOLD

LIST OF SCIENTIFIC ANIMAL NAMES

Scientific names of the animals referred to in the text

Common Name	Scientific Name	Common Name	Scientific Name
Alameda whipsnake	***Masticophis lateralis euryxanthus***	Pacific treefrog	*Pseudacris regilla*
Allen's hummingbird	***Selasphorus sasin***	**pallid bat**	***Antrozous pallidus***
American robin	*Turdus migratorius*	raccoon	*Procyon lotor*
Anna's hummingbird	*Calypte anna*	ring-necked snake	*Diadophis punctatus*
Botta's pocket gopher	*Thomomys bottae*	Sacramento sucker	*Catostomus occidentalis*
bullfrog	*Rana catesbeiana*	**San Francisco dusky-footed woodrat**	***Neotoma fuscipes annectens***
CA red-legged frog	***Rana draytonii***	**sharp-shinned hawk**	***Accipiter striatus***
CA roach	*Lavinia symmetricus*	signal crayfish	*Pacifastacus leniusculus*
CA slender salamander	*Batrachoseps attenuatus*	striped skunk	*Mephitis mephitis*
Cooper's hawk	***Accipiter cooperi***	three-spined stickleback	*Gasterosteus aculeatus*
gray fox	*Urocyon cinereoargenteus*	western fence lizard	*Sceloporus occidentalis*
green sunfish	*Lepomis cyanellus*	**western red bat**	***Lasiurus blossevillii***
Louisiana red swamp crayfish	*Procambarus clarkii*	western scrub-jay	*Aphelocoma californica*
mosquitofish	*Gambusia affinis*	**white-tailed kite**	***Elanus leucurus***
mule deer	*Odoicoileus hemionus*	yellow-rumped warbler	*Dendroica coronata*
Nuttall's woodpecker	***Picoides nuttallii***	**Yuma myotis**	***Myotis yumanensis***
oak titmouse	***Baeopholus inornatus***	**yellow warbler**	***Setophaga petechia***
Pacific (western) pond turtle	***Emys marmorata***		

Special-status species appear in BOLD type

1.0 INTRODUCTION

This report presents the results of an assessment of existing or potentially occurring biological constraints to implementation of the proposed San Ramon Creek Slide Repair Project at Front Street in the Town of Danville, Contra Costa County, California (figures 1 and 2). The report provides background and site-specific information pertaining to special-status wildlife and plant species and other regulated biological resources (e.g., wetlands), which may represent constraints to the proposed project. Included is a discussion of the existing plant communities, wildlife habitats, locally occurring special-status plant and wildlife species and natural communities, and recommended impact avoidance, minimization and/or mitigation measures. This report has been prepared in support of the environmental review by the lead agency pursuant to the California Environmental Quality Act (CEQA), regulatory agencies pursuant to the Clean Water Act (CWA) and the California Fish and Game Code (CFGC).

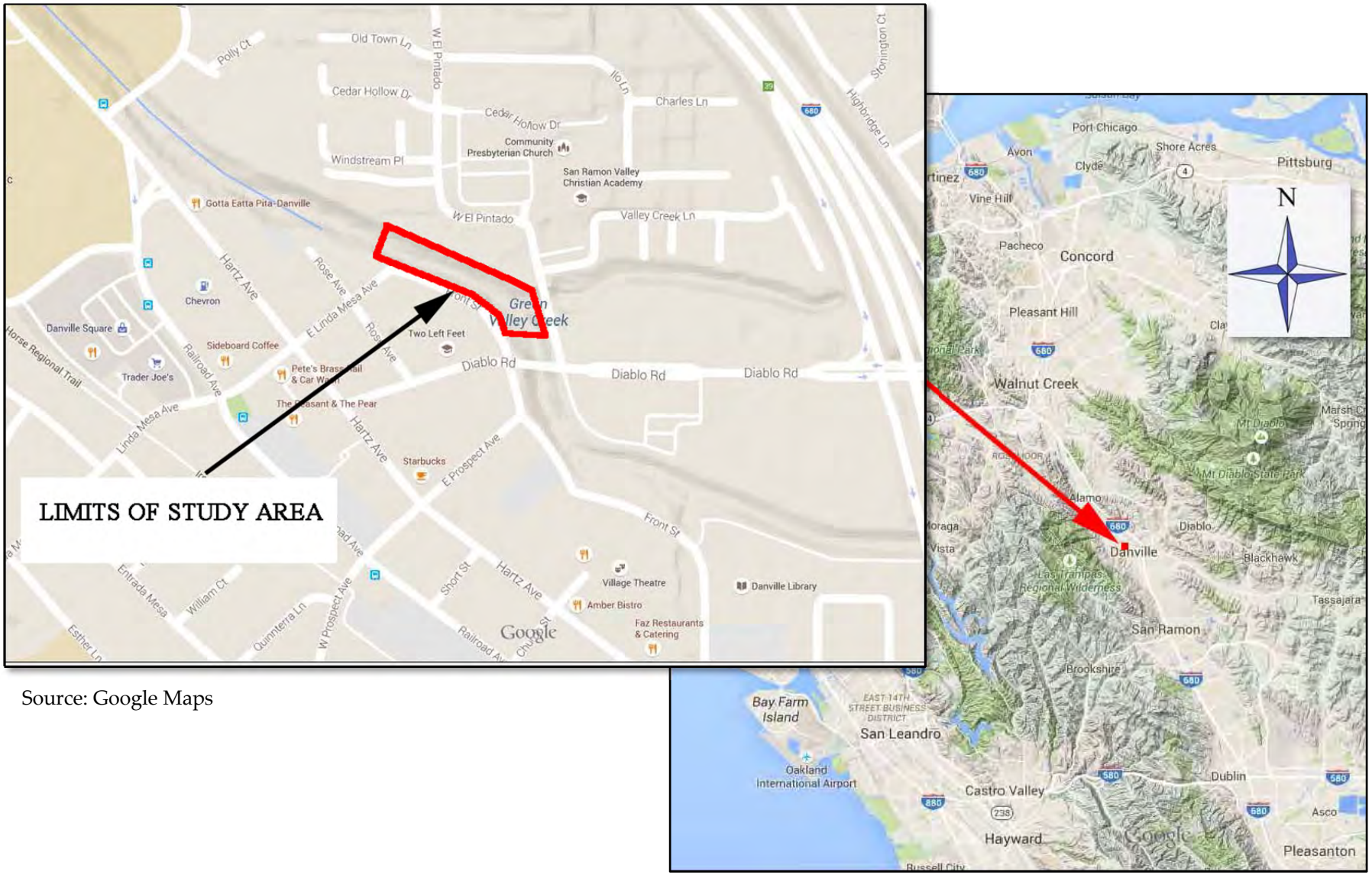
1.1 Project Background and Description

On December 12, 2014, a substantial storm passed through Danville, causing flows within San Ramon Creek to saturate the creek bank between two previously-installed soldier pile retaining walls that support Front Street. The previous walls extend along the top-of-bank and were installed in 2008-09. The 24 m (80 ft.) long segment between the two walls subsequently collapsed leaving the area over-steepened and denuded (see photographs in Appendix A). The bank failure also undermined the guardrail, curb & gutter, and a portion of the pavement on Front Street. The Town installed k-rail barriers above the failure area as an interim measure until a permanent repair is made. As an emergency repair, the void at the primary failure has been covered with plastic sheeting secured in place with sandbags.

The location of the proposed slide repair is situated on privately owned land (APN 200-200-023), which overlaps both sides of the creek. The Town has a right of entry agreement with the property owner for purposes of maintaining the channel. The Town is responsible for making the proposed repairs.

A significant winter storm during at the end of December 2005 resulted in two similar bank failures on the same creek bank to the north and south of the site of the present failure. Those slides were declared an emergency and their repair received federal assistance through the Federal Emergency Management Agency (FEMA). Repair of those two bank failures was implemented in 2008 and received authorization from the U.S. Army Corps of Engineers (USACE[1]), the California Department of Fish and Game

[1] Permit issued May 12, 2008; file #400403S



Source: Google Maps

Figure 1. Project Location

Source: Google Maps

Figure 2. Aerial View of the Project Site

(CDFG[2],[3]), and the San Francisco Regional Water Quality Control Board (RWQCB[4]). Due to the involvement of FEMA, a Biological Opinion was sought and secured from the U.S. Fish and Wildlife Service (USFWS).[5] The repairs were completed in 2008. A revegetation plan was developed an approved for the repaired slopes (EDAW / AECOM, 2008).

The concept for repairing the present bank failure is the same that was undertaken in 2008. The slide area will be excavated and loose rock riprap will be placed on top of geo-textile fabric. The repaired slope will be backfilled to reduce the slope to 2:1 (horizontal:vertical) to prevent further bank failure. A soldier pile and lagging wall will be installed Front Street across the top of the slide to a depth of approximately 3 m (10 ft) below the street grade at the site of the slide. The soldier pile and lagging wall will connect to the existing wall to the south and will be extended to the north to connect with the other existing wall. This section of wall will pass through a natural section of creek bank at risk of future failure. The total length of the proposed new lagging wall is 27 m (88 ft).

Following construction, erosion bio-engineering techniques will be implemented by backfilling 0.6 m (2 ft) of soil on top of the riprap and planting of native riparian species. A separate revegetation plan is being prepared that will call for the installation of native, locally indigenous riparian plant species and seeding with an appropriate seed mix.

2.0 METHODS AND LIMITATIONS

The findings for this biological constraints assessment are based on the following:

1) database queries for the Diablo, Livermore, Dublin, Las Trampas Ridge, Walnut Creek, Hayward, Tassajara, Antioch South, and Clayton 7.5-minute USGS quadrangles from the available databases (CNDDB 2015, CNPS 2015, USFWS 2015; see Appendix B);
2) an assessment of habitat types and surrounding land uses completed by reviewing recent aerial photographs; and
3) reconnaissance-level surveys by qualified biologists.

Additional information regarding special-status and common plant and wildlife species was obtained by review of published lists and floras including CDFW

[2] On January 1, 2013, the California Department of Fish and Game (CDFG) changed its name to the CDFW; all publications released prior to that date are referenced by the former name CDFG.
[3] Permit issued April 21, 2008; notification #1600-2007-0139-3
[4] Permit issued June 23, 2008; file #2118.03 (KRH)
[5] Dated January 24, 2008, ref. #81420-2008-F-0755

(2015,a,b,c,d), Ertter and Naumovich (2013), and Lake (2010). Nomenclature for common, widespread plants and animals conforms to Baldwin, et al. (2012) and CDFW (CDFG, 2005), respectively; plant names have been updated to conform to the Jepson Online Interchange.[6] Nomenclature for special-status plants and animals conforms to CDFW (2015a and 2015c, respectively). Plant community names conform to CDFG (2010), Sawyer, et al. (2009), and Cowardin, et al. (1979).

Reconnaissance-level surveys were performed by biologists Michael Wood on June 15, 2015 and Jerry Roe[7] on June 29, 2015. The study area centered on the location of the primary slide and extended approximately 76 m (250 ft) upstream and downstream and between the edge of pavement of Front Street and the top of the right (eastern) bank of San Ramon Creek, for a total area of approximately 0.6 ha (1.5 ac). All habitat types at and adjacent to the project site were surveyed and classified and plant and animal species observed were recorded. Representative photographs of the project site are presented in Appendix A.

A delineation of potentially jurisdictional waters of the U.S./waters of the state was also performed (see Section 4.1.2, below). Methods were in accordance with the procedures outlined in *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008). Determination of the limits of the ordinary high water mark (OHWM) conformed to procedures outlined in USACE (2006).

Focused botanical and wildlife surveys were not performed as part of this analysis. However, the timing of the present survey corresponded with the summer flowering season for special-status plant species (see Section 4.2, below).

The team also reviewed environmental documents prepared for a similar bank stabilization project undertaken immediately downstream of the current project. These studies include:

1. *Preliminary Jurisdictional Determination for a Portion of San Ramon Creek Adjacent to Front Street, Danville, Contra Costa County, California* (EDAW, 2007a).
2. *Proposed Initial Study/Mitigated Negative Declaration for the San Ramon Creek Bank and Front Street Repair in Town of Danville* (EDAW, 2007b).
3. *Revegetation and Monitoring Plan for the Front Street Slide Repair: Town of Danville, Contra Costa County, California* (EDAW/AECOM, 2008).
4. *Initial Study, Diablo Road Bridge Slope Repair Project* (Geier & Geier Consulting, Inc., 2009)

[6] available online at http://ucjeps.berkeley.edu/interchange.html.
[7] Sapere Environmental, Inc., 1181 Harbor View Drive, Martinez, CA 94553; www.sapereenv.com

5. *Biological Assessment for the Diablo Road Bridge Slope Repair Project, Town of Danville, Contra Costa County, California* (Wood Biological Consulting, 2009).
6. *Riparian Mitigation and Monitoring Plan for the Diablo Road Bridge Slope Repair Project, Town of Danville, Contra Costa County, California* (Wood Biological Consulting, 2010).

3.0 EXISTING CONDITIONS

The project site is located is located on the eastern side of Front Street, approximately 66 m (215 ft) north of the Diablo Road Bridge crossing over San Ramon Creek (Figures 1 and 2). The site of the proposed slide repair is on the left (west) bank of San Ramon Creek; the slide itself affected a section of bank approximately 9 m (30 ft) long.

San Ramon Creek itself is a highly modified and urbanized channel, with numerous drop-structures, armoring, and bridge crossings. The San Ramon Creek watershed covers km^2 (54 mi^2) and is fed by Bollinger Canyon Creek to the west and Green Valley Creek and Sycamore Creek to the east (RDG, 2013). At its confluence with Las Trampas Creek in the City of Walnut Creek, the two streams form Walnut Creek. Further downstream, the conveyance is referred to as Pacheco Slough, also known as Lower Walnut Creek. Surface flows pass through Concord Marsh and empty into Suisun Bay, approximately 26 km (16 mi) north of the project site.

Over much of its length it is confined between surface streets, sidewalks, and residential and commercial development. Over 14 percent of the channel length of San Ramon Creek is underground and over 16 percent is either lined with concrete or riprap; 73.5 percent is considered natural and 10 percent is earth-lined. The section of San Ramon Creek extending from Danville to Walnut Creek is considered constructed earth-lined.

The section of San Ramon Creek that passes through the study area appears as a "blue-line" stream on the current USGS topographic map[8], and exhibits features that qualify it as a waters of the U.S. and a waters of the state (see discussion in Section 4.1.2, below).

The bank failure is located between two similar slide repairs undertaken by the Town in 2008; both repairs involved the construction of a vertical concrete retaining walls on piers and the placement of loose rock slope protection (RSP) below; the RSP was covered with imported earth and planted with native trees, shrubs and vines, and seeded with native grasses and forbs. Another bank repair, undertaken in 2011, involved the re-engineering of both banks beneath the Diablo Road Bridge and the right (east) bank just downstream of the bridge using loose RSP. At that location,

[8] Diablo 7.5-minute quadrangle, 2012.

plantings were installed in Sonotube® concrete forms placed in the RSP and backfilled with imported earth. Additional plantings were installed on the banks to the northwest, southeast and southwest of the Diablo Road Bridge. Additional enhancements included eradication of invasive tree and vine species.

The study area study encompasses both banks of San Ramon Creek and extends approximately 61 m (200 ft) upstream and downstream of the project site (Figure 2).

Currently, the site of the slide is protected with black polyethylene (PE) plastic sheeting held in place with sand bags. The toe of slope, below the plastic sheeting, supports a dense covering of Himalayan blackberry, English ivy, California blackberry, smilo grass, and poison hemlock. Trees contributing canopy cover at and near the slide include arroyo willow, white alder, coast live oak, valley oak black cottonwood, black walnut, California bay and the invasive species tree-of-Heaven, black locust and cherry plum. The bank to the south consists of backfilled earth over RSP supporting a variety of grass, forb and shrub plantings and volunteers. The bank to the north is in an unaltered condition supporting coast live oak, tree-of-heaven, and black locust.

A discussion of the plant communities and wildlife habitats occurring within the study area is presented below.

3.1 Plant Communities

The study area supports a mix of riparian and upland plant species commonly encountered on the slopes and bottomlands of Las Trampas Ridge and the foothills of Mt. Diablo. The high degree of modification of the project site, the high cover of invasive species, and vicinity and the narrowness of the corridor make it challenging to assign specific plant alliances according to Sawyer, et al. (2009). The characteristic plant associations occurring in the region and for which typical species are present on site include coast live oak woodland, valley oak woodland, and arroyo willow thickets. The site of the slide and adjacent slides are characterized as ruderal habitat. Although regularly scoured during peak winter flows, patches of emergent wetland vegetation are currently present in the active channel bottom within the study area. Each of these plant communities is described below.

Ruderal Habitat

Ruderal habitat is that from which the native vegetation has been completely removed by grading, cultivation, or other historic surface disturbances. Left undeveloped, such areas typically become recolonized by invasive exotic species. Scattered native species might recolonize the site after disturbance has ceased. Ruderal sites are typically dominated by herbaceous species, although scattered woody shrubs and trees may

also begin to appear if left undisturbed long enough. Ruderal sites are characteristic of road sides, fallow agricultural fields, vacant lots, and large landslides.

The site of the slope failure as well as the restored slope to the south are dominated by native and non-native grasses, forbs, and vines as well as planted native shrubs. Native herbaceous species include Douglas' mugwort, creeping wildrye, and bedstraw. Native shrubs and vines present include California rose, coyote brush and California blackberry. A planted box elder is also present. Non-native species typical of ruderal sites include wild oats, ripgut brome, poison hemlock, wild radish, smilo grass, Italian thistle, Bermuda grass, wild lettuce, and Himalayan blackberry, among others.

Ruderal habitat is not specifically described by Sawyer, et al. (2009); it would be classified as upland following Cowardin, et al. (1979).

Riparian Woodland

As noted above, the narrow riparian corridor on both banks of San Ramon Creek supports a mixture of native and non-native species associated with coast live oak woodland, valley oak woodland and arroyo willow thickets. Given this fact and the context of the site, we are characterizing the vegetation merely as riparian woodland.

The tallest trees within the study area consist of valley oaks and black cottonwoods. Lower and denser canopies are comprised of coast live oak, California bay laurel, black walnut, tree-of-Heaven, and black locust on the upper slopes, with scattered white alders, arroyo willows and red willows rooted along the shorelines. Portions of the creek banks, particularly on the right (east) bank, support very dense stands of highly invasive plant giant reed.

Understory vegetation consists of the native species poison oak, California blackberry, toyon, and snowberry; non-native species include periwinkle, English ivy, Himalayan blackberry, elmleaf blackberry, field hedge parsley, wild radish, poison hemlock, and bull thistle, among others.

Riparian woodland is not specifically described by Sawyer, et al. (2009). Coast live oak woodland has been assigned a rarity ranking of G5/S4[9], which is considered secure statewide and is does not have a high priority for inventory in the California Natural Diversity Database (CNDDB; CDFG, 2010). Valley oak woodland has been assigned a rarity ranking of G3/S3, indicating that the habitat type is rare and threatened in California and throughout its range; as such, impacts would be regarded as significant pursuant to CEQA guidelines. The Arroyo Willow Thicket community been assigned a rarity ranking of G4/S4, indicating that this alliance may or may not be endemic to

[9] For an explanation of global and state rarity rankings, see Appendix C.

California and is presumed to be secure statewide (Sawyer et al., 2009). However, some associations within this alliance are deemed rare and less secure statewide. Despite these rarity rankings, impacts to native trees in such a riparian setting would be regarded as significant under CEQA guidelines.

California Bulrush Marsh

California bulrush marsh occurs on soils with high organic content and are poorly aerated. It occurs in brackish to freshwater settings on shores, river bars, and the channels of river mouths and estuaries. It is widespread in the state, occurring in coastal, interior, foothills, desert, and Great Basin regions. It is characteristically dominated by California bulrush (tule), which grows to 3 m (9.8 ft) tall. Other tules, cattails, and a variety of aquatic and riparian herbs, shrubs and low trees may also be present.

California bulrush marsh has been assigned a rarity ranking of G5/S4?, indicating that it is secure in California and throughout its range (Sawyer et al. 2009); it is not considered to have a high priority for inventory in the CNDDB (CDFG, 2010). Nonetheless, as a wetland plant community, impacts to this habitat would be regarded as significant pursuant to CEQA guidelines.

Within the study area, California bulrush marsh consists of patches growing within the active channel of San Ramon Creek to the south (upstream) of the project site, where it also supports broadleaf cattail. Both species are listed as "obligate" (OBL) wetland indicator species (Lichvar et al., 2014).

3.2 Wildlife Habitats

Riparian and urban communities provide habitat for a variety of native wildlife species. Trees and shrubs provide nesting and foraging habitat for a various bird species such as western scrub jay, oak titmouse, Anna's hummingbird, American robin, and yellow-rumped warbler, as well as roosting habitat for many bat species including the western red bat and Yuma myotis bat. The dense to open understory associated with these habitats provide cover, forage, and movement pathways for a variety of mammals, reptiles and amphibians including mule deer, gray fox, striped skunk, raccoon, Botta's pocket gopher, western fence lizard, ring-necked snake, Pacific treefrog, and California slender salamander. Anthropogenic structures such as buildings, transmission towers, bridges, etc. provide suitable nesting and roosting habitat for bird and mammal species such as sparrows (Emberizinae and Passeridae families), finches (Fringillidae Family), swallows (Hirundinidae family), swifts (Apodidae family), hawks (Accipitridae family), bats (Megachiroptera and Microchiroptera suborders), and rodents (Muridae family), among others.

The reach of San Ramon Creek within the study area is a slow run varying in width from 1.5-2.1 m (5-7 ft) with an average depth of 0.6 m (2 ft). Bed substrate is comprised of silt and clay with broken concrete and other non-natural materials. This reach supports undercut banks with overhanging vegetation and streamside bank cover. Emergent vegetation is limited to a small stand of cattails and tules. The creek supports signal crayfish, three-spined stickleback, California roach, green sunfish, Sacramento sucker, and a breeding population of bullfrogs. During the time of the field reconnaissance, the creek was flowing slowly with very low turbidity.

3.3 Wildlife Movement Corridors

Under CEQA, impacts are considered significant if the project would interfere substantially with the movement of 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. Wildlife corridors (i.e. linear habitats that naturally connect and provide passage between two or more large habitats or habitat fragments) are important for persistence of wildlife overtime. Wildlife must have access to adequate resources, and corridors are used to find suitable forage, nesting and resting sites, mates and new home ranges. In addition, corridors for dispersal within breeding populations will decrease the likelihood that subpopulations will go extinct or become locally extirpated. Even where patches of pristine habitat are fragmented, as commonly occurs with riparian vegetation, wildlife movement between populations is facilitated through habitat linkages, migration corridors and movement corridors.

Wildlife movement includes migration (i.e., usually one direction per season), inter-population movement (i.e., long-term genetic exchange) and small travel pathways (i.e., daily movement within an animal's home range). Daily movement patterns define an animal's home range where activities such as foraging, resting and conspecific (individuals of the same species) interactions occur. Generally, longer movements usually by dispersing individuals connect breeding populations, permitting gene flow between these subpopulations. Corridors generally provide adequate habitat for animals to disperse until reaching an area large enough to establish home ranges. Corridors are different depending on what type of organism may use it; a corridor for a butterfly or bird may be a series of "stepping stones" of suitable habitat, while a terrestrial vertebrate may need a continuous band of suitable habitat for successful movement. Habitat loss, fragmentation, and degradation resulting from a change in land use or habitat conversion can alter the use and viability of corridors.

San Ramon Creek is an uninterrupted riparian corridor originating approximately 6.4 km (4 mi) upstream at the confluence of Bollinger Canyon Creek and San Catanio Creek. From the study area, the creek runs through an earthen, densely vegetated corridor until reaching Stone Valley Road approximately 4 km (2.5 mi) to the

northwest of the study area. It then flows into a concrete canal for approximately 5.6 km (3.5 mi) before emptying into Walnut Creek.

The San Ramon Creek riparian corridor at the project location is considered a significant biological feature serving as a key corridor through the communities of Danville and Walnut Creek, connecting patches of grassland and woodland habitats interspersed within the otherwise developed land.

4.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

Existing and potentially occurring biological constraints at the study area or potentially affected by the proposed action are defined and discussed below.

4.1 Special-status Habitats

Special-status biological resources include habitats and plant and animal species for which impacts may be regarded as significant pursuant to the guidelines of CEQA or are regulated under federal, state or local laws or ordinances. They are defined and discussed below.

4.1.1 Special-Status Natural Communities

Special-status natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection under the CWA[10], Lake and Streambed Alteration Program (LSAP)[11], and/or the Porter-Cologne Water Quality Control Act (Porter-Cologne).[12] A number of communities have been designated as rare and these communities are given the highest inventory priority (CNDDB, 2015; CDFG, 2010). Vegetation alliances given a rarity ranking of G1/S1, G2/S2 or G3/S3 are considered to be of high inventory priority; alliances ranked as G4/S4 or G5/S5 are generally considered common enough to not be of concern (Sawyer et al., 2009; CDFG, 2010; for a definition of rarity rankings, see Appendix C).

Riparian habitats are considered by federal and state regulatory agencies to represent a sensitive and declining resource. Wetlands and riparian areas can serve significant biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Impacts to stream channels with a defined bed and bank are addressed specifically by the CFGC[13] and may be regulated under the CWA. The USACE regulates dredging and placement of fill into waters of the U.S., including wetlands, with oversight of permitting decisions by the U.S. Environmental Protection Agency (USEPA). The U.S. Fish and Wildlife

[10] CWA § 401 and § 404
[11] CFGC Division 2, Chapter 6, §§ 1600-1607
[12] Cal. Water Code §§ 13000-14920
[13] CFGC § 1600 et seq.

Service (USFWS) and the National Marine Fisheries Service (NMFS) has input on permitting decisions by the USACE when an activity could affect wetland-dependent federally listed species.

Special-status natural communities recorded from the project region include serpentine bunchgrass, sycamore alluvial woodland, valley needlegrass grassland, and valley sink scrub (CNDDB, 2015). None of these natural communities is present within the study area.

As described in Section 3.1 above, the study area supports a mix of riparian and upland plant species characteristic of a variety of natural and non-natural plant communities. In a general sense, riparian woodland overlapping the tops of bank of a stream course is considered a regulated plant community and impacts would be regarded as significant pursuant to CEQA guidelines. As proposed, project implementation would result in impacts to riparian woodland.

4.1.2 Waters of the United States and Waters of the State

There are seven categories of waters of the United States.[14] These include:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(2) All interstate waters including interstate wetlands;
(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c) Which are used or could be used for industrial purposes by industries in interstate commerce;
4) All impoundments of waters otherwise defined as waters of the United States under the definition;
5) Tributaries of waters identified in paragraphs (1) through (4) of this section;
6) The territorial seas; and
7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the

[14] 33 CFR 328.3(a); 40 CFR 230.3(s)

Clean Water Act (other than cooling ponds[15], which also meet the criteria of this definition) are not waters of the United States.

As summarized in USEPA/USACE (2008), both agencies assert jurisdiction over "non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)" and "wetlands that abut such tributaries". The extent of USACE jurisdiction normally corresponds to the OHWM.[16] The OHWM is the line on the shores established by the fluctuations of water and indicated by physical characteristics such as:[17]

- a clear natural line impressed on the bank;
- shelving;
- changes in the character of the soil;
- destruction of terrestrial vegetation;
- the presence of litter and debris;
- or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."[18] Indicators of all three wetland parameters (e.g., hydric soils, hydrophytic vegetation, and wetland hydrology) must be present for a site to be classified as a wetland (Environmental Laboratory, 1987; USACE, 2006).

As defined under California Water Code[19], waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". These include nearly every surface or ground water in California, or tributaries thereto, and include drainage features outside USACE jurisdiction (e.g., dry and ephemeral/seasonal stream beds and channels, etc.), isolated wetlands (e.g., vernal pools, seeps, springs and other groundwater-supplied wetlands, etc.), and storm drains and flood control channels.

San Ramon Creek is a "blue-line", perennial, fourth-order stream and is classified as a relatively permanent, non-navigable tributary to Suisun Bay, a traditional navigable

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[15] as defined in 40 CFR 123.11(m)

[16] The OHWM is the line on the shores established by the fluctuations of water and indicated by physical characteristics such as: a clear natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas (USACE, 2006).

[17] USACE, 2006

[18] CWA § 404

[19] § 13050(e)

waters of the United States. As such, San Ramon Creek falls under the jurisdiction of the USACE, CDFW and RWQCB.

At the project site, the San Ramon Creek channel is on average 27.5 m (90 ft) wide at the tops of bank and 4.6 m (15 ft) wide at the OHWM.[20] The channel is approximately 9.7 m (32 ft) below grade on the Front Street side, with 1:0.7 horizontal:vertical earthen side slopes. Across the project site, the channel is 24.5 m (113 ft) long. The total area below the OHWM is approximately 195.3 m^2 (2100 ft^2). The total area below the tops of bank but above the OHWM covers a total area of 763 m^2 (8207 ft^2). No stands of wetland vegetation are present in the work area. A map illustrating the preliminary limits of jurisdiction within the study area is presented in Figure 3.

As currently proposed, project implementation would not result in direct impacts below the OHWM; however, temporary dewatering may be necessary to facilitate equipment access and construction. Temporary dewatering would be achieved by the installation of cofferdams upstream and downstream of the work area; flows would be preserved by bypass piping. Temporary access and construction activities within below the OHWM are regulated under the CWA. All construction activities below the top of bank are regulated under the LSAP.

4.2 Special-Status Plant Species

Special-status plant species include all plant species that meet one or more of the following criteria:[21]

- Listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA) or candidates for possible future listing as threatened or endangered under the FESA.[22]
- Listed[23] or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA).[24] A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors.[25] A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures.[26]

[20] The OHWM is typically defined as OHWM is the line on the shores established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.

[21] This definition is provided in CDFG (2009).

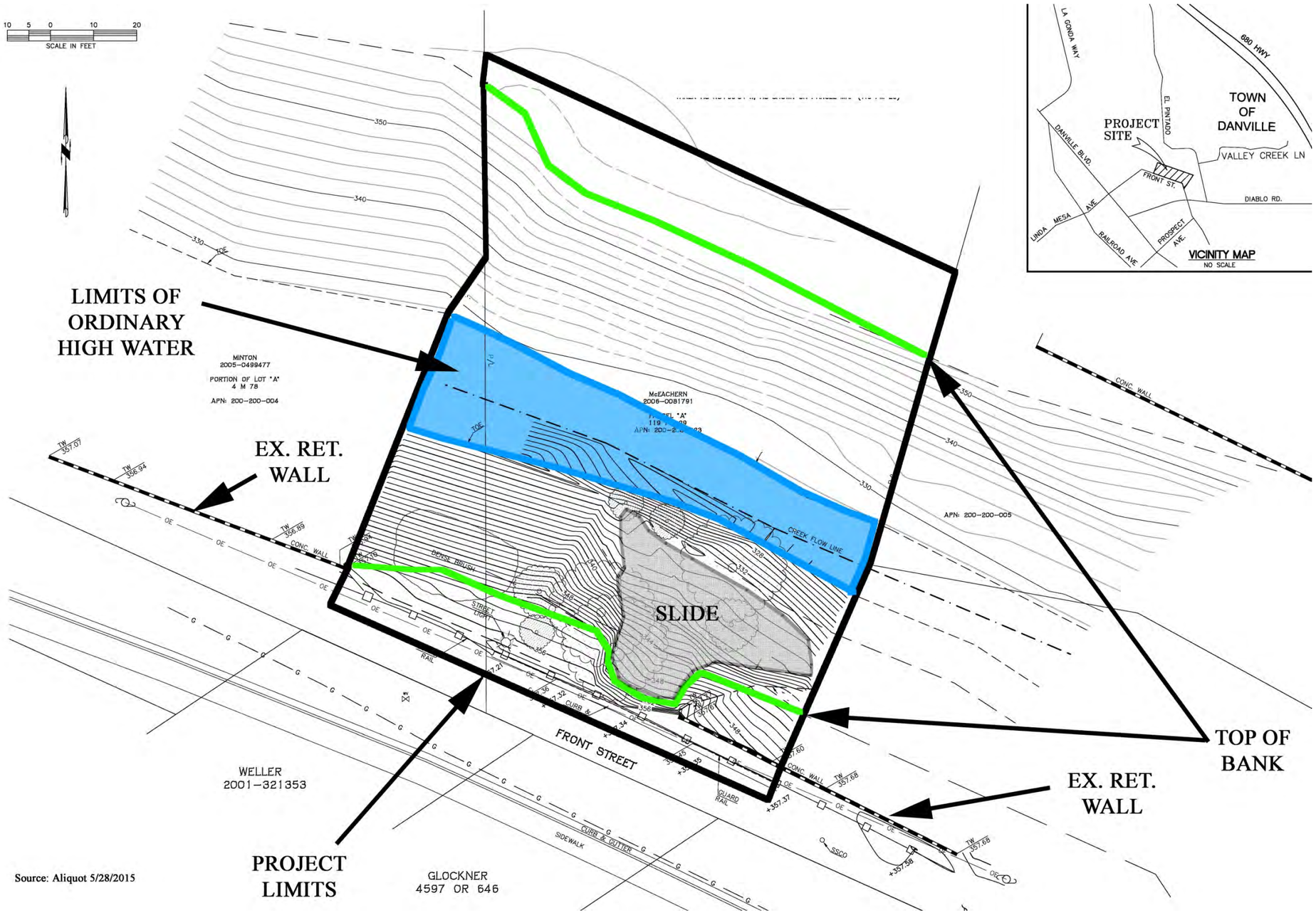
[22] 50 CFR § 17.12

[23] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

[24] CFGC § 2050 et seq.

[25] CFGC § 2062

[26] CFGC § 2067



Source: Aliquot 5/28/2015

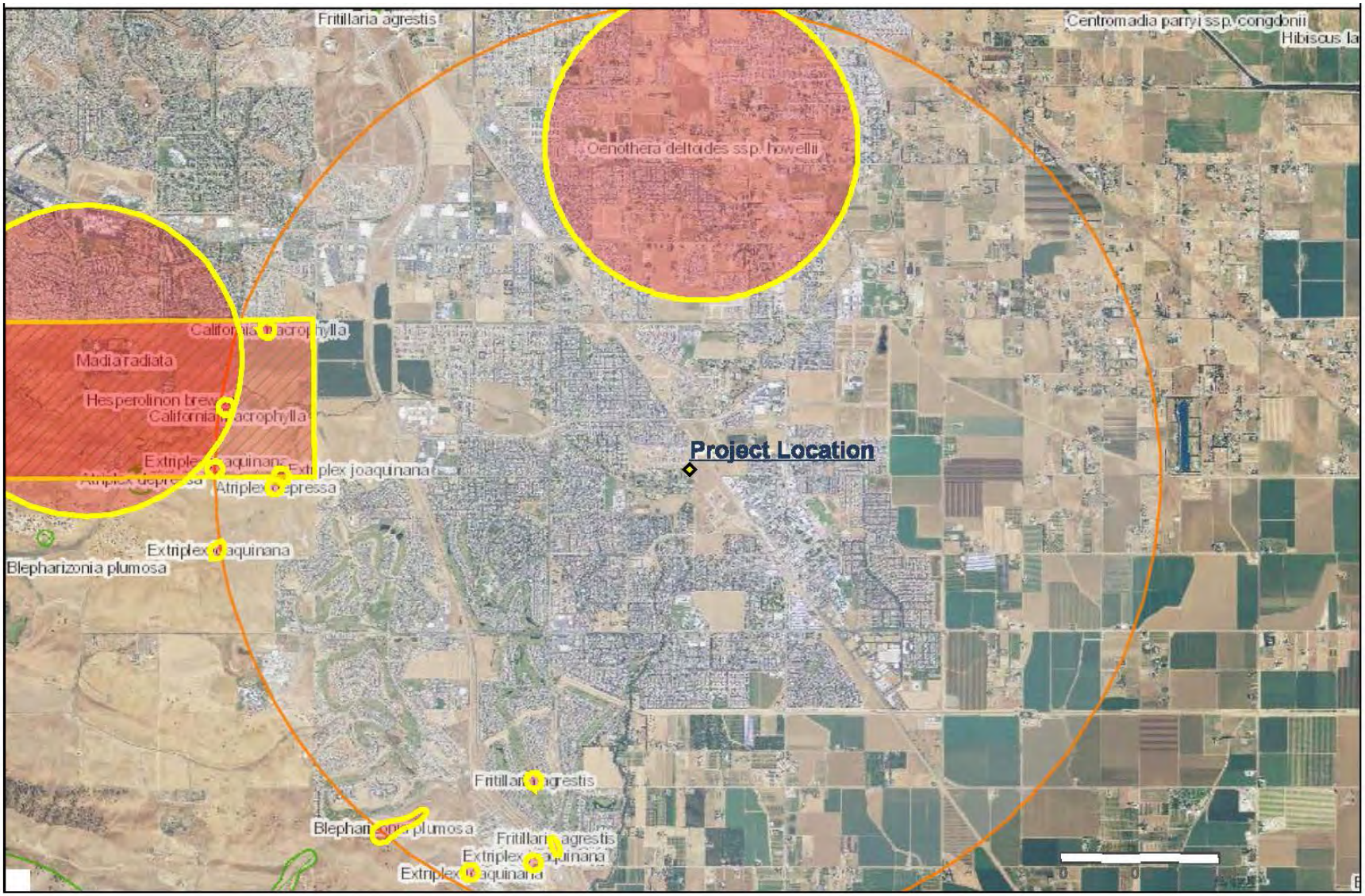
Figure 3. Preliminary Limits of Jurisdiction

- Listed as rare under the California Native Plant Protection Act (CNPPA).[27] A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.[28]
- Meet the definition of rare or endangered under CEQA.[29] Species that may meet the definition of rare or endangered include the following:
  - Species considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Lists 1A, 1B and 2);
  - Species that may warrant consideration on the basis of local significance or recent biological information;
  - Some species included on the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List*.
- **Locally significant species,** that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region[30] or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines[31]). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

In addition, plant species have been assigned global and state rarity rankings (for a definition of these rankings, see Appendix C). Species ranked as S1, S2, or S3 are considered to be critically imperiled, imperiled or vulnerable to extinction within the boundaries of the state (CDFW, 2015a). As such, these species may be considered to meet the criteria for listing as endangered, threatened or rare under CESA.[32] Species ranked as S4 or S5 are generally considered common enough to be secure and not at risk of extinction. Impacts on special-status plants species, as thusly defined, would be regarded as significant pursuant to CEQA[33] and should be addressed in environmental review documents.[34]

A total of 72 special-status plant species have been recorded in the nine USGS quadrangles surrounding the project site (CNDDB, 2015; USFWS, 2015; CNPS, 2015). Copies of the database printouts are included as Appendix B; an explanation of all rarity status codes is provided in Appendix C. Five special-status plant species are mapped by the CNDDB (2015) as having been recorded from within 4.8 km (3 mi) of the project site (Figure 4).

[27] CFGC § 1900, et seq.
[28] CFGC § 1901
[29] CEQA § 15380[b] and [d]
[30] CEQA § 15125 (c)
[31] Appendix G
[32] CEQA § 15380(d)
[33] CEQA § 15065
[34] CEQA § 15125



Source: CNDDB (2015) 3-mile radius

Figure 4. Special-Status Plant Records from the Project Vicinity

Based on the level of disturbance, soils, existing habitats and geographic location of the project site, the presence of all 72 of the target special-status plants can be ruled out due to a lack of suitable habitat or substrate, geographic isolation from known populations, or the fact that they would have been detectable during the present survey. A summary of those species known from the project vicinity or for which suitable or marginally suitable habitat is present on site is provided in Table 1.

4.3 Special-Status Animal Species

Special Animals is a broad term used to refer to all the animal taxa tracked by the CNDDB, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species". The California Department of Fish and Wildlife (CDFW) considers the taxa on this list to be those of greatest conservation need. Special Animals include those species, subspecies, or Evolutionarily Significant Units (ESU) where at least one of the following conditions applies (CDFW, 2015c):

- Taxa listed or proposed for listing under the FESA or CESA;
- Taxa considered by the CDFW to be a Species of Special Concern (SSC);
- Taxa which meet the criteria for listing, even if not currently included on any list, as described under CEQA Section 15380;
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation;
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California;
- Taxa closely associated with a habitat that is declining in California at a significant rate (e.g. wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats, etc.);
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or a non-governmental organization (NGO) and determined by the CNDDB to be rare, restricted, declining, or threatened across their range in California.

Many animal species receive protection under the Bald and Golden Eagle Protection Act (BGEPA)[35], the Migratory Bird Treaty Act (MBTA)[36] and the Migratory Bird Treaty Reform Act (MBTRA).[37] The CFGC provides specific language protecting birds and raptors[38], "fully protected birds"[39], "fully protected mammals"[40], "fully protected reptiles and amphibians"[41] and "fully protected fish".[42] The California Code of

[35] 16 USC 668, et seq.
[36] 16 U.S.C. 703-712
[37] 70 FR 12710
[38] §§ 3503 and 3503.5
[39] CFGC § 3511
[40] CFGC § 4700
[41] CFGC § 5050
[42] CFGC § 5515

Table 1. Special-Status Plants Recorded from the Project Vicinity*

Scientific Name	Common Name	Status**	Potential for Occurrence/ Rationale
Federally and/or State Listed Species			
none			
Other Special-Status Species			
Amsinckia lunaris	bent-flowered fiddleneck	--/--/1B.2	None: no suitable habitat present.
Anomobryum julaceum	slender silver moss	--/--/4.2	None: no suitable habitat present.
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	--/--/1B.2	None: no suitable habitat present; would have been identifiable at time of survey.
Calochortus pulchellus	Mt. Diablo fairy-lantern	--/--/1B.2	None: no suitable habitat present.
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	--/--/1B.2	None: no suitable habitat present.
Extriplex joaquinana	San Joaquin spearscale	--/--/1B.2	None: would have been detectable.
Frtillaria liliacea	fragrant fritillary	--/--/1B.2	None: no suitable habitat present.
Helianthella castanea	Diablo helianthella	--/--/1B.2	None: marginally suitable habitat present; would have been identifiable at time of survey.
Hesperolinon breweri	Brewer's western flax	--/--/1B.2	None: no suitable habitat present.
Hoita strobilina	Loma Prieta hoita	--/--/1B.1	None: no suitable habitat present.
Malacothamnus hallii	Hall's bush-mallow	--/--/1B.2	None: no suitable habitat present; would have been identifiable at time of survey.
Monolopia gracilens	woodland woollythreads	--/--/1B.2	None: no suitable habitat present.
Navarretia nigelliformis ssp. *radians*	shining navarretia	--/--/1B.2	None: would have been detectable.
Phacelia phacelioides	Mt. Diablo phacelia	--/--/1B.2	None: no suitable habitat present.
Streptanthus albidus ssp. *peramoenus*	most beautiful jewelflower	--/--/1B.2	None: no suitable habitat present.
Streptanthus hispidus	Mt. Diablo jewelflower	--/--/1B.3	None: no suitable habitat present.
Stuckenia filiformis	slender-leaved pondweed	--/--/2B.2	None: would have been detectable.
Viburnum ellipticum	oval-leaved viburnum	--/--/2B.3	None: no suitable habitat present; would have been identifiable at time of survey.

* Taxa recorded within 8 km (5 mi) of the project site, for which suitable habitat is present, or which are of particular concern locally; for a complete list of all target species evaluated as part of this analysis, see Appendix B

** Fed/State/CDFW - For an explanation of rarity codes, see Appendix C

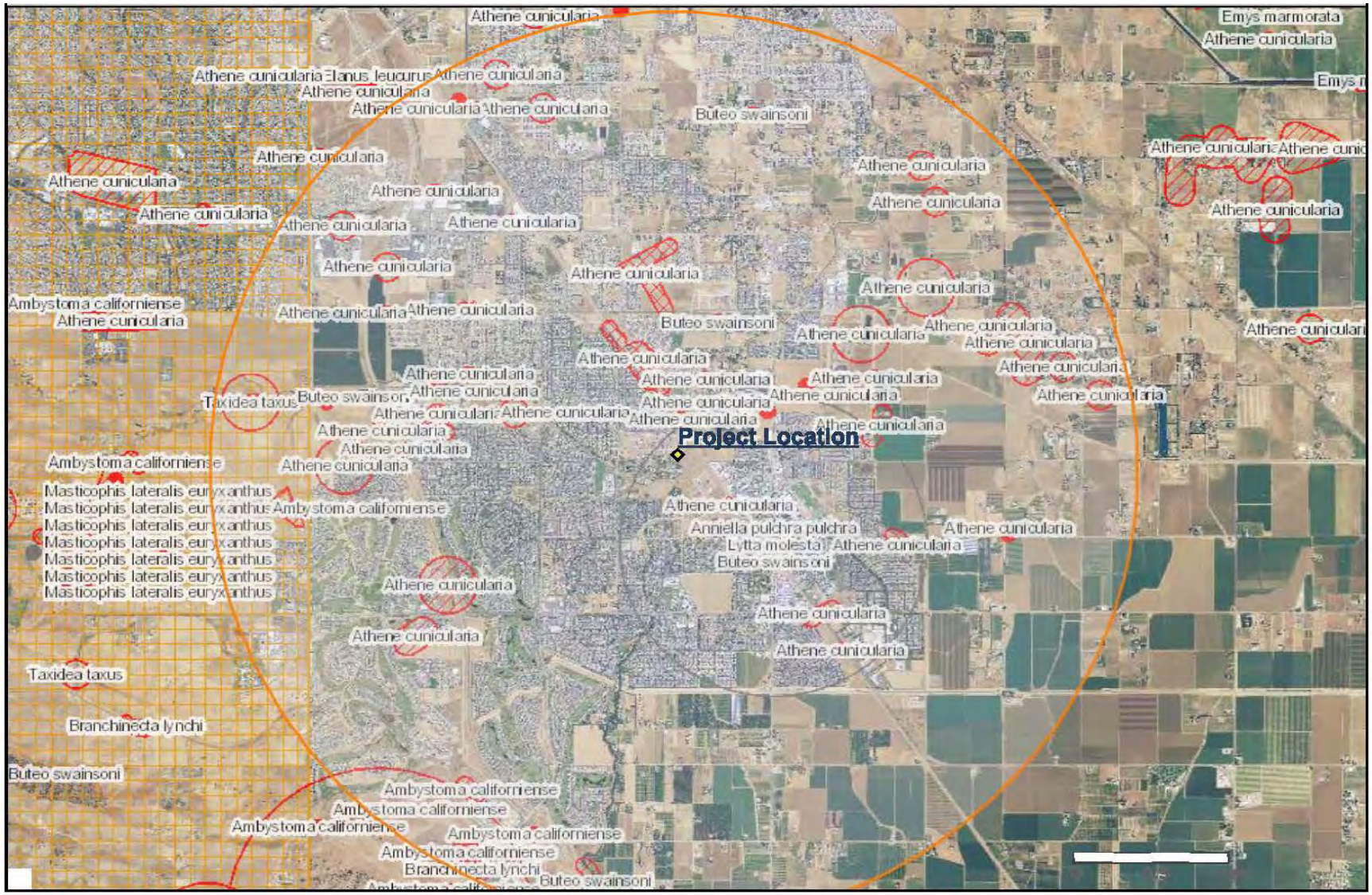
Regulations (CCR) prohibits the take of fully protected fish[43], certain fur-bearing mammals,[44] and restricts the taking of amphibians[45] and reptiles[46].

In addition, animal species have been assigned global and state rarity rankings (for a definition of these rankings, see Appendix C). Species with a ranking of G1/S1, G2/S2, or G3/S3 are considered to be critically imperiled, imperiled or vulnerable to extinction within the boundaries of the state, respectively (CDFW, 2015c). As such, these species may be considered to meet the criteria for listing as endangered, threatened or rare under CESA.[47] Species ranked as G4/S4 or G5/S5 are generally considered common enough to be secure and not at risk of extinction. Impacts on special-status animal species, as thusly defined, would be regarded as significant pursuant to CEQA[48] and should be addressed in environmental review documents.[49]

A total of 39 special-status animal species have been recorded in the nine USGS quadrangles surrounding the project site (CNDDB, 2015; USFWS, 2015). Copies of the database printouts are included as Appendix B; an explanation of all rarity status codes is provided in Appendix C. Five special-status animal species are mapped by the CNDDB (2015) as having been recorded from within 4.8 km (3 mi) of the project site (Figure 5).

Based on site conditions and geographic location, the potential for occurrence of 20 of the target special-status animals can be completely ruled out due to a lack of suitable habitat or substrate, or geographic isolation from known populations. The presence of another five species is not expected due to the presence of only marginally suitable habitat, the high level of disturbance on site, and/or the site's relative isolation from more likely occupied sites. One special-status species, Pacific pond turtle, is known to occur in the immediate vicinity of the project site. Although not detected during the present survey, the potential exists for another 12 of the target species to occur on site. A summary of those species known from the project vicinity, detected on site, or for which suitable or marginally suitable habitat is present on site is provided in Table 2.

[43] 14 CCR § 5.93
[44] 14 CCR § 460
[45] 14 CCR § 5.05
[46] 14 CCR § 5.60
[47] CEQA Guidelines § 15380(d)
[48] CEQA Guidelines § 15065(a)
[49] CEQA Guidelines § 15065(b), (c)



Source: CNDDB (2015) 3-mile radius

Figure 5. Special-Status Animal Records from the Project Vicinity

Table 2. Special-Status Animals Recorded from the Project Vicinity*

Scientific Name	Common Name	Status**	Potential for Occurrence/ Rationale
Federally and/or State Listed Species			
Agelaius tricolor	tricolored blackbird	--/SE/SSC	None: no suitable habitat present.
Ambystoma californiense	California tiger salamander	FT/ST/SSC	None: no suitable habitat present.
Aquila chrysaetos	golden eagle	--/--/FP	None: no suitable nesting habitat present; species forages in region.
Branchinecta lynchi	vernal pool fairy shrimp	FT/--/SA	None; no suitable habitat present.
Callophrys mossii bayensis	San Bruno elfin butterfly	FE/--/SA	None: no suitable habitat present.
Corynorhinus townsendii	Townsend's big-eared bat	--/SC/SSC	None: no suitable habitat present.
Elanus leucurus	white-tailed kite	--/--/FP	Possible: suitable nest trees present and species forages in region. See discussion below.
Falco peregrinus anatum	American prairie falcon	FD/SD/FP	None: no suitable habitat present.
Lepidurus packardi	vernal pool tadpole shrimp	FT/--/SA	None; no suitable habitat present.
Masticophis lateralis euryxanthus	Alameda whipsnake	FT/ST/SA	Not expected: no suitable habitat. See discussion below.
Rana draytonii	California red-legged frog	FT/--/SSC	Possible: suitable breeding, non-breeding aquatic, and upland habitat present. See discussion below.
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST/--	None: no suitable habitat present.
Other Special-Status Species			
Accipiter cooperi	Cooper's hawk	--/--/WL	Possible: suitable nesting habitat present. See discussion below.
Accipiter striatus	sharp-shinned hawk	--/--/WL	Possible: suitable nesting habitat present. See discussion below.
Antrozous pallidus	pallid bat	--/--/SSC	Possible: suitable roosting habitat present. See discussion below.
Athene cunicularia	burrowing owl	--/--SSC	None: no suitable habitat present.
Baeolophus inornatus	oak titmouse	--/--SA	Possible: suitable nesting habitat present. See discussion below.
Calypte costae	Costa's hummingbird	--/--SA	Not expected: uncommon migrant in county.
Carduelis lawrencei	Lawrence's goldfinch	--/--SA	None: no suitable habitat present.
Circus cyaneus	northern harrier	--/--/SA	None; no suitable nesting or foraging habitat present.

Contopus cooperi	olive-sided flycatcher	--/--/SSC	None: no suitable habitat present.
Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat	--/--/SA	None: no suitable habitat present.
Efferia antiochi	Antioch efferian robberly	--/--SA	None: no suitable habitat present.
Emys marmorata	Pacific pond turtle	--/--/SSC	Present: occurs on site. See discussion below.
Eumops perotis californicus	western mastiff bat	--/--/SSC	None: no suitable habitat present.
Falco mexicanus	prairie falcon	--/--/WL	None: no suitable habitat present.
Helminthoglypta nickliniana bridgesi	Bridges' Coast Range shoulderband	--/--/SA	Not expected: marginally suitable but highly disturbed habitat present.
Lanius ludovicianus	loggerhead shrike	--/--SA	Not expected: marginally suitable habitat present.
Lasiurus blossevillii	western red bat	--/--/SSC	Possible: suitable roosting habitat present. See discussion below.
Lasiurus cinereus	hoary bat	--/--/SA	Possible: suitable roosting habitat present. See discussion below.
Linderiella occidentalis	California linderiella	--/--/SA	None: no suitable habitat present.
Lytta molesta	molestan blister beetle	--/--/SA	None: no suitable habitat present.
Microcina lumi	Lum's micro-blind harvestman	--/--/SA	None: no suitable habitat present.
Myotis yumanensis	Yuma myotis	--/--SA	Possible: suitable roosting habitat present. See discussion below.
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	--/--/SSC	Not expected: suitable habitat present, but no stick nests detected on site. See discussion below.
Perognathus inornatus	San Joaquin pocket mouse	--/--/SA	None: no suitable habitat present.
Phrynosoma blainvillii	coast horned lizard	--/--/SSC	None: no suitable habitat present.
Picoides nuttallii	Nuttall's Woodpecker	--/--/SSC	Possible: suitable nesting habitat present. See discussion below.
Rana boylii	foothill yellow-legged frog	--/--/SSC	None: no suitable habitat present; outside species known range.
Selasphorus sasin	Allen's hummingbird	--/--SA	Possible: suitable nesting habitat present. See discussion below.
Setophaga petechia	yellow warbler	--/--SA	Possible: suitable nesting habitat present. See discussion below.
Taxidea taxus	American badger	--/--/SSC	None: no suitable habitat present.

* Taxa recorded within 8 km (5 mi) of the project site, for which suitable habitat is present, or which are of particular concern locally; for a complete list of all target species evaluated as part of this analysis, see Appendix B

** Fed/State/CDFW - For an explanation of rarity codes, see Appendix C

Federal/State-Listed, Proposed, Candidate, or Fully Protected Species

Alameda Whipsnake

The Alameda whipsnake (*Masticophis lateralis euryxanthus*; hereafter, AWS) was listed as Threatened under the FESA on December 5, 1997[50] and under CESA on June 27, 1971 (CDFW, 2015d). It has been assigned a global and state ranking of G4T2/S2 (CNDDB, 2015); species assigned a ranking of S2 are considered imperiled in the state due to its very restricted range, very few populations, or other factors making it very vulnerable to extirpation.

Like all species within the genus, AWS is a fast moving, diurnal snake with large eyes (Stebbins, 2003). It measures 0.9-1.5 m (3-5 ft) in length, with a fairly wide head and a slender neck. Unlike the closely related California whipsnake, which ranges from northern California west of the Sierra-Nevada crest, to Central Baja California, this sub-species is restricted to Alameda and Contra Costa counties within the San Francisco Bay region (Jennings, 1983).

Primary constituent habitat elements, those habitat components that are essential for primary biological needs of the species, include east, southeast, south, and southwest facing slopes supporting mixed chaparral and coastal scrub, as well as annual grassland and oak woodlands adjacent to scrub habitats, with rock outcrops within approximately 0.8 km (0.5 mi) (Swaim, 1994). Canopy cover within these habitats is typically open (<75% cover of total area) with little to no herbaceous understory (Swaim, 1994). Grassland areas that are linked to scrub by rock outcrops or river corridors are also considered primary constituent elements (USFWS, 2000).

Other important habitat features include small mammal burrows, rock outcrops, talus, and other forms of shelter that provide snakes with alternative habitats for temperature regulation, protection from predators, egg-laying sites, and winter hibernaculum (winter residence where the snakes hibernate). Alameda whipsnakes are non-migratory with two seasonal peaks of activity, the spring breeding season from March through June and in late summer/fall. In mid-June, both males and females exhibit decreased activity levels, though evidently this species does not aestivate during the summer months (Swaim, 1994). From November through March, snakes are underground in winter hibernacula (USFWS, 2000).

The average home range for male AWS is 5.5 ha (13.6 ac); for females, the average home range is 3.4 ha (8.4 ac) (Swaim, 1994). Activity is typically concentrated within a core area, with much of the remaining area not actively used. Movement distances have been recorded from 0.8-1.6 km (0.5-1 mi) (Swaim, 1994). Overnight retreats and hibernacula include small mammal burrows created by deer mice and California voles (Swaim, 1994). California ground squirrel burrows are rarely used. Other retreat areas

[50] 62 FR 64306

include small mammal burrows, talus, soil crevices, brush piles, woodpiles, and debris (e.g., corrugated metal roofing, boards). Rock outcrops are particularly important for foraging (USFWS, 2000).

The prey of AWS includes western fence lizard (Ellis, 1987), frogs, nesting birds, and rodents (Zeiner et al, 1988). Other prey items taken include other species of lizards, rodents, birds, and other snakes (CDFG, 1980). Mating occurs from late March through mid-June (USFWS, 2000). Hatchlings emerge in the first part of August through November (Swaim, 1994).

Critical Habitat: Critical habitat was designated for AWS on October 2, 2006.[51] The project site is not located within designated or proposed critical habitat. However, designated critical habitat is present 2 km (2 mi) to the southwest and 5 km (3 mi) to the east (Figure 6). The project would not result in impacts to critical habitat.

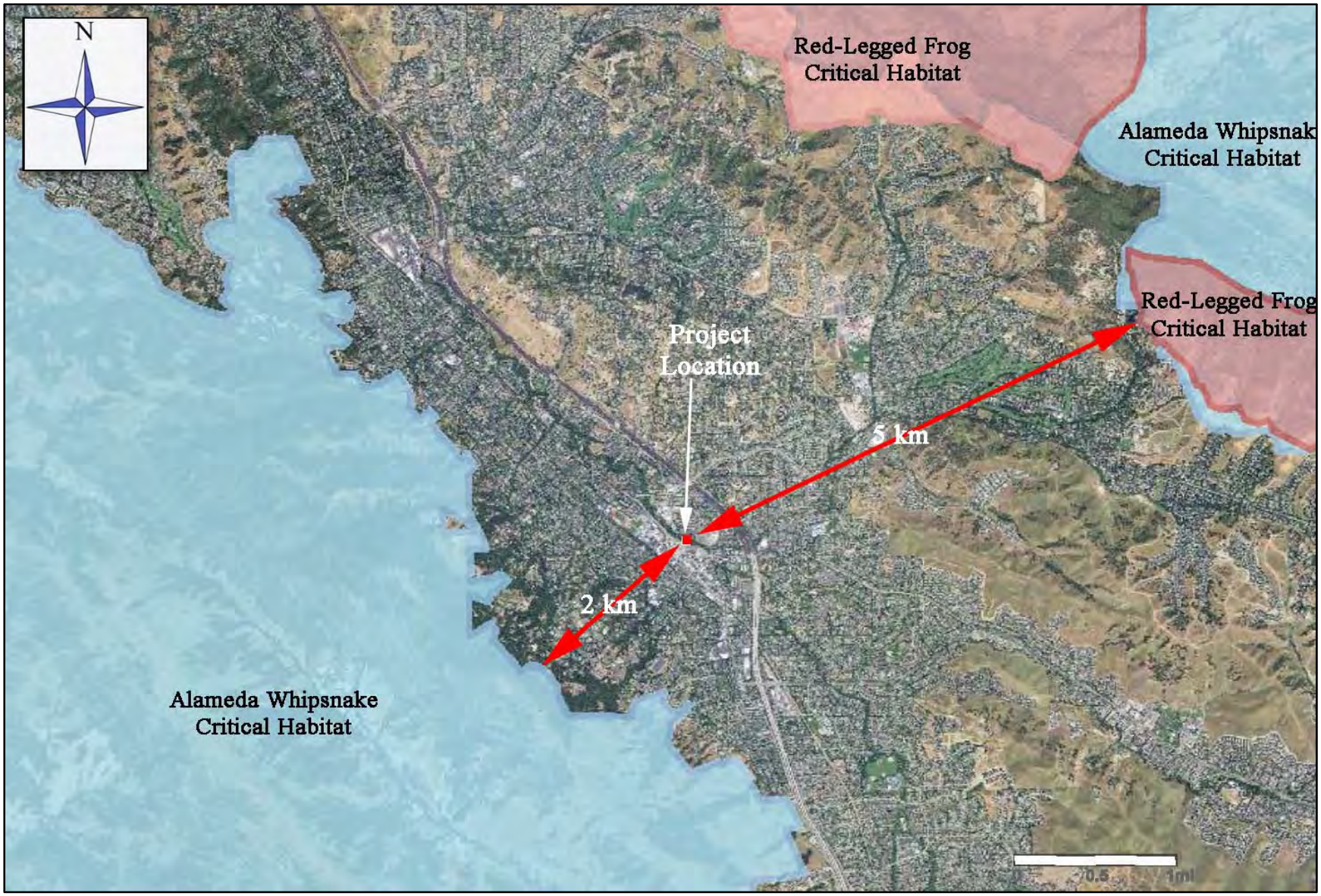
Habitat Suitability and Occurrence Data: None of the primary constituent habitat elements is present at the project site. While AWS may occur in riparian habitats such as exist on site, the lack of primary habitats nearby greatly diminishes its potential for occurrence on site. Additionally, the location of the project within urbanized Town of Danville further diminishes the likelihood of AWS occuring within this reach of San Ramon Creek corridor.

Site specific data for AWS is considered "sensitive" and is not available for public dissemination (CNDDB, 2015). An information request for restricted data was submitted to and fulfilled by the CNDDB.[52] There are 22 records for AWS within 8 km (5 mi) of the project site. The nearest records (Occ. #43, 91 and 144) are from Las Trampas Regional Park, approximately 3 km (1.8 mi) to the southwest, northwest and west, respectively. Another record (Occ. #124) is a 1994 sighting in Green Valley Creek approximately 4 km (2.4 mi) to the east. The subspecies is not expected to occur on site.

Potential Project-Related Effects: The proposed project is not expected to have any adverse effect on AWS. No specific avoidance measures are warranted.

[51] 71 FR 58176

[52] Ryan Elliot, CNDDB Environmental Scientist, email dated 5/21/2015



Source: CNDDB (2015)

Figure 6. Critical Habitats in the Project Vicinity

California Red-Legged Frog

The California red-legged frog (*Rana draytonii*; hereafter CRF) was listed as Threatened under FESA on May 23, 1996[53] and is designated a California Species of Special Concern (CDFW, 2015d). A recovery plan was published for the CRF on September 12, 2002 (USFWS, 2002). It has been assigned a global and state ranking of G2G3/S2S3 (CNDDB, 2015); species assigned a ranking of S2 are considered imperiled in the state due to its very restricted range, very few populations, or other factors making it very vulnerable to extirpation.

The CRF is distributed throughout 26 counties in California, but is most abundant in the San Francisco Bay Area. Populations have become isolated in the Sierra Nevada, North Coast, northern and southern Transverse and Peninsular Ranges (Jennings and Hayes, 1994; Stebbins, 2003). The CRF inhabits predominately permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 1500 m (4920 ft) in elevation (Jennings and Hayes, 1994; Bulger et al., 2003; Stebbins, 2003). The species breeds between November and April in standing or slow moving water with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings, 1988). Egg masses containing 2000 to 5000 eggs are attached to vegetation below the surface and hatch after 6 to 14 days (Jennings and Hayes, 1994). Larvae undergo metamorphosis 3½ to 7 months following hatching and reach sexual maturity two to three years of age (Jennings and Hayes, 1984; 1994).

Tatarian (2008) noted that a majority (57%) of CRF fitted with radio transmitters in her Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43% moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement in the fall months corresponding to 0.5 cm (0.2 in) of precipitation that tapered off into spring. Upland movement activities ranged from 1-71 m (3-233 ft), averaging 24 m (80 ft), and were associated with a variety of refugia including ground squirrel burrows at the bases of trees or rocks, logs, grass thatch, crevices, cow hoof prints, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian, 2008). The majority of terrestrial movements lasted from one to four days; however, one female was reported to remain in upland habitat for 50 days (Tatarian, 2008). Uplands closer to aquatic sites were more often used and were more commonly associated with areas exhibiting higher object cover, e.g., small woody debris, rocks, and vegetative cover.

[53] 61 FR 25813

Critical Habitat: Critical habitat was designated for CRF on April 13, 2006[54] and revisions to the critical habitat designation were proposed on September 16, 2008.[55] The project site is not located within designated or proposed critical habitat. However, designated critical habitat is present 5 km (3 mi) to the east (Figure 6). The project would not result in impacts to critical habitat.

Habitat Suitability and Occurrence Data: The project area is located 1.3 km (0.8 mi) west of the East San Francisco Bay Core Area and is in the Diablo Range and Salinas Valley Recovery Unit (USFWS, 2002; 2006). Suitable breeding and non-breeding aquatic habitat is present within the reach of San Ramon Creek and Green Valley Creek within and adjacent to the project area. The associated riparian corridors provide suitable upland refugia and foraging habitat in addition to functioning as potential movement corridors for dispersing or migrating CRF. San Ramon Creek and Green Valley Creek support a variety of known competitors and predators including bullfrog, crayfish, mosquitofish and raccoon observed directly or by sign during surveys conducted by Monk & Associates in August 2003 (Monk & Associates, 2003).

No CRF or any life history stages were observed during the site reconnaissance survey of the study area. However, eight occurrences have been reported within 8 km (5 mi) of the project area (CNDDB, 2015). The nearest occurrence (Occ. #817) reported in 2004 comprised four larvae in the east branch of Green Valley Creek approximately 3.2 km (2 mi) upstream of the project area (CNDDB, 2015). Larvae and adults were reported in 2000 (Occ. #638) from two stock ponds approximately 4 km (2.5 mi) to the south near Las Trampas Ridge (CNDDB, 2015). Breeding was reported from a stock pond near a tributary to San Ramon Creek in 2006 (Occ. #921) supporting all life history stages approximately 4.8 km (3 mi) to the north and downstream of the project area. Although direct dispersal from these reported breeding locations is blocked by development in the valley bottom, the possibility exists that CRF could reach the project area by traveling along the streams and riparian corridors.

Potential Project-Related Effects: Due to the presence of aquatic habitat on site and potential habitat connectivity to source populations, the potential occurrence of CRF on site cannot be ruled out. If present at the time of construction, take of the species could occur. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

[54] 71 FR 19244
[55] 73 FR 53492

White-tailed Kite

White-tailed kite (*Elanus leucurus*) is listed by the CDFW (2015c) as a fully protected bird species[56] and is protected under the MBTA and CFGC.[57] It has been assigned a global and state ranking of G5/S3S4. Species assigned a ranking of S3 are considered vulnerable in California due to their restricted range and relatively few populations, whereas species assigned a ranking of S4 or higher are generally considered not to be vulnerable in the state (CDFW, 2015c). Any impacts to white-tailed kite or nesting sites would be regarded as significant pursuant to CEQA[58] and should be addressed in environmental review documents.[59]

In the United States this species occurs in California, Texas and a disjunct group in Florida and has expanded its range into Washington and Oregon (Dunk, 1995). Generally, white-tailed kites are observed in low elevation grasslands, agricultural, wetland, oak-woodland or savannah habitats. The majority of their diet is made up of small mammals. This species nests in a wide variety of trees up to 50 m (164 ft) high, and, in some cases, shrubs as little as 3 m (9.8 ft) above the ground. Nests usually consist of platforms of small sticks, leaves, weed stalks, and similar materials lined with grass, hay or leaves. This species nests from February through August, with a peak in breeding occurring from late March through July. It is a confirmed breeder in Contra Costa County (Glover, 2009).

Critical Habitat: Critical habitat has not been designated for the white-tailed kite.

Habitat Suitability and Occurrence Data: Suitable nesting habitat is present among mature trees along San Ramon Creek and Green Valley Creek within and adjacent to the project area. It is not uncommon to see the species foraging over grasslands in the area. For this reason, the potential exists for the white-tailed kite to inhabit the project site or to be adversely affected by project construction.

White-tailed kite has not been reported as nesting in the project vicinity. One record (Occ. #81) consists of a 1992 sighting of a nest in a coast live oak tree in Tassajara Valley approximately 13.7 km (8.5 mi) to the southeast (CNDDB, 2015).

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts

[56] Division E, Title I, § 143 of the Consolidated Appropriations Act, 2005, PL 108–447
[57] CFGC § 3511
[58] CEQA § 15065
[59] CEQA § 15125

would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Other Special-Status Species

Allen's Hummingbird

Allen's hummingbird (*Selasphorus sasin*) is listed as a Special Animal by the CDFW (2015c) is considered a bird species of conservation concern by the USFWS (2008). It is also protected under the MBTA and CFGC.[60] It has been assigned a global and state ranking of G5/SNR. This species has not yet been assigned a state ranking. Species so ranked may or may not meet the criteria for listing as a threatened species in the state. However, as a Special Animal and bird species of conservation concern, impacts should be addressed in environmental documents.

Allen's hummingbird is a common summer resident (January to July) and migrant along most of the California coast. Breeding Allen's hummingbirds are most common in coastal scrub, valley foothill hardwood, and valley foothill riparian habitats, but also are common in closed-cone pine-cypress, urban, and redwood habitats. The species occurs in a variety of woodland and scrub habitats as a migrant. Although mostly coastal in migration, Allen's hummingbird is fairly common in the southern mountains in the summer and fall migrations and a few occur regularly in the Sierra Nevada. Allen's hummingbird is a confirmed breeder in Contra Costa County (Glover, 2009).

Critical Habitat: Critical habitat has not been designated for Allen's hummingbird.

Habitat Suitability and Occurrence Data: Shrubs and trees on site and in the project vicinity provide suitable nesting and foraging habitat for the species. Allen's hummingbird is not tracked by the CNDDB. However, nesting by the species in the project region has been confirmed (Glover, 2009). Although no Allen's hummingbirds were observed during the present survey, suitable nesting and foraging habitat are present on site and in the immediate vicinity.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

[60] CFGC § 3503

Cooper's Hawk

The Cooper's hawk (*Accipiter cooperi*) is on the CDFW's Watch List (CDFW, 2015c) and is protected under the MBTA. Like other raptors in general, Cooper's hawk is covered under the CFGC[61], which prohibits the taking or destroying of nest, egg or bird in the order of Falconiformes (falcons, kites, and hawks) and Strigiformes (owls). It has been assigned a global and state ranking of G5/S4. Species assigned a ranking of S4 or higher are generally considered not to be vulnerable in the state (CDFW, 2015c). As a protected raptor, any impacts to Cooper's hawk or nesting sites would be regarded as significant pursuant to CEQA[62] and should be addressed in environmental review documents.[63]

This species is a small raptor that breeds in oak woodlands and deciduous riparian areas. Nests are often constructed near water and are vigorously defended. It forages in a variety of woodland and edge habitats. It is an agile flier and will pursue small birds and mammals through thickets and woodlands. During the winter, Cooper's hawks utilize a wider variety of habitats for foraging. Cooper's hawk is a confirmed breeder in Contra Costa County (Glover, 2009).

Critical Habitat: Critical habitat has not been designated for the Cooper's hawk.

Habitat Suitability and Occurrence Data: Mature trees along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable nesting habitat for Cooper's hawk. No occurrences have been reported to the CNDDB from central Contra Costa County (CNDDB, 2015). Although no Cooper's hawks were observed during field surveys, based on the availability of suitable habitat, there is a potential for the species to nest and forage in the project area.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

[61] CFGC § 3503.5
[62] CEQA § 15065
[63] CEQA § 15125

Nuttall's Woodpecker

The Nuttall's woodpecker *(Picoides nuttallii)* is listed as a Special Animal by the CDFW (2015c) and is considered a bird species of conservation concern by the USFWS (2008). It is also protected under the MBTA and CFGC.[64] It has been assigned a global and state ranking of G5/SNR. This species has not yet been assigned a state ranking. Species so ranked may or may not meet the criteria for listing as a threatened species in the state. However, as a Special Animal and bird species of conservation concern, impacts should be addressed in environmental documents.

The primary habitat for Nuttall's woodpecker includes riparian woodlands and oak woodlands in canyons and shaded areas, characterized especially by coast live and valley oak, oftentimes mixed with willows and California sycamore (Lowther, 2000). Nuttall's woodpecker is a confirmed breeder in Contra Costa County (Glover, 2009).

Critical Habitat: Critical habitat has not been designated for Nuttall's woodpecker.

Habitat Suitability and Occurrence Data: Mature trees along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable nesting habitat for the species. Nuttall's woodpecker is not tracked by the CNDDB. However, nesting by the species in the project region has been confirmed (Glover, 2009). Although no Nuttall's woodpeckers were observed during the present survey, suitable nesting and foraging habitat are present on site and in the immediate vicinity.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Oak Titmouse

The oak titmouse *(Baeolophus inornatus)* is listed as a Special Animal by the CDFW (2015c) and is considered a bird species of conservation concern by the USFWS (2008). It is also protected under the MBTA and CFGC.[65] It has been assigned a global and state ranking of G5/S4; species assigned a ranking of S4 are uncommon but not rare in the state, although there is some cause for long-term concern due to declines or other factors (CDFW, 2015c). Species so designated are not considered to meet the criteria for listing as a threatened species in the state. Although impacts may not be regarded

[64] CFGC § 3503
[65] CFGC § 3503

as significant pursuant to CEQA[66], it may still be appropriate to address them in environmental review documents.

Primary habitat for the oak titmouse includes warm, dry open woodlands typically characterized by oak or oak-pine woodlands. Nests are situated in natural or excavated cavities in trunks, primary and secondary branches, and stumps (Cicero, 2000). The oak titmouse is a confirmed breeder in Contra Costa County (Glover, 2009).

Critical Habitat: Critical habitat has not been designated for oak titmouse.

Habitat Suitability and Occurrence Data: Riparian trees along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable nesting habitat for the species. The oak titmouse is not tracked by the CNDDB. However, nesting by the species in the project region has been confirmed (Glover, 2009). Although oak titmouse was not observed during the present survey, suitable nesting and foraging habitat are present on site and in the immediate vicinity.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Pacific Pond Turtle

The Pacific pond turtle (*Emys marmorata*; hereafter referred to as PPT[67]), is a California Species of Special Concern (CDFW, 2015a) and is considered sensitive by the Bureau of Land Management (BLM) and U.S. Forest Service (USFS). It has been assigned a global and state ranking of G3G4/S3; species assigned a ranking of S3 are considered vulnerable to extirpation in the state due to their restricted range, relatively few populations, recent and widespread declines, or other factors (CDFW, 2015c). As such, the species may be considered to meet the criteria for listing as endangered, rare or threatened pursuant to the CEQA.[68] Impacts to species with such a ranking may be regarded as significant pursuant to CEQA[69] and should be addressed in environmental review documents.[70]

The PPT is the only fresh-water turtle native to greater California. It is distributed along much of the West Coast from the Puget Sound in Washington south to the Baja

[66] CEQA § 15065
[67] Formerly classified as *Clemmy marmorata* and *Actinemys marmorata*; also known as western pond turtle.
[68] CEQA § 15380(d)
[69] CEQA § 15065
[70] CEQA § 15125

Peninsula, Mexico. Overall, the PPT is a habitat generalist and has been observed in slow-moving rivers and streams (e.g. in oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and sewage treatment plants. The species prefers aquatic habitat with refugia such as undercut banks and submerged vegetation (Holland, 1994), and requires emergent basking sites such as mud banks, rocks, logs, and root wads to thermoregulate their body temperature (Holland, 1994; Bash, 1999). The PPT is omnivorous, feeding on a variety of aquatic and terrestrial invertebrates, fish, amphibians and aquatic plants.

The PPT regularly utilizes upland terrestrial habitats, most often during the summer and winter, especially for oviposition (i.e., egg laying), overwintering, seasonal terrestrial habitat use, and overland dispersal (Reese, 1996; Holland, 1994). Females have been reported to range as far as 500 m (1640 ft) from a watercourse to find suitable nesting habitat (Reese and Welsh, 1997). Nest sites are most often situated on south or west-facing slopes, are sparsely vegetated with short grasses or forbs, and are scraped in sands or hard-packed, dry, silt or clay soils (Holland, 1994; Rathbun et al., 1992; Holte, 1998; Reese and Welsh, 1997). The species exhibits high site fidelity, returning in sequential years to the same terrestrial site to nest or overwinter (Reese, 1996).

Females lay their clutches as early from as early as the end of April in the southern half of the State, although they egg laying occurs predominantly in June and July. In the early morning or late afternoon, gravid females leave the water and move upland to nest (Holland, 1994). Natural incubation times vary, ranging from 80 to 100 days in California. In northern California and Oregon, hatchlings remaining the nest after hatching and overwinter, emerging in the spring. In southern and central California, those PPTs that don't overwinter emerge from the nest in the early fall (Holland, 1994).

Critical Habitat: Critical habitat has not been designated for the Pacific pond turtle.

Habitat Suitability and Occurrence Data: San Ramon Creek provides both suitable breeding habitat and a movement corridor for PPT. Although there are no nearby records for PPT currently in the CNDDB (2015), the species has been documented in San Ramon Creek at the project site for the past six years (Wood, pers. obs.); this record has been reported to the CNDDB.

Potential Project-Related Effects: The PPT is a year-round resident of San Ramon at the project site. As such, construction activities implementation could result in direct mortalities. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a California Species of Special Concern, is listed as sensitive by the BLM and the USFS, and is considered by the Western Bat Working Group (WBWG) to be of high priority for research and conservation actions (CDFG, 2015c). The species has been assigned a global and state ranking of G5/S3 by the CNDDB (2014); species assigned a ranking of S3 are considered vulnerable to extirpation in the state due to their restricted range, relatively few populations, recent and widespread declines, or other factors (CDFW, 2015c). As such, the species may be considered to meet the criteria for listing as endangered, rare or threatened pursuant to the CEQA.[71] Impacts would be regarded as significant pursuant to CEQA[72] and should be addressed in environmental review documents.[73]

The pallid bat is a relatively large, light-colored bat ranging throughout the southwestern United States from interior British Columbia to Mexico (Hermanson and O'Shea, 1983; Sherwin and Rambaldini, 2005). Pallid bats inhabit foothills and lowlands near water throughout California below 2,000 m (6,560 ft) in elevation, but are most abundant in arid deserts and grasslands particularly in areas with rock outcrops near water (Hermanson and O'Shea, 1983). It is most abundant in arid ecosystems of the Great Basin, Mojave Desert and Sonoran Desert (Sherwin and Rambaldini, 2005).

Pallid bats typically roost alone or in small groups in a variety of sites including bridges, barns, occupied and vacant buildings, tree hollows in coast redwoods, bole cavities in oaks, exfoliating bark, rock crevices in outcrops and cliffs, caves, and mines, which they may use as both day and night roosts (Sherwin and Rambaldini, 2005). Roost sites may change seasonally and are typically reused for a few days to weeks. Pallid bats primarily feed on a variety of arthropods by capturing prey on the ground or gleaning from surfaces near the ground. Parturition (i.e., giving birth) varies with latitude, but generally occurs from late-April to August; maternal colonies disperse by October (Hermanson and O'Shea, 1983). Overwintering is common along the California coast, but individuals may migrate short distances between winter and summer roosts (Sherwin and Rambaldini, 2005).

Critical Habitat: Critical habitat has not been designated for the pallid bat.

Habitat Suitability and Occurrence Data: Mature trees within and adjacent to the project site provide suitable roosting habitat for the species, consisting of exfoliating bark, hollows, and bole cavities. Crevices in rocks, concrete walls and steep banks also

[71] CEQA § 15380(d)
[72] CEQA § 15065
[73] CEQA § 15125

provide suitable roosting habitat. The potential exists for pallid bat to roost and forage on site.

No evidence of bat usage on the underside of Diablo Road Bridge was observed during the present or past surveys. Three occurrences (Occ. #134, 135 and 143) have been reported between 1967 and 1992 within 8 km (5 mi) of the project area; all of which contain non-specific location data identifying Alamo, Danville and Orinda, respectively (CNDDB, 2015).

Potential Project-Related Effects: Suitable roosting habitat for the pallid bat is present within the project area. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

San Francisco Dusk-Footed Woodrat

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a California Species of Special Concern (CDFG, 2015). One of eleven recognized subspecies, the San Francisco dusky-footed woodrat is found on the San Francisco Peninsula south to the southernmost edge of Santa Cruz County and inland to the East Bay hills (Hooper, 1933; Matocq, 2000), in the Willamette Valley of Western Oregon, and northern Baja California (Carraway and Verts, 1991). It is a medium-sized native rodent with large ears and a long, scantily haired tail. They inhabit oak and riparian woodlands with a well-developed understory as well as chaparral scrub habitats, where their conical stick nests are often visible (Carraway and Verts, 1991). These nests may be as much as 0.9 m (6 ft) tall, and contain multiple chambers used for sleeping and food storage. Nests are usually occupied by single adults or females with young, and can be used by successive generations of woodrats. They exhibit high site fidelity and build stick nests that may last for 20 years or more. They are also highly arboreal and sometimes construct aerial nests, utilizing evergreen or live oaks and other trees and shrubs with thick leaves (Kelly, 1990; Williams et al., 1992).

Woodrat nests provide cover for many other animal species, including small mammals, reptiles, amphibians, and arthropods, thereby increasing local biodiversity (Cranford, 1982; Vestal, 1938). Woodrats are generalist herbivores, consuming a variety of nuts, fruits, fungi, foliage and some forbs. *N. fuscipes* live in loosely-cooperative societies, but maintain and will defend home ranges. Population densities of *N. fuscipes* can vary from 14/ha (5.7/ac) in winter to 20/ha (8/ac) in late summer (Cranford, 1977). The diet of woodrats consists primarily of foliage of evergreen broadleaf plants, such as poison oak, coffeeberry, blue elderberry, toyon, and gooseberry (Atsatt and Ingram, 1983). Reproduction occurs from February through September.

Critical Habitat: Critical habitat has not been designated for the San Francisco dusky-footed woodrat.

Habitat Suitability and Occurrence Data: The riparian corridor along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable habitat for the San Francisco dusky-footed woodrat. No occurrences have been reported to the CNDDB from the project vicinity (CNDDB, 2015). Although no San Francisco dusky-footed woodrat nests were observed during field surveys, based on the availability of suitable habitat, there is a potential for the species to be present in the project area.

Potential Project-Related Effects: Project implementation will require the removal of trees and ground disturbance that could result in the disturbance to occupied nests. If present, construction activities could also disrupt breeding behavior of any woodrats residing in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Sharp-Shinned Hawk

The sharp-shinned hawk (*Accipiter striatus*) is on the CDFW's Watch List (CDFW, 2015c) and is protected under the MBTA. Like other raptors in general, sharp-shinned hawk is covered under the CFGC[74], which prohibits the taking or destroying of nest, egg or bird in the order of Falconiformes (falcons, kites, and hawks) and Strigiformes (owls). It has been assigned a global and state ranking of G5/S4. Species assigned a ranking of S4 or higher are generally considered not to be vulnerable in the state (CDFW, 2015c). As a protected raptor, any impacts to sharp-shinned hawk or nesting sites would be regarded as significant pursuant to CEQA[75] and should be addressed in environmental review documents.[76]

The sharp-shinned hawk (nesting) prefers north-facing slopes in dense stands of deciduous, conifer and mixed hardwood trees, including ponderosa pine, black oak, and Jeffrey pines, preferably in riparian areas; also known to nest in suburban areas. Species attracted to rural and suburban areas especially near bird feeders often during winter months (Bildstein and Meyer, 2000). It forages primarily for small birds along woodland edges and openings, hedgerows, brushy pastures, and shorelines. Breeding begins in April; single-brooded (Baicich and Harrison, 2005).

Critical Habitat: Critical habitat has not been designated for the sharp-shinned hawk.

[74] CFGC § 3503.5
[75] CEQA § 15065
[76] CEQA § 15125

Habitat Suitability and Occurrence Data: Mature trees along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable nesting habitat for Cooper's hawk. No occurrences have been reported to the CNDDB from central Contra Costa County (CNDDB, 2015). The Contra Costa County Breeding Bird Atlas listed the sharp-shinned hawk as a confirmed breeder in Central Contra Costa County. Although no sharp-shinned hawks were observed during field surveys, based on the availability of suitable habitat, there is a potential for the species to nest and forage in the project area.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the disturbance to occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is a California Species of Special Concern and is considered by the WBWG to be of high priority for research and conservation actions (CDFG, 2015c). The species has been assigned a global and state ranking of G5/S3 by the CNDDB (2014); species assigned a ranking of S3 are considered vulnerable to extirpation in the state due to their restricted range, relatively few populations, recent and widespread declines, or other factors (CDFW, 2015c). As such, the species may be considered to meet the criteria for listing as endangered, rare or threatened pursuant to the CEQA.[77] Impacts would be regarded as significant pursuant to CEQA[78] and should be addressed in environmental review documents.[79]

The western red bat is primarily riparian obligate species with a widespread distribution extending from British Columbia to Argentina (Bolster, 2005). They are ubiquitous throughout most of California except the northern Great Basin region. The red bat is easily distinguished by its distinctive reddish coloration. Roosting typically occurs individually in dense clumps of tree foliage in riparian areas, especially willows, cottonwoods and sycamores, and within orchards and suburban areas in trees and shrubs. Roosts are often hidden from view and only access from below (Bolster, 2005). Red bats are primarily moth specialists, but individuals will forage for a variety of other insects. Individuals have been observed foraging around street lamps and flood lights in suburban areas (Bolster, 2005). The western red bat migrates long distances, but has been reported to overwinter in the Bay Area with interspersed winter foraging bouts on warm days (Bolster, 2005).

[77] CEQA § 15380(d)
[78] CEQA § 15065
[79] CEQA § 15125

Critical Habitat: Critical habitat has not been designated for the western red bat.

Habitat Suitability and Occurrence Data: The riparian corridor within the project area supports suitable roosting habitat for western red bats. The potential exists for the species to roost and forage on site. One occurrence (Occ. #66) has been reported within Contra Costa County from a non-specific location identified as Antioch in 1998 (CNDDB, 2015).

Potential Project-Related Effects: Suitable roosting habitat for the western red bat is present within the project area. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Yellow Warbler

The yellow warbler (*Setophaga petechia*) is a California Species of Special Concern (CDFW, 2015a) and is considered a bird species of conservation concern by the USFWS (2008). It is also protected under the MBTA and CFGC.[80] It has been assigned a global and state ranking of G3/S3S4; species assigned a ranking of S3 are considered vulnerable to extirpation in the state due to their restricted range, relatively few populations, recent and widespread declines, or other factors (CDFW, 2015c). As such, the species may be considered to meet the criteria for listing as endangered, rare or threatened pursuant to the CEQA.[81] Impacts to species with such a ranking may be regarded as significant pursuant to CEQA[82] and should be addressed in environmental review documents.[83]

The yellow warbler is widely distributed across North America during the spring. The subspecies *D. p. brewsteri* nests in California, Oregon and Washington. Yellow warblers historically nested throughout California with the exception of the high Sierra and desert regions. Steady and significant declines in California have been recorded, particularly in coastal southern California, the San Joaquin Valley and the Sacramento Valley (Remsen, 1978). The alteration of native riparian habitats through channelization, grazing and invasion of exotic species has been implicated in this decline (Dunn and Garrett, 1997). Parasitism by the brown-headed cowbird has also been suggested as a factor in the decline of yellow warblers (Remsen, 1978). Yellow warblers occupy dense riparian woodlands, typically dominated by willows, but also inhabits cottonwoods, maples and sycamores with shrubby understories (Shuford and Gardali, 2008). Yellow warblers breed from April through early July; they are confirmed nesters in Contra Costa County (Glover, 2009).

[80] CFGC § 3503
[81] CEQA § 15380(d)
[82] CEQA § 15065
[83] CEQA § 15125

Critical Habitat: Critical habitat has not been designated for the yellow warbler.

Habitat Suitability and Occurrence Data: Riparian trees and shrubs along San Ramon Creek and Green Valley Creek within and adjacent to the project area provide suitable nesting habitat for the species. Yellow warbler is not tracked by the CNDDB. The nearest confirmed nesting sites are from the Briones Valley, approximately 23 km (14.3 mi) to the northeast (Glover, 2009). Although no yellow warblers were observed during the present survey, suitable nesting and foraging habitat are present on site and in the immediate vicinity.

Potential Project-Related Effects: Project implementation will require the removal of trees and could result in the destruction of occupied nests. Construction activities could also disrupt breeding behavior of any birds nesting in the project vicinity. If present at the time of construction, impact to the species could result. Such impacts would be regarded as significant pursuant to CEQA. Impact avoidance measures are warranted, as outlined in Section 5.3, below.

Migratory Birds

In addition to the specific target species evaluated above, the study area supports suitable nesting habitat for migratory raptors (i.e., birds of prey) and passerines (i.e., perching birds). Migratory birds are protected under the MBTA and MBTRA. Under the MBTA it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Bird species covered under the MBTA are summarized by the USFWS (2013). Certain other migratory birds receive protection under the BGEPA and CFGC.

The project site supports suitable nesting habitat for numerous species of migratory birds. Based on the amount of vegetative cover on site, including grasslands, wetlands, and riparian habitats, there is a high potential for the utilization of these habitat for breeding by such birds. Site clearing activities could result in a take of migratory birds. In addition, construction-related disturbances during the nesting season could result in nest abandonment and mortality of young, which would be a significant adverse effect pursuant to CEQA.

Impact avoidance and minimization measures are warranted, as outlined in Section 5.3, below.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed project would require grading of the left (west) bank of San Ramon Creek to install a new retaining wall. At the point of the slide, loose soil now supporting ruderal herbaceous and vining plant species would be excavated to competent material, then stabilized with RSP covered with earth. North of the slide, the existing bank will be excavated to permit the placement of a buried extension of the retaining wall. This excavation will require the removal of non-native herbaceous and vining plants as well as removal of native and non-native trees.

As summarized in Section 4.1, above, project implementation would not result in direct impacts below the OHWM; however, temporary dewatering may be necessary to facilitate equipment access and construction. Temporary dewatering would be achieved by the installation of cofferdams upstream and downstream of the work area; flows would be preserved by bypass piping.

Temporary impacts on waters of the U.S. and temporary and permanent impacts below the top of bank are regulated under federal and state law and would be considered significant pursuant to the guidelines of CEQA. A more detailed discussion of these impacts, along with measures to avoid, minimize and/or mitigate significant impacts is provided in Section 5.3, below.

As summarized in Section 4.2, above, no federally or state-listed plant species are considered to have any potential to occur on site. Similarly none of the target special-status plant species is considered to have any potential to occur on site. Project implementation is therefore not expected to have any significant effects on special-status plant species. No impact avoidance, minimization or mitigation measures are warranted.

As summarized in Section 4.3, there is a potential for the occurrence of special-status animal species on site. If present at the time of construction, project implementation could result in significant adverse effects on California red-legged frog, white-tailed kite, Pacific pond turtle, several species of special-status bats, and numerous species of special-status and other migratory birds. These impacts, along with measures to avoid, minimize and/or mitigate significant impacts are discussed in Section 5.3, below.

5.1 Special-status Natural Communities

Waters of the U.S. / Waters of the State

San Ramon Creek is expected to qualify as a waters of the U.S. and a waters of the state. Impacts below the tops of bank of the channel are regulated and fall under the

jurisdiction of the USACE, RWQCB, and the CDFW. The expected limits of jurisdiction are illustrated in Figure 3, above.

As outlined in Section 1.1, above, the proposed project calls for the excavation of the channel bank to competent, stable soil, installation of geotextile fabric and controlled density fill. Imported earthen fill would be placed below the top of bank. Although no permanent fill would be placed below the OHWM, installation of coffer dams may be necessary to facilitate construction. In necessary, temporary coffer dams would be placed upstream and downstream of the work area, consisting of clean, river-washed sand and gravel in sand bags.

These temporary and permanent impacts would be regarded as significant under CEQA and are regulated under federal and state laws and policies.

Avoidance, Minimization and Mitigation Measures: In order to avoid, minimize and compensate for unavoidable impacts on waters of the U.S./waters of the state, the following measures should be implemented:

1) Construction should be undertaken in a manner that minimizes direct and indirect impacts on regulated stream and riparian features. The use of hardened structures (e.g., mortared riprap) should be minimized while the incorporation of bio-engineering solutions should be used as much as is practicable. Surface water connections must not be permanently blocked or interrupted and the installation of drop-structures or other features that create barriers to wildlife movement should be avoided.

2) Prior to construction, the project proponent will need to secure authorization from the USACE, CDFW and RWQCB in conformance to the CWA and LSAP.

3) A copy of this report should be submitted to the USACE, CDFW and RWQCB in support of the permit application process. Work may not proceed until authorization has been received from these agencies.

4) As compensatory mitigation for temporal and permanent impacts on riparian habitat and native trees, a habitat restoration and monitoring plan should be developed and included with the permit submittals to the regulatory agencies for review. Replacement trees should be installed for trees with a dbh[84] of 10 cm (4 in) or greater at a ratio of at least 6:1 for native oaks, 3:1 for other native trees and 2:1 for non-native trees (excluding species considered invasive by the California Invasive Plant Council[85]). At a minimum, the plan should include specifications for the species, container, sizes, quantities and sources for locally indigenous plant species to be planted and seeded at the project site, adaptive management methods for establishing the plantings, and the criteria by which success will be gauged. Plantings

[84] Diameter at breast height, usually considered to be 1.4 m (4.5 ft) above ground surface.
[85] Refer to the Cal-IPC Inventory available online at http://www.cal-ipc.org/paf/

should be monitored for at least five years after installation, and annual monitoring reports submitted to the appropriate agencies. Additional conditions may be imposed by the regulatory agencies.

5) For all work within and adjacent to the stream channel and riparian habitat, best management practices (BMPs) must be incorporated into the project design to minimize environmental effects. These include the following:

- Construction in the active channels will be restricted to the dry season (April 15-October 15).
- Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub should be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations.
- If dewatering is necessary, water released downstream of work areas will be as clean as or cleaner than flows entering the work area. Sediment-laden water will be either pumped onto upland sites for infiltration or into Baker tanks for settling, prior to being released back into the channel. Coffer dams will consist of clean, silt-free sand or gravel in sand bags, or a comparable material. Coffer dams and non-natural materials must be promptly removed when no longer needed.
- All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities should be staked in the field by a qualified biologist.
- High visibility construction fencing should be erected between the outer edge of the limits of construction and adjacent wetlands or upland habitats to be preserved. Temporary construction fencing must be removed upon the completion of work.
- Grading or construction near channels should be isolated with silt fencing to prevent sedimentation. Silt fencing should be regularly inspected.
- Vehicles and equipment should be parked on pavement, existing roads, and previously disturbed areas.
- Equipment working in channels should be in good working order and free of leaks of fuel, oil, and hydraulic fluids. Drip pans should be placed under vehicles and equipment over waterways and spill clean-up materials should be kept onsite at a convenient location.
- Equipment maintenance and refueling areas must be isolated from the top of bank. All nearby storm drain inlets must be sealed to prevent an accidental release of contaminants into the stream course.
- Concrete washings must not be permitted to enter any stream channel or storm drain inlet.

- Any concrete structures will be allowed to cure before coming in contact with storm flows.
- Construction debris and materials should be stockpiled away from watercourses.
- Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) should be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub. Filter fences and mesh should be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion-control measures will be placed between the outer edge of the buffer and the project site.
- Fiber rolls used for erosion control will be certified as free of noxious weed seed and may not be constructed with synthetic or monofilament netting.
- Construction staging areas past the channel banks must be located away from any wetlands or other sensitive habitats as identified by the Project Biologist.
- Only clean rock should be used for rock slope protection.
- Newly graded earthen channel slopes should be revegetated with a native seed mix. Seed mixtures applied for erosion control should not contain invasive nonnative species and should be composed of native e species or sterile nonnative species. Straw or mulch should also be applied to all bare surfaces. The seed mix and mulch should be applied prior to the onset of the first winter-season rains.
- Typically, herbicide should not be applied within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g., yellow star-thistle). Herbicide drift should be minimized by applying the herbicide as close to the target area as possible.

Additional measures may be outlined in the conditions of the permits issued by the USACE, CDFW and RWQCB. All permit conditions must be conformed to. With the incorporation of these measures, potential impacts on special-status habitats or features would be reduced to a less-than-significant level.

5.2 Special-Status Plant Species

No federally listed, state-listed, or other special-status plant species were detected and none is expected to occur within the project area. Project implementation would not result in any significant impacts to special-status species. No further surveys, mitigation measures, or impact avoidance/minimization measures are required.

5.3 Special-Status Animal Species

Project implementation could result in direct and indirect effects to special-status wildlife species through direct mortality, injury or harassment of individuals and the loss of suitable breeding, non-breeding aquatic, roosting, foraging, and dispersal habitat and/or daily/seasonal movement corridors. To avoid potential impacts associated with the project, the measures outlined below should be implemented.

Implications of the Proposed Project: California Red-Legged Frog and Pacific Pond Turtle

Populations of California red-legged frog have been recorded from the project region. Although the occurrence of CRF is considered unlikely, the lack of significant barriers to movement between known source populations and the project site means that the potential exists for these species to move into harm's way prior to or during construction. An extant population of PPT is known to occur immediately upstream of the study and individuals have been seen moving through the project site (Wood, pers. obs., 2011-2015). If present at the time of construction, direct and indirect impacts to the CRF and PPT could result. Such impacts would be considered significant under CEQA guidelines. With the incorporation of these measures, impacts to special-status bats should be reduced to a less-than-significant level.

Avoidance/Minimization and Mitigation Measures: There is a potential for the occurrence on site of CRF and PPT. If present, construction activities in the San Ramon Creek channel could result in a take. The following measures should be implemented:

1) Seasonal Avoidance. Work should be limited to the dry season, from April 15 to October 15.

2) Minimize Nighttime Work. Nighttime construction should be restricted to avoid effects on nocturnally active species such as CRF.

3) Onsite Construction Personnel Education Program. Before commencement of construction activities, a qualified biologist should conduct an environmental awareness program for all construction personnel. At a minimum the training should include a description of special-status species that could be encountered, their habitats, regulatory status, protective measures, work boundaries, lines of communication, reporting requirements, and the implications of violations of applicable laws.

4) Wildlife Exclusion Fencing. Prior to the start of construction, wildlife exclusion fencing (WEF)[86] should be installed to isolate the work area from any habitats potentially supporting special-status animals or through which such species may move. The final project plans should indicate where and how the WEF is to be installed. The bid solicitation package special provisions should provide further instructions to the contractor about acceptable fencing material. The fencing should remain throughout the duration of the work activities, be regularly inspected and properly maintained by the contractor. Fencing and stakes shall be completely removed following project completion.

5) Preconstruction Surveys. Preconstruction surveys for CRF and PPT should be conducted by a qualified biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing below the tops of bank of San Ramon Creek.

6) Protocol for Species Observation - CRF. If CRF are encountered in the project area, work must cease immediately; observations of CRF require the immediate notification of the USFWS by calling (916) 930-5603. These species may not be handled, relocated, shooed away or otherwise harassed. Based on the professional judgment of the biological monitor and pending authorization from the USFWS, work may only proceed if project activities can be conducted without harming or harassing the detected species. All project personnel should be notified of the finding and at no time may work occur within 15 m (50 ft) of the individual without a biological monitor present.

7) Protocol for Species Observation - PPT. If a PPT is encountered in the project area, work must cease immediately until the animal either moves out of harm's way of its own accord or is safely relocated well upstream or downstream of the project area. Only a qualified biologist with a scientific collection permit issued by the CDFW may handle and relocate PPT. Any sightings and relocation of PPT should be reported to the CDFW and the CNDDB.

8) Best Management Practices. Prior to the initiation of work BMPs should be in place to prevent the release of any pollutants or sediment into the creek, storm drains, or tributaries; all BMPs should be properly maintained. Leaks, drips, and spills of hydraulic fluid, oil, or fuel from construction equipment should be promptly cleaned up to prevent contamination of water ways. All workers should be properly trained regarding the importance of preventing and cleaning up spills of contaminants. Protective measures should include, at a minimum:

[86] Wildlife Exclusion Fencing should provide a barrier for terrestrial wildlife gaining access to the project work areas. The fencing may vary to meet the needs of a particular species, but should be buried and/or backfilled to prevent animals passing under the fence and should be high enough to deter reptiles and amphibian or small mammals from climbing or jumping over the fence. Acceptable fencing materials including Animex® animal exclusion fencing, ERTEC E-Fence®, plywood, corrugated metal, silt fencing or other suitable materials.

a. No discharge of pollutants from vehicle and equipment cleaning should be allowed into any storm drains or watercourses.

b. Spill containment kits should be maintained onsite at all times during construction operations and/or staging or fueling of equipment.

c. Coir rolls or straw wattles should be installed along or at the base of slopes during construction to capture sediment. Coir rolls should not contain monofilament netting; appropriate alternative materials are burlap or other natural fiber.

9) Erosion Control. Protection of graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.

10) Construction Site Restrictions. The following site restrictions should be implemented to avoid adversely affecting sensitive habitats and harm or harassment to listed species:

a) Any fill material should be certified to be non-toxic and weed free.

b) All food and food-related trash items should be enclosed in sealed trash containers and removed completely from the site at the end of each day.

c) No pets from project personnel should be allowed anywhere in the project area during construction.

d) No firearms should be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.

e) All equipment should be maintained such that there are no leaks of automotive fluids such as gasoline, oils or solvents and a Spill Response Plan should be prepared. Hazardous materials such as fuels, oils, solvents, *etc.* should be stored in sealable containers in a designated location that is isolated from wetlands and aquatic habitats.

f) Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance should occur only at sites isolated from any aquatic habitat unless separated by topographic or drainage barrier or unless it is an already existing gas station. Staging areas may occur closer to the project activities as required.

11) Proper Use of Erosion Control Devices. To prevent California red-legged frogs and other common and sensitive wildlife species from becoming entangled, trapped or injured, erosion control materials that use plastic or synthetic mono-filament netting will not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several

months to decompose. Acceptable materials include natural fibers such as jute or twine, or tackified hydroseeding compounds.

Implications of the Proposed Project: Impacts on Special-Status and Migratory Bird Species

Within the study area, trees, shrubs, vines, and grasslands provide suitable nesting habitat for seven special-status bird species (white-tailed kite, Cooper's hawk, sharp-shinned hawk, oak titmouse, Nuttall's woodpecker, Allen's hummingbird, and yellow warbler) as well as many other migratory bird species. Ground disturbing activities (e.g., grubbing, grading, trenching, and tree removal or pruning) could result in direct or indirect impacts to nesting birds by causing the destruction or abandonment of occupied nests. Direct and indirect impacts to special-status and migratory bird species would be considered significant under CEQA guidelines. With the incorporation of these measures, impacts to special-status bats should be reduced to a less-than-significant level.

Avoidance and Minimization Measures – Special-Status and Other Migratory Birds: In order to avoid impacts to white-tailed kite and other migratory bird species during project implementation, the measures outlined below should be implemented.

1) White-tailed Kite. White-tailed kite is a state-listed fully protected species and incidental take of the species is not allowed. If an active nest is present on site, work may not proceed. If an active nest is found within 300 feet of the project site, the nest must be monitored by a qualified biologist for the duration of construction activities or until young birds have fledged, in consultation with the CDFW (see #5. below).

2) Raptor Nests. Prior to the removal or significant pruning of any trees, they should be inspected by a qualified biologist for the presence of raptor nests. This is required regardless of season. If a suspected raptor nest is discovered, the CDFW should be notified. Pursuant to CFGC Section 3503.5, raptor nests, whether or not they are occupied, may not be removed until approval is granted by the CDFW.

3) Site Clearing – Non-Breeding Season. If clearing, grubbing or tree removal/pruning are to be conducted outside of the breeding season (i.e., September 1 through January 31), no preconstruction surveys for nesting migratory birds is necessary.

4) Site Clearing – Breeding Season. If clearing and grubbing and tree removal or pruning are to be conducted during the breeding season (i.e., February 1 through August 31), a preconstruction nesting bird survey should be conducted. The survey should be performed by a qualified biologist no more than two weeks prior to the initiation of work. If no nesting or breeding activity is observed, work may proceed without restrictions. To the extent allowed by access, all active nests identified within 76 m (250 ft) for raptors and 15 m (50 ft) for passerines should be mapped.

5) Active Nesting. For any active nests found near the construction limits (76 m [250 ft] for raptors and 15 m [50 ft] for passerines) the Project Biologist should make a determination as to whether or not construction activities are likely to disrupt reproductive behavior. If it is determined that construction is unlikely to disrupt breeding behavior, construction may proceed. If it is determined that construction may disrupt breeding, the no-construction buffer zone should be expanded; avoidance is the only mitigation available. The ultimate size of the no-construction buffer zone may be adjusted by the Project Biologist based on the species involved, topography, lines of site between the work area and the nest, physical barriers, and the ambient level of human activity. Site evaluations and buffer adjustments should be made in consultation with the CDFW and/or the USFWS Division of Migratory Bird Management.

   If it is determined that construction activities are likely to disrupt raptor breeding, construction activities within the no-construction buffer zone may not proceed until the Project Biologist determines that the nest is long longer occupied.

6) Nest Monitoring. If maintenance of a no-construction buffer zone is not feasible, the Project Biologist should monitor the nest(s) to document breeding and rearing behavior of the adult birds. If it is determined that construction activities are likely to cause nest abandonment, work should cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

Implications of the Proposed Project: Impacts on Special-Status Bats

Removal or pruning of large trees, removal of structures, and construction activities in the vicinity of occupied roosts could result in the destruction of roosts or disruption of breeding of special-status bats such as pallid bat, western red bat, hoary bat and Yuma myotis. In addition, disturbance during the maternity roosting season could result in potential roost abandonment and mortality of young. Prior to the removal of mature trees, the avoidance measures outlined below should be performed. With the incorporation of these measures, impacts to special-status bats should be reduced to a less-than-significant level.

1. Bat Habitat Assessment. If work is to take place during the bat breeding season (April 1 through August 31), a qualified biologist should conduct a survey of the project site and vicinity to determine if active maternity roosts are present. This survey should be conducted no more than 14 days prior to the initiation of work.

2. Maternal Roosts. If any trees or structures are determined to support or potentially support maternal bat roosts, work may not proceed if it would destroy or disrupt breeding. Maternal bat roosts may only be removed or demolished after coordination with the CDFW and/or the USFWS. Passive exclusion of roosting bats would be required and this may only be performed during the non-breeding season (i.e., between October 1 and March 30).

3. Preconstruction Survey. A preconstruction survey should be conducted by a qualified biologist to identify suitable bat roosting sites. The survey should be conducted no more than 48 hours prior to the initiation of work and should include an area extending up to 61 m (200 ft) of the limits of work, access permitting.
4. Protocol for Observations of Live Bats. If live bats are detected in the work area, work may not proceed until CDFW has been consulted. Contractor or others may not attempt to disturb (e.g., shake, prod) roosting features to coax bats to leave. Such actions would constitute "harassment" under the CCR.[87]
5. Day or Night Roosts. Any trees determined to provide suitable day or night roosting sites for bats should be identified and marked on site plans. Such roosting sites include snags, rotten stumps, and decadent trees with broken limbs, exfoliating bark, cavities, and openings leading to interior portions of any structures. If no suitable roost sites or evidence of bat roosting are identified, impact minimization measures are not warranted. If suitable roosting sites or evidence of bat roosting are identified, the following measures should be conducted:
    a. A qualified biologist should survey suitable roost sites immediately prior to the removal or significant pruning of any of the larger trees, or demolition or significant renovation of any structures.
    b. If the project biologist identifies suitable day or night roost sites or evidence of bat occupation, the following steps should be followed to discourage use of the sites by bats and to ensure that any bats present are able to safely relocate.

        For trees:

        - Tree limbs smaller than 7.6 cm (3 in) in diameter should be removed and any loose bark should be peeled away.
        - Any competing limbs that provide shelter around the potential roost site should be removed to create as open of an area as possible.
        - The tree should then be alone to allow any bats using the tree/snag to find another roost during their nocturnal activity period.
        - The project biologist should re-survey the trees a second time 48 hours after trimming.
        - If no bats are present, work may proceed.

[87] 14 CCR § 251.1 states: Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal or furbearing mammal. For the purposes of this section, harass is defined as an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.

- If bats remain on site, additional measures would be prescribed by the biologist.

Implications for Proposed Project: San Francisco Dusky-Footed Woodrat

Although not detected, the potential exists for San Francisco dusky-footed woodrat to take up residence at the project site prior to the start of construction. If present at the time of construction, direct and indirect impacts to the CRF and PPT could result. Such impacts would be considered significant under CEQA guidelines. With the incorporation of these measures, impacts to special-status bats should be reduced to a less-than-significant level.

Avoidance and Minimization Measures: A pre-construction wildlife survey should be performed at the project site to search for woodrat nests. If no nests are detected, no further avoidance measures are warranted.

1. Nest Detection and Avoidance. If a woodrat nest is detected, it should be mapped in relation to the proposed limits of work. If the nest can be avoided, it should be isolated from the work zone by installation of wildlife exclusion fencing (WEF)[88].
2. Nest Removal – Non-Breeding Season. If a woodrat nest is in the work zone and it cannot be avoided, site clearing should be performed during the non-breeding season (e.g., September 1 through November 30). During the non-breeding season, the nest should be disassembled by hand and the nest materials (e.g., sticks) removed and disposed of off-site. Any adult animals present should be permitted to disperse into adjacent habitat. This work may only be performed by a qualified biologist in coordination with the CDFW.
3. Nest Removal – Breeding Season. If site clearing must proceed during the breeding season, it will be necessary to determine whether or not the nest is currently occupied. This may be done by direct observation over the course of at least two evenings no more than 48 hours prior to nest disassembly. Direct observation may consist of installation of wildlife cameras at the nest or by a biologist on the ground. If no animals are observed, the nest may be disassembled by hand. If, during the process of disassembling the nest, live animals are encountered, nest materials should be replaced on top of the nest and the effort abandoned. Nest may not be disassembled if young woodrats are present. Construction must then be postponed until the end of the breeding season.

[88] Wildlife Exclusion Fencing should provide a barrier for terrestrial wildlife gaining access to the project work areas. The fencing may vary to meet the needs of a particular species, but should be buried and/or backfilled to prevent animals passing under the fence and should be high enough to deter reptiles and amphibian or small mammals from climbing or jumping over the fence. Acceptable fencing materials including ERTEC E-Fence® (Ertec Environmental Systems LLC), plywood, corrugated metal, silt fencing or other suitable materials.

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APPENDIX A

SITE PHOTOGRAPHS

Photographs taken June 16, 2015

View of top of slide at Front St., looking downstream (north).

View slide from base of bank, looking upslope toward Front St.

View of slide area from base of bank to the south.

View of top of slide across Front St., looking east.

View of slide for top of bank.

View of retaining wall and restored bank south of slide, looking upstream (south).

View upper bank south of slide, looking downstream (north).

View of retaining wall and restored bank north of slide, looking upstream (south).

View of channel below slide (note English ivy and giant reed).

View of channel below slide, looking downstream (north).

APPENDIX B

DATABASE PRINTOUTS FOR SPECIAL-STATUS SPECIES

California Natural Diversity Database (2015)
California Native Plant Society (2015)
USFWS Database (2015)

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Antioch South (3712187) or Clayton (3712188) or Diablo (3712178) or Dublin (3712168) or Hayward (3712261) or Las Trampas Ridge (3712271) or Livermore (3712167) or Tassajara (3712177) or Walnut Creek (3712281))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter striatus sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Endangered	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Amsinckia grandiflora large-flowered fiddleneck	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2?	S2?	1B.2
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Anniella pulchra pulchra silvery legless lizard	ARACC01012	None	None	G3G4T3T4Q	S3	SSC
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G4G5	S2	4.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arctostaphylos auriculata Mt. Diablo manzanita	PDERI04040	None	None	G2	S2	1B.3
Arctostaphylos manzanita ssp. laevigata Contra Costa manzanita	PDERI04273	None	None	G5T2	S2	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T2	S2	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California macrophylla round-leaved filaree	PDGER01070	None	None	G2	S2	1B.1
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
Campanula exigua chaparral harebell	PDCAM020A0	None	None	G2	S2	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Chloropyron palmatum palmate-bracted salty bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Circus cyaneus northern harrier	ABNKC11010	None	None	G5	S3	SSC
Cordylanthus nidularius Mt. Diablo bird's-beak	PDSCR0J0F0	None	Rare	G1	S1	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Cryptantha hooveri Hoover's cryptantha	PDBOR0A190	None	None	GH	SH	1A
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	AMAFD03061	None	None	G3G4T1	S1	
Efferia antiochi Antioch efferian robberfly	IIDIP07010	None	None	G1G2	S1S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T3Q	S3	WL
Eriastrum ertterae Lime Ridge eriastrum	PDPLM030F0	None	None	G1	S1	1B.1
Eriogonum truncatum Mt. Diablo buckwheat	PDPGN085Z0	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Grimmia torenii Toren's grimmia	NBMUS32330	None	None	G2	S2	1B.3
Helianthella castanea Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1	
Hesperolinon breweri Brewer's western flax	PDLIN01030	None	None	G2	S2	1B.2
Hoita strobilina Loma Prieta hoita	PDFAB5Z030	None	None	G2	S2	1B.1
Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Juglans hindsii Northern California black walnut	PDJUG02040	None	None	G1	S1	1B.1
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lytta molesta molestan blister beetle	IICOL4C030	None	None	G2	S2	
Madia radiata showy golden madia	PDAST650E0	None	None	G2	S2	1B.1
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Microcina lumi Lum's micro-blind harvestman	ILARA47050	None	None	G1	S1	
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G2G3	S2S3	1B.2
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Navarretia gowenii Lime Ridge navarretia	PDPLM0C120	None	None	G1	S1	1B.1
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.1
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	
Phacelia phacelioides Mt. Diablo phacelia	PDHYD0C3Q0	None	None	G1	S1	1B.2
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GH	SH	1A
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S2S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Sanicula saxatilis rock sanicle	PDAPI1Z0H0	None	Rare	G2	S2	1B.2
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3?	S2	2B.2
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Streptanthus albidus ssp. peramoenus most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
Streptanthus hispidus Mt. Diablo jewelflower	PDBRA2G0M0	None	None	G1	S1	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Sycamore Alluvial Woodland Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G1	S1	1B.2
Tropidocarpum capparideum caper-fruited tropidocarpum	PDBRA2R010	None	None	G1	S1	1B.1
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Sink Scrub Valley Sink Scrub	CTT36210CA	None	None	G1	S1.1	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G5	S3	2B.3
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 92

CNPS California Native Plant Sc Rare and Endangered Plant Inventory

Plant List

72 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 37121G8

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	1B.1	S1	G1
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	4.2	S3S4	G5?T3T4
Anomobryum julaceum	slender silver moss	Bryaceae	moss	4.2	S2	G4G5
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	4.3	S4	G4
Arctostaphylos auriculata	Mt. Diablo manzanita	Ericaceae	perennial evergreen shrub	1B.3	S2	G2
Arctostaphylos manzanita ssp. laevigata	Contra Costa manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2	G5T2
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	1B.2	S2	G3T2
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	4.2	S3	G4T3
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	1B.2	S2	G2
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	1B.1	S2	G2
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	1B.1	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S34	G4
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.1	S2	G2
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S4	G4
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	1B.2	S2	G2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S4	G4T5
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	1B.1	S2	G3T2
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S1	G1

Clarkia concinna ssp. automixa	Santa Clara red ribbons	Onagraceae	annual herb	4.3	S3	G5?T3
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3	S4	G4
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	4.2	S4	G4
Cordylanthus nidularius	Mt. Diablo bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S1	G1
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	1A	SH	GH
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	1B.2	S3	G3T3
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2	G2
Eriastrum ertterae	Lime Ridge eriastrum	Polemoniaceae	annual herb	1B.1	S1	G1
Eriogonum truncatum	Mt. Diablo buckwheat	Polygonaceae	annual herb	1B.1	S2	G2
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	4.3	S3	G3
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	1B.1	S1	G1
Etriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2	S2	G2
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	4.2	S3	G3
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Galium andrewsii ssp. gatense	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	4.2	S3	G5T3
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss	1B.3	S2	G2
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	1B.2	S2	G2
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	1B.2	S2	G2
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	1B.1	S1	G1
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	4.2	S3	G3
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	4.2	S3	G3
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	1B.1	S1	G1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	S1	G1
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	1B.2	S2	G5T2
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	4.2	S3	G3
Madia radiata	showy golden madia	Asteraceae	annual herb	1B.1	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	3.2	S3S4	G3G4
Monardella antonina ssp. antonina	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	3	S1S3	G4T1T3Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Navarretia gowenii	Lime Ridge navarretia	Polemoniaceae	annual herb	1B.1	S1	G1

Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	4.3	S4	G4
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	4.2	S3	G4T3
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	1B.2	S2	G4T2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	1B.1	S2	G2
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Onagraceae	perennial herb	1B.1	S1	G5T1
Phacelia phacelioides	Mt. Diablo phacelia	Boraginaceae	annual herb	1B.2	S1	G1
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	4.2	S3	G3
Plagiobothrys glaber	hairless popcorn-flower	Boraginaceae	annual herb	1A	SH	GH
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S2	G3G4
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3	G4
Sanicula saxatilis	rock sanicle	Apiaceae	perennial herb	1B.2	S2	G2
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	2B.2	S2	G3?
Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	Brassicaceae	annual herb	1B.2	S2	G2T2
Streptanthus hispidus	Mt. Diablo jewel-flower	Brassicaceae	annual herb	1B.3	S1	G1
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb	2B.2	S3	G5T5
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2
Triquetrella californica	coastal triquetrella	Pottiaceae	moss	1B.2	S1	G1
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	1B.1	S1	G1
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	2B.3	S3	G5

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0563 May 20, 2015
Event Code: 08ESMF00-2015-E-02163
Project Name: Front Street Slide Repair

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

To Whom It May Concern:

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

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead. Please visit our office's website (http://www.fws.gov/sacramento) to view a map of office jurisdictions.

United States Department of Interior
Fish and Wildlife Service

Project name: Front Street Slide Repair

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Consultation Code: 08ESMF00-2015-SLI-0563
Event Code: 08ESMF00-2015-E-02163

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

Project Name: Front Street Slide Repair
Project Description: Town of Danville

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Endangered Species Act Species List

There are a total of 12 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
California red-legged frog *(Rana draytonii)* Population: Entire	Threatened	Final designated	
California tiger Salamander *(Ambystoma californiense)* Population: U.S.A. (CA - Sonoma County)	Endangered	Final designated	
Birds			
California Least tern *(Sterna antillarum browni)*	Endangered		
Crustaceans			
Longhorn fairy shrimp *(Branchinecta longiantenna)* Population: Entire	Endangered	Final designated	
Vernal Pool fairy shrimp *(Branchinecta lynchi)* Population: Entire	Threatened	Final designated	
Fishes			
Delta smelt *(Hypomesus*	Threatened	Final designated	

transpacificus) Population: Entire			
steelhead *(Oncorhynchus (=salmo) mykiss)* Population: Northern California DPS	Threatened	Final designated	
Flowering Plants			
Antioch Dunes evening-primrose *(Oenothera deltoides ssp. howellii)*	Endangered	Final designated	
Contra Costa wallflower *(Erysimum capitatum var. angustatum)*	Endangered	Final designated	
Insects			
Valley Elderberry Longhorn beetle *(Desmocerus californicus dimorphus)* Population: Entire	Threatened	Final designated	
Mammals			
San Joaquin Kit fox *(Vulpes macrotis mutica)* Population: U.S.A(CA)	Endangered		
Reptiles			
Alameda whipsnake *(Masticophis lateralis euryxanthus)* Population: Entire	Threatened	Final designated	

Critical habitats that lie within your project area

There are no critical habitats within your project area.

APPENDIX C

EXPLANATION OF RARITY STATUS CODES

EXPLANATION OF RARITY STATUS CODES

ENDANGERED SPECIES ACT (ESA) LISTING CODES

FE = federally listed as Endangered
FT = federally listed as Threatened
FPE = proposed for listing Endangered
FPT = proposed for listing Threatened
FC = federal candidate; former Category 1 candidates
FD/FPD = delisted/proposed for delisting
SC = species of concern; established by NMFS, effective April 15, 2004.

CALIFORNIA ENDANGERED SPECIES ACT (CESA) LISTING CODES

SE = state-listed as Endangered
ST = state-listed as Threatened
SR = state-listed as Rare
SCE = state candidate for listing as Endangered
SCT = state candidate for listing as Threatened
SD/SCD = delisted/State candidate for delisting

GLOBAL AND STATE RANKINGS

G1/S1 = Critically imperiled: at high risk of extinction, extremely rare.
G2/S2 = Imperiled: at high risk of extinction, restricted range, very few populations.
G3/S3 = Vulnerable: moderate risk of extinction, restricted range, few populations.
G4/S4 = Apparently secure: uncommon, not rare, possible long-term declines.
G5/S5 = Secure: common, widespread, abundant.

CALIFORNIA NATIVE PLANT SOCIETY DESIGNATIONS

List 1: Plants of highest priority.
List 1A: Plants presumed extinct in CA.
List 1B: Plants rare and endangered in CA and elsewhere.
List 2A: Plants presumed extirpated in CA but common elsewhere.
List 2B: Plants rare, threatened or endangered in CA but common elsewhere.
List 3: Plants for which additional data are needed – Review List.
List 4: Plants of limited distribution – Watch List.

CNPS Threat Code Extensions

.1 - Seriously endangered in CA
.2 – Fairly endangered in CA
.3 – Not very endangered in CA

OTHER CODES

ABC: WL - American Bird Conservancy Watch List of Birds of Conservation Concern.

AFS - American Fisheries Society categories of risk for marine, estuarine and diadromous fish stocks. Codes: **E**=endangered; **T**=threatened; **V**=vulnerable

AUD: WL - Audubon: Watch List 2007. Bird species facing population decline and/or threats such as loss of breeding and wintering grounds, or species with limited geographic ranges. **R** – Red List, global conservation concern; **Y** – Yellow List, national conservation concern.

BLM: S - Bureau of Land Mgt: Sensitive. Includes species under review by USFWS or NMFS, species whose numbers are declining so rapidly that federal listing may become necessary, species with small and widely dispersed populations, or species inhabiting refugia or other unique habitats.

CDF: S – CA Dept. of Forestry and Fire Protection: Sensitive. Includes species that warrant special protection during timber operations.

DFW: FP - CA Dept. of Fish and Wildlife: Fully Protected. Species protected under §§3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code.

DFW: SA - CA. Dept. of Fish and Wildlife: Special Animal. Species included on the CDFW's lists of special animals.

DFW: SP - CA Dept. of Fish and Wildlife: Special Plant. Species included on the CDFW's lists of special plants.

DFW: SSC - CA Dept. of Fish and Wildlife: California Species of Special Concern.

DFW: WL - CA Dept. of Fish and Wildlife: (Watch List): taxa that don't meet SSC criteria but about which there is concern and additional information is needed to clarify status.

FS: S - USDA Forest Service: Sensitive. Species whose population viability is a concern, as evidenced by significant current or predicted downward trends in numbers or density, or in habitat capability that would reduce a species' existing distribution.

FWS: BCC - U.S. Fish and Wildlife Service: Birds of Conservation Concern. Migratory and non-migratory bird species that represent the USFWS's highest conservation priorities.

FWS: BEPA - U.S. Fish and Wildlife Service: Bald Eagle Protection Act.

FWS: MBTA U.S. Fish and Wildlife Service: International Migratory Bird Treaty Act.

FWS: MNB - U.S. Fish and Wildlife Service: Migratory Nongame Birds of Management Concern. Species of concern in the U.S. due to documented or apparent population declines, small or restricted populations, or dependence on restricted or vulnerable habitats.

MMPA – Marin Mammal Protection Act

NMFS: SC - National Marine Fisheries Service: Species of Concern.

WBWG - Western Bat Working Group. Priority for funding, planning or conservation actions. Codes: **H**=high; **MH**=medium-high; **M**=medium; **LM**=low-medium

Xerces - Xerces Society Red List.
Codes: **C**=critically imperiled; **I**=imperiled; **V**=vulnerable; **D**=data deficient