

# Arroyo Road Over Dry Creek Bridge Project (Bridge Number 33C-0448)



## Biological Assessment

Alameda County, California

Caltrans District 4

Federal Aid #: BRLO-5933 (138)

December 2022



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(Bridge Number 33C-0448)

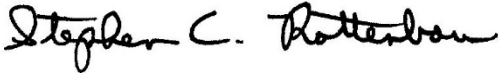
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STATE OF CALIFORNIA

Department of Transportation  
Alameda County Public Works Agency

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## **Acronym List**

AASHTO – American Association of State Highway and Transportation Officials

ac – acre(s)

BMPs – best management practices

BSA – Biological Study Area

Cal-IPC – California Invasive Plant Council

Caltrans – California Department of Transportation

CDFW – California Department of Fish and Wildlife

CEQA – California Environmental Quality Act

CESA – California Endangered Species Act

CFR – Code of Federal Regulations

CLC – California Land Conservation

CNDDDB – California Natural Diversity Database

CNPS – California Native Plant Society

County – Alameda County

CRPR – California Rare Plant Rank

CWA – Clean Water Act

EACCS – East Alameda County Conservation Strategy

EFH – Essential Fish Habitat

FESA – Federal Endangered Species Act

FHWA – Federal Highway Administration

FMP – Fisheries Management Plan

ft – feet/foot

HBP – Highway Bridge Program

In – linear

LSAA – Lake and Streambed Alteration Agreement

MBTA – Migratory Bird Treaty Act

mi – mile(s)

OHWM – ordinary high water mark

PBF – physical or biological feature

PBO – Programmatic Biological Opinion

NEPA – National Environmental Policy Act

NES – Natural Environment Study

NOAA Fisheries – National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service branch

NPDES – National Pollutant Discharge Elimination System

Porter-Cologne – Porter-Cologne Water Quality Control Act

Project – Arroyo Road over Dry Creek Bridge Project

RSP – rock slope protection

RWQCB – Regional Water Quality Control Board

SWRCB – State Water Resources Control Board

USACE – U. S. Army Corps of Engineers

USFWS – U. S. Fish and Wildlife Service

USGS – U. S. Geological Survey

## Executive Summary

The purpose of this biological assessment is to provide technical information and to review the proposed Project in sufficient detail to determine to what extent the proposed Project potentially may affect threatened, endangered, or proposed species. The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this biological assessment (BA) under its assumption of responsibility at 23 United States Code (USC) 326 or 23 USC 327. The biological assessment is also prepared in accordance with 50 Code of Federal Regulations (CFR) 402, legal requirements found in section 7 (a)(2) of the Federal Endangered Species Act (FESA; 16 United States Code (USC) 1536(c)) and with FHWA and Caltrans regulations, policy and guidance. The document presents technical information upon which later decisions regarding Project effects are developed.

The County of Alameda's Arroyo Road over Dry Creek Bridge Project (Project) proposes the replacement of the existing bridge (Bridge Number 33C-0448) over Dry Creek on Arroyo Road in Alameda County, California. The replacement bridge would be a cast-in-place, reinforced concrete, single-span slab bridge that will accommodate two travel lanes plus shoulders and traffic rated vehicular barriers to meet Caltrans Highway Design Manual standards. The bridge will also accommodate a 12-foot (ft) wide Class I bike path separated from traffic by an interior vehicular traffic rated barrier. The replacement structure will be 34 ft long and will be supported by integral diaphragm type abutments on deep foundations.

The roadway profile will be raised approximately 2 ft to meet hydraulic and geometric requirements. To accommodate the raised profile, wider bridge structure, and longer span, the roadway centerline at the bridge will be shifted to the southwest to maintain traffic throughout construction while balancing impacts from slopes encroaching upon agricultural land (vineyard) to the northwest, an open space park to the southwest, grazing land to the northeast, and a golf course to the southeast. The access driveway will be reconstructed to connect into the raised roadway.

Consistent with Section 7 implementing regulations (50 CFR 402.12[b][2]), a list of endangered, threatened, proposed, and candidate species for the proposed Project was generated from the U.S. Fish and Wildlife Service's (USFWS) Sacramento Fish and Wildlife Offices via the USFWS Information for Planning and Consultation website on September 2, 2022 (Appendix A). In addition, a National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service list of endangered and threatened species and critical habitats was generated for the U.S. Geological Survey 7.5-minute United States Geological Survey *Livermore, California* map within which the Project occurs (Appendix B). Based on these lists, a review of relevant literature, and database searches, the following determinations were made for the federally threatened and endangered species that occur or potentially occur within the Action Area:

A **no effect** determination was made for the following species. No consultation is required for these species.



- Palmate-bracted bird's beak (*Cordylanthus palmatum*)
- California least tern (*Sternula antillarum browni*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Delta smelt (*Hypomesus transpacificus*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)

The determination of *no effect* indicates that the Action Area does not support suitable conditions that provide habitat for the species, the area is outside the species' range, or extensive surveys of the Action Area did not detect the species.

A ***may affect-not likely to adversely affect*** determination was made for the San Joaquin kit fox (*Vulpes macrotis mutica*); informal consultation is required. This determination is based on the following information:

- While San Joaquin kit fox is known historically in the Project region, it is not expected to occur in the Biological Study Area except as a rare and infrequent dispersant. If a dispersant were to occur, implementation of the proposed conservation measures will ensure avoidance of take of the San Joaquin kit fox.
- Although loss of potentially suitable habitat would occur for the San Joaquin kit fox, the habitat is not currently occupied, and the loss or modification of habitat is not expected to result in take in the form of harm (i.e., where removal of habitat would cause mortality or injury through behavioral changes) or a reduction in the number, reproduction, or distribution of the San Joaquin kit fox.

A ***may affect-likely to adversely affect*** determination was made for the California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*); formal consultation is required. This determination is based on the:

- presence of suitable habitat and known occurrences in the proposed Project vicinity;
- potential for loss of individuals;
- loss or degradation of non-breeding habitat; and
- disturbance of individuals that may occur as a result of the proposed Project.

Implementation of conservation measures will help avoid or minimize impacts to individuals, and compensatory mitigation for impacts to California red-legged frog and California tiger salamander habitat will be provided.

No designated or proposed critical habitat occurs within or near to the Action Area; thus no adverse modification of critical habitat will result from the Project.

# Chapter 1. Introduction

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## 1.1. Purpose and Need of the Proposed Action

The Alameda County (County) Public Works Agency is proposing to replace the structurally deficient Arroyo Road over Dry Creek Bridge (Bridge Number 33C-0448) with a new bridge that meets current applicable County, American Association of State Highway and Transportation Officials (AASHTO), and California Department of Transportation (Caltrans) design criteria and standards. In addition to the new bridge, the Project will ensure the roadway through the Project limits meets current County, AASHTO, and Caltrans standards and will provide a Class I bike path over the bridge. The Project is funded primarily through the state set-aside of Federal funds for the Highway Bridge Program (HBP), as administered through Caltrans Local Assistance. The Class I Bike Path will be funded using local dollars.

The Arroyo Road over Dry Creek Bridge Project (Project) is located in rural Alameda County, California, approximately 0.25 mile (mi) south of the urban margin of the city of Livermore, where the existing bridge crosses Dry Creek on Arroyo Road (Figure 1).

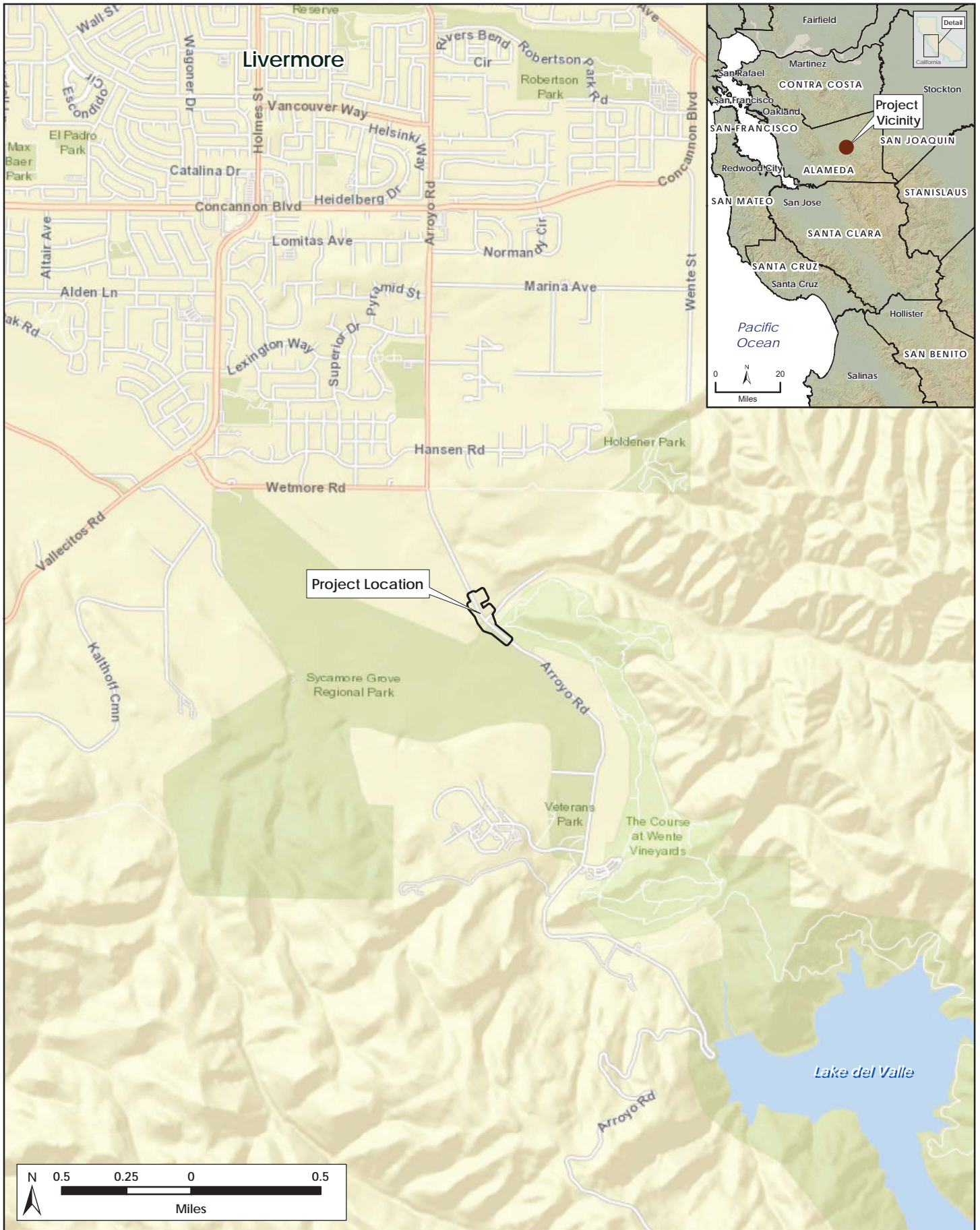
The Project footprint encompasses the maximum area of direct permanent and temporary impacts related to the Project and includes the current and proposed roadway, bridge, and access road alignments, the limits of grading, and staging areas. The Project footprint covers approximately 5.25 acres (ac). The biological study area (BSA) covers approximately 9.32 ac and includes the Project footprint as well as surrounding areas that were assessed for potential indirect effects by Project activities. The BSA was used to evaluate resources that are within potential work locations, as well as in immediately adjacent areas, in the event that they may be indirectly impacted by the Project. The following additional terms have been used in describing the Project:

- “Project vicinity” is used to describe the BSA and a 5-mi surrounding radius.
- “Region” is a general term used throughout the document to refer to the Livermore area and surrounding Diablo and Coast Range mountains, and its extent is not specifically defined.

The purpose of the Project is to provide a safe crossing over Dry Creek on Arroyo Road, given the existing bridge is functionally obsolete and nearing the end of its useful life. The need for the Project is that the existing bridge is deteriorating and is too narrow for current and future traffic volumes.

## 1.2. Species and Critical Habitats Assessed

A species list was provided by U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service branch (NOAA Fisheries) on September 2, 2022 for the Action Area of this Project (Appendices A and B). The following listed and proposed species



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

**Figure 1. Vicinity Map**

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and/or designated or proposed critical habitats were identified on the Federal species lists and are considered during this analysis; these species and an effect determination for each are also summarized in Table 1:

### **Threatened (T) and Endangered (E) Species**

Palmate-bracted bird's beak (*Cordylanthus palmatus*) E

Conservancy fairy shrimp (*Branchinecta conservatio*) E

Vernal pool fairy shrimp (*Branchinecta lynchi*) E

Delta smelt (*Hypomesus transpacificus*) T

Alameda whipsnake (*Masticophis lateralis euryxanthus*) T

California red-legged frog (*Rana draytonii*) T

California tiger salamander (*Ambystoma californiense*) T

California least tern (*Sternula antillarum browni*) E

San Joaquin kit fox (*Vulpes macrotis mutica*) E

### **Critical Habitat**

The proposed action addressed within this document does not fall within designated critical habitat for any federally threatened or endangered species as specified above.

### **Proposed Species**

No federally proposed species will be affected by the proposed action.

### **Proposed Critical Habitat**

The proposed action addressed within this document does not fall within proposed critical habitat for any federally threatened or endangered species.

Table 1. Threatened, endangered, and proposed species and designated and proposed critical habitat and effect determinations.

Threatened, Endangered, Proposed Species, or Designated Critical Habitat	Scientific Name	Listing Status <sup>1</sup>	Presence of Species in Action Area (Yes/No)	Presence of Critical Habitat in Action Area (Yes/No)	Effect Determination
Palmate-bracted bird's beak	<i>Cordylanthus palmatus</i>	FE	No	No	No effect
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE	No	No	No effect
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FE	No	No	No effect
Delta smelt	<i>Hypomesus transpacificus</i>	FT	No	No	No effect
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT	No	No	No effect
California red-legged frog	<i>Rana draytonii</i>	FT	Yes	No	May affect, likely to adversely affect
California tiger salamander	<i>Ambystoma californiense</i>	FT	Yes	No	May affect, likely to adversely affect
California least tern	<i>Sternula antillarum browni</i>	FE	No	No	No effect
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	Yes	No	May affect, not likely to adversely affect

<sup>1</sup>Status: Federally Endangered (FE); Federally Threatened (FT).

### **1.3. Authorities and Discretion**

The Project sponsor is the Alameda County Public Works Agency. The Project is funded primarily through the state set-aside of Federal funds for the Highway Bridge Program, as administered through Caltrans Local Assistance. The Class I Bike Path will be funded using local dollars. Caltrans has assumed Federal Highway Administration (FHWA) responsibility for environmental review, consultation, and coordination on this proposed Project, as assigned by FHWA pursuant to USC 327 and is acting as the lead Federal agency for consultation under Section 7 of FESA.

### **1.4. Consultation History**

Outside of the provision of official species lists as described above in Section 1.2, no USFWS or NOAA Fisheries coordination has occurred for the Project.

### **1.5. Resource Agency Coordination and Professional Contacts**

The California tiger salamander is also listed as threatened under the California Endangered Species Act (CESA), which is described in California Fish and Game Code sections 2050 through 2100. Compliance with CESA requires the impacts of any take of a CESA-listed or candidate species incidental to otherwise lawful activities to “be minimized and fully mitigated.” Under Fish and Game Code, section 86, “take” means hunt, pursue, catch, capture, or kill, or to attempt to hunt, pursue, catch, capture, or kill. Under Fish and Game Code section 2080.1, the California Department of Fish and Wildlife (CDFW) may determine that the results of section 7 consultation are consistent with CESA. If a consistency determination is made, no further approval or authorization is necessary under CESA for listed or candidate species identified in the section 7 consultation. If a consistency determination is not made, CDFW may authorize incidental take of CESA-listed or candidate species through an incidental take permit pursuant to Fish and Game Code section 2081.

Caltrans has not begun coordination with CDFW on the proposed action or has applied for an incidental take permit or consistency determination for CESA compliance.

Any work within the active channels of Dry Creek up to its ordinary high water marks (OHWM) falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the state Regional Water Quality Control Board (RWQCB). Therefore, a Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB will be sought.

Work within the riparian corridor of Dry Creek, including areas within the bed and banks of Dry Creek, or impacts to associated riparian canopy, will require a Lake and Streambed Alteration Agreement from the CDFW in accordance with Fish and Game Code § 1602.

### **1.6. Study Methods**

This section describes the framework by which the species identified in Table 1 were reviewed for the proposed Project, and the methods used for determining the suitability of the habitat in the BSA for the species. As required under FESA, the County has used the best available scientific and commercial data to fully assess the habitats and potential for federally listed species to occur within the BSA. These assessments are described below. Prior to field work, several environmental documents relevant to the Project site were reviewed. These included:

- East Alameda County Conservation Strategy (EACCS) (ICF International 2010)
- Programmatic Biological Opinion for the East Alameda County Conservation Strategy (PBO) (USFWS 2012).

Maps and aerial imagery of the BSA were obtained from:

- U. S. Geological Survey (USGS) topographic maps
- National Wetlands Inventory (2022)
- Google Earth Pro software (Google LLC 2022)
- Natural Resource Conservation Service Soils Inventory (2022)

Information concerning threatened, endangered, or other special-status species or habitats of concern was collected and reviewed from several sources to develop a list of species and habitats of concern that may occur in the Project vicinity. These sources included Rarefind 5 (CNDDDB 2022) for the *Livermore, California* USGS 7.5-minute quadrangle in which the BSA occurs, as well as the surrounding eight quadrangles: *Diablo, Tassajara, Byron Hot Springs, Dublin, Altamont, Niles, La Costa Valley, and Mendenhall Springs*. CNDDDB records for federally listed animals occurring within the Project vicinity are shown on Figure 2. The CNDDDB search returned no records of federally listed plants within the Project vicinity. Relevant information available through USFWS, CDFW, and the EACCS was also reviewed.

### **1.6.1. Personnel and Survey Dates**

The BSA was assessed for sensitive habitats as well as the potential to support federally listed species of plants and animals. Adjacent habitats were also assessed for the potential for indirect impacts from the Project. During the survey, the approximate boundaries of potentially sensitive or regulated habitats within the BSA, such as wetlands and other waters of the U.S./state, were mapped for impact avoidance purposes. Habitats may be considered sensitive if they are limited in distribution, are regulated (e.g., by the USACE or RWQCB under the Clean Water Act), are identified as habitats of high conservation priority in the EACCS, provide habitat for EACCS focal species, or provide habitat for other sensitive species in this region. Reconnaissance-level surveys were deemed adequate to assess the effects of the Project on biological resources for the purposes of this BA.



Ecologists Stephen L. Peterson, M.S. and Jillian Pastick, M.S. conducted reconnaissance-level surveys of the BSA on February 18 and 19, 2020. The purpose of these surveys was to: 1) assess existing biotic habitats; 2) assess the area for its potential to support special-status species and natural communities of concern; 3) identify potential jurisdictional habitats, including waters of the U.S. and state; and 4) provide information for the initial Project impact assessment.

### **1.6.2. Limitations and Assumptions that may Influence Results**

Focused surveys for special-status plant species were not conducted for the preparation of this BA. The occurrence of all special-status plant species could be ruled out due to at least one or a combination of the following reasons: (1) a lack of suitable habitat types within the BSA, (2) a lack of suitable edaphic conditions, (3) inappropriate elevational range or the species' range is not expected to include the BSA due to local extirpation or requirements for microhabitat conditions lacking from the BSA, or (4) the level of disturbance within the BSA. In addition, during the reconnaissance-level survey, the plant ecologist looked for special-status plant species that might have been detectable at the time, suitable habitat for special-status plants, and associated species.

For special-status wildlife species, focused surveys were deemed unnecessary given the particular species involved, habitat conditions within the BSA, Project-specific conditions, and recent surveys conducted for other projects in the vicinity. For some species, such as the California red-legged frog and California tiger salamander, inferring presence was reasonable given the species' known or potential occurrence in the Project site vicinity and potential for dispersal onto the site. For these species, which can be difficult to detect, focused surveys were not deemed appropriate because a negative finding would not necessarily guarantee that the species would not be present during Project construction.

## Chapter 2. Proposed Agency Action

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### 2.1. Proposed Action Location

The Project is located in a rural area of Alameda County, Township 03S, Range R02, in the *Livermore, California* USGS quadrangle. No Section number is associated with the Project location. The existing bridge crosses Dry Creek on Arroyo Road in Alameda County (Figure 1). Surrounding land uses include agricultural, residential, commercial, and regional park land uses. Arroyo Road follows an approximate northwest-southeast alignment and is classified as a local rural road. The future Average Daily Traffic estimate is 6,206 as listed on the current Caltrans Bridge Inspection Report. Arroyo Road serves as the single point of access across Dry Creek for all points south, including large commercial agricultural/ranching parcels, a golf course, Department of Veteran Affairs health care services complex, a camp, recreational parks, and reservoir facilities. Specific land use conditions are noted for the following parcels adjoining the Project site:

- Wente Bros, northwest (APN 099-0500-001-03): CLC (Williamson) Act contract, and South Livermore Valley Agricultural Land Trust
- Wente Land & Cattle Co, northeast (APN 099-0625-002-01): CLC (Williamson) Act contract
- Cresta Blanca Golf, LLC, southeast (APN 099-0625-002-03): CLC (Williamson) Act contract

The existing concrete-encased steel girder bridge is a 25-foot (ft) long single span structure consisting of two 10-ft wide traffic lanes and narrow 1-ft wide shoulders, one lane traveling in each direction. A separate timber pedestrian walkway is present along the east side of the bridge. The existing geometry of the road provides limited sight distance at the bridge due to profile and alignment constraints. Safety features for the structure, such as railing and guardrail, do not meet current standards.

Within the Project area, Dry Creek is a natural watercourse with uncontrolled flows. The majority of the year the creek does not contain water. During peak rainfall events, the bridge constricts the flow at the crossing, the creek overtops the south channel bank, and the water flows across the south approach roadway.

A private gated access driveway connects to Arroyo Road immediately northeast of the bridge. Additional private frontage roads north of the bridge parallel Arroyo Road on each side.

Photos of the Project site are shown in Appendix C.

### 2.2. Description of Proposed Action

The proposed Project is the replacement of the existing Dry Creek Bridge. The replacement bridge will be a cast-in-place, reinforced concrete, single-span slab bridge that will accommodate two travel lanes plus shoulders and traffic rated vehicular barriers to meet Caltrans Highway Design Manual standards. The bridge will also accommodate a 12-ft wide Class I bike path separated from traffic by an interior vehicular traffic rated barrier. The replacement structure will be 34 ft long and will be supported by integral diaphragm type abutments on deep foundations.

The roadway profile will be raised approximately 2 ft to meet hydraulic and geometric requirements. To accommodate the raised profile, wider bridge structure, and longer span, the roadway centerline at the bridge will be shifted to the southwest to maintain traffic throughout construction while balancing impacts from slopes encroaching upon agricultural land (vineyard) to the northwest, the Livermore Area Recreation and Park District's Sycamore Grove Park to the southwest, and grazing land to the northeast.

An access driveway to agricultural and pasture areas, located immediately north of the existing bridge will be reconstructed to connect into the raised roadway.

## **2.3. Deconstruct the Proposed Action**

### **2.3.1. Construction Scenario Summary**

#### **Right of Way**

Based on a preliminary records search, Arroyo Road is within a 40-ft wide recorded Alameda County right of way. Due to widening of the bridge and slight horizontal realignment of the road through the Project site, permanent right of way acquisition will be required from the following two parcels:

- Wente Bros (APN 099-0500-001-03), located northwest of the bridge
- Livermore Area Recreation & Park District (APN 099-0500-001-08), located southwest of the bridge

Temporary construction easements will be needed from the following parcels to construct the proposed improvements and access driveway and to remove the existing bridge:

- Wente Bros (APN 099-0500-001-03), located northwest of the bridge
- Livermore Area Recreation & Park District (APN 099-0500-001-08), located southwest of the bridge
- Wente Land & Cattle Co (APN 099-0625-002-01), located northeast of the bridge

Acquisitions and easements will not require relocation of residences or businesses.

## **Utilities**

Overhead electric lines on wooden poles run along the southwest side of the roadway, and overhead telecommunication lines on wooden poles run along the northeast side of the roadway. There is an abandoned underground waterline along the northeast side of the roadway, crossing the creek via attachment to the existing bridge. Additional private potable and irrigation water lines run along the northeast side of the roadway within the private frontage road with service drop lines running easterly. To accommodate the widened roadway, the proposed Project includes the following:

- Overhead utility lines and support poles along both sides of the roadway will require permanent relocation.
- An abandoned water line will be removed with the existing bridge within the limits of excavation for the new bridge and capped within the approach roadway.

No modifications are expected to the private water lines.

## **Construction Methods**

### **Installing Construction Area Signs**

Prior to construction, appropriate signage will be installed, identifying construction areas and lane shifts. Detailed signage plans will be reviewed and approved by the County. Residents, businesses, and other stakeholders will be informed of the Project developments and impacts to traffic operations during construction. Signs will remain in place throughout the duration of construction.

### **Staging Areas**

The contractor will mobilize equipment and materials in the designated staging areas located on the Wente Land & Cattle Co property (APN 099-0625-002-01) on the northeast side of the road. Staging areas will be returned to pre-Project condition at the conclusion of construction activities.

### **Clearing, Grubbing, and Tree Removal**

Clearing and grubbing of vegetation and removal of any trees will be completed.

### **Demolition**

Best management practices (BMPs) will be implemented during construction. Demolition of the existing Arroyo Road Bridge, timber pedestrian crossing, and portions of roadway will be performed in accordance with County standards supplemented by Caltrans Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the demolition will be removed from the Project site and properly disposed of by the contractor. Demolition will occur during the second stage of construction.

## **Stream Diversion**

Dry Creek is historically dry during the anticipated periods of construction, and no stream diversions are likely to be needed. However, if there is water flow in Dry Creek during the construction period, the flow will be diverted into pipe(s) through the active construction zone. The diversion will be established in conformance with County specifications as well as CDFW, RWQCB, USACE, and USFWS regulatory requirements. The stream diversion will be constructed within the existing channel to protect and maintain water flow in Dry Creek during demolition and construction activities. Materials to construct the diversion will consist of pipe(s) sized to convey flow rates anticipated during construction and sandbags and plastic sheeting to construct diversion dams in the channel upstream and downstream of the site. All stream diversion work will be contained within the approved Project area of disturbance. Equipment used may include light truck, mounted cranes above the channel and small earthwork equipment (e.g., compact loaders and excavators) and laborers within the channel between the diversion dams. Operational timeline for the stream diversion will likely be April 15 to October 15, but will depend on permit restrictions imposed by the resource agencies.

## **New Bridge Foundations**

The new bridge foundations will likely consist of cast-in-drilled-hole concrete pile foundations. Abutments and adjacent side slopes will be armored with rock-slope-protection to mitigate scour, if needed.

### **2.3.2. Project Operation and Maintenance**

Activities that typically occur after construction and during the operation and maintenance of the Project that may result in stressors to any of the listed species or critical habitat have yet to be identified by Project proponents.

### **2.3.3. Sequencing and Schedule**

#### **Construction Schedule**

Construction is anticipated to begin in 2025 or 2026 and last for approximately 18 months as allowed within defined environmental work windows. Construction will take place Monday through Friday during daylight hours; no night work is anticipated.

#### **Construction Phasing**

Arroyo Road dead-ends several miles southeast of the bridge and is the only access in or out of the area for residents, businesses, and recreational users. No offsite detour is available. The bridge will be constructed in two stages in order to maintain traffic throughout construction.

Stage one consists of constructing a portion of the new bridge to the west of the existing bridge. Grading, paving, and barrier installation will transition the approaches from the portion of the new bridge to the existing roadway. Normal two-lane, two-way traffic operations will largely be maintained on the existing roadway and bridge. Short durations of single lane, two-way traffic operations will be required for the roadway conform connection to the exiting roadway. Stage two consists of moving two-lane, two-way traffic onto the Stage one roadway and bridge section, demolishing the existing bridge and pedestrian crossing, and constructing a portion of the new bridge in the current location of the existing bridge. Grading, paving, and barrier installation will transition the approaches from the portion of the new bridge to the existing roadway. The stage will conclude with a closure pour and installation of the interior barrier.

Construction activities in each stage will generally include the erection of falsework and the form-reinforce-pour operations for the reinforced concrete cast-in-place spanning slab and abutments. The bridge span is short enough that falsework could span over the channel without the need for temporary supports in the channel itself. Once the bridge portion has been constructed, falsework will be removed, and concrete surfaces will be finished. The wingwalls will be constructed with form-reinforce-pour operations. Backfill will be placed behind the abutment walls and approaches built up with roadway base materials. The bridge barrier, roadway approaches, and Midwest guardrail systems will be installed, and the roadway will be prepared for final surfacing and striping.

## **2.4. Conservation Measures**

### **2.4.1. Project Design Modifications for Avoidance and Minimization**

The Project will be designed to avoid permanent impacts on aquatic riverine and riparian grassland habitat to the maximum extent feasible. However, Project design modifications for avoidance and minimization of these impacts are currently under development. Temporary impacts on aquatic riverine habitat will also be avoided to the maximum extent feasible, and the original contours in the channel of Dry creek re-established after Project completion. Affected areas will be limited to the minimum extent necessary to perform the proposed work, and all work within the banks of the active channel will be restricted to the dry season (April 15 – October 15), when the Creek is expected to be dry.

### **2.4.2. Species Specific Conservation Measures – California Red-legged Frog, California Tiger Salamander, and San Joaquin Kit Fox**

The Project will employ the following general and species-specific Avoidance and Minimization Measures (AMMs) detailed in the EACCS, as well as the General Minimization Measures and applicable species-specific measures listed in the PBO for the EACCS to prevent take of California red-legged frog, California tiger salamander, and San Joaquin kit fox. These measures are excerpted verbatim, below, except where italicized text in square brackets has been added to indicate more specifically how the Project will implement those measures.

## **EACCS General Avoidance and Minimization Measures to Reduce Effects on Focal Species**

- GEN-1 Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and Avoidance and Minimization Measures (AMMs) that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.
- GEN-2 Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects to these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.
- GEN-3 Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these requirements, AMMs.
- GEN-4 The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).
- GEN-5 Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- GEN-6 Off-road vehicle travel will be minimized.
- GEN-7 Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land-cover types, or during off-road travel.
- GEN-8 Vehicles or equipment will not be refueled within 100 ft of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
- GEN-9 Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
- GEN-10 To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.
- GEN-11 Pipes, culverts and similar materials greater than four inches in diameter, will be stored so as to prevent covered wildlife species from using these as

temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.

- GEN-12 Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the Project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- GEN-13 Stockpiling of material will occur such that direct effects to covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.
- GEN-14 Grading will be restricted to the minimum area necessary.
- GEN-15 Prior to ground disturbing activities in sensitive habitats, Project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.
- GEN-16 Significant earth moving-activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1-inch of rain or more).
- GEN-17 Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.

### **PBO General Minimization Measures**

- At least 15 days prior to any ground disturbing activities, the applicant will submit to the USFWS for review and approval the qualifications of the proposed biological monitor(s). A qualified biological monitor means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the [*California tiger salamander*, *California red-legged frog*, and/or *San Joaquin kit fox*].
- A USFWS-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for the California tiger salamander, California red-legged frog, and San Joaquin kit fox [*that could result in take of any listed species*]. The USFWS-approved biological monitor(s) will be given the authority to stop any work that may result in the take of the [*California tiger salamander*,



*California red-legged frog, or San Joaquin kit fox*]. If the USFWS-approved biological monitor(s) exercises this authority, the USFWS will be notified by telephone and electronic mail within one working day. The USFWS-approved biological monitor will be the contact for any employee or contractor who might inadvertently kill or injure a [*California tiger salamander, California red-legged frog, or San Joaquin kit fox*] or anyone who finds a dead, injured or entrapped individual. The USFWS-approved biological monitor will possess a working wireless/mobile phone whose number will be provided to the USFWS.

- Prior to construction, a construction employee education program will be conducted in reference to the [*California tiger salamander, California red-legged frog, or San Joaquin kit fox*, and other sensitive species and habitats that may occur in the Project area]. At minimum, the program will consist of a brief presentation by persons knowledgeable in endangered species biology and legislative protection (USFWS-approved biologist) to explain concerns to contractors, their employees, and agency personnel involved in the Project. The program will include: a description of the species and their habitat needs; any reports of occurrences in the Project area; an explanation of the status of each listed species and their protection under the Act; and a list of measures being taken to reduce effects to the species during construction and implementation. Fact sheets conveying this information and an educational brochure containing color photographs of all listed species in the work area(s) will be prepared for distribution to the above-mentioned people and anyone else who may enter the Project area. A list of employees who attend the training sessions will be maintained by the applicant to be made available for review by the USFWS upon request. Contractor training will be incorporated into construction contracts and will be a component of weekly Project meetings.
- Preconstruction surveys for the [*California tiger salamander, California red-legged frog, and San Joaquin kit fox*] will be performed immediately prior to groundbreaking activities. Surveys will be conducted by USFWS-approved biologists. If at any point, construction activities cease for more than five consecutive days, additional preconstruction surveys will be conducted prior to the resumption of these actions.
- To prevent the accidental entrapment of special-status species during construction, all excavated holes or trenches deeper than 6 inches will be covered at the end of each work day with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped at the end of the work day to allow trapped animals an escape method. Prior to the filling of such holes, these areas will be thoroughly inspected for listed species by USFWS-approved biologists. In the event of a trapped animal is observed, construction will cease until the individual has been relocated to an appropriate location.

- The applicant will prepare a [*California tiger salamander and California red-legged frog*] translocation plan for the Project to be reviewed and approved by the USFWS prior to Project implementation. The plan will include trapping and translocation methods, translocation site, and post translocation monitoring.
- Only USFWS-approved biologists will conduct surveys and move listed species.
- All trash and debris within the work area will be placed in containers with secure lids before the end of each work day in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.
- All vegetation which obscures the observation of wildlife movement within the affected areas containing or immediately adjacent aquatic habitats will be completely removed by hand just prior to the initiation of grading to remove cover that might be used by listed species. The USFWS-approved biologist will survey these areas immediately prior to vegetation removal to find, capture and relocate any observed listed species, as approved by the USFWS.
- All construction activities must cease one half hour before sunset and should not begin prior to one half hour after sunrise. There will be no nighttime construction.
- Grading and construction will be limited to the dry season [*April 15 to October 15*].
- BMPs will be used to minimize erosion and impacts to water quality and effects to aquatic habitat. If necessary, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared.
- The applicant will ensure a readily available copy of this biological opinion is maintained by the construction foreman/manager on the Project site whenever earthmoving and/or construction is taking place. The name and telephone number of the construction foreman/manager will be provided to the USFWS prior to groundbreaking.
- The construction area shall be delineated with high visibility temporary fencing at least 4 ft in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside of the construction area. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.
- Silt fencing or wildlife exclusion fencing will be used to prevent listed species from entering the Project area. Exclusion fencing will be at least 3 ft high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 ft will be left above ground to serve as a

barrier for animals moving on the ground surface. The fence will be pulled taut at each support to prevent folds or snags [*and supports shall be placed on the inside of the fence.*] Fencing shall be installed and maintained in good condition during all construction activities. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.

- A USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the Project areas shall be removed.
- Project sites shall be revegetated with an appropriate assemblage of native riparian wetland and upland vegetation suitable for the area. A species list and restoration and monitoring plan shall be included with the Project proposal for review and approval by the USFWS and the Corps. Such a plan must include, but not be limited to, location of the restoration, species to be used, restoration techniques, time of year the work will be done, identifiable success criteria for completion, and remedial actions if the success criteria are not achieved.
- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters. 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.
- A USFWS-approved biologist shall permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The applicant shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

### **California Red-legged Frog and California Tiger Salamander**

- A USFWS-approved biologist shall survey the work site immediately prior to construction activities. If [*California red-legged frogs, California tiger salamanders, or larvae or eggs of either species*] are found, the approved biologist shall contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists as provided in the relocation plan. If the USFWS approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
- Bare hands shall be used to capture [*California red-legged frogs and/or California tiger salamanders.*] USFWS-approved biologists will not use soaps, oils, creams,

lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, USFWS-approved biologists will follow the Declining Amphibian Populations Task Force's "Code of Practice."

### **San Joaquin Kit Fox**

San Joaquin kit foxes are not expected to occur in the Project vicinity, except as rare dispersants or foragers. In the unlikely event that the species is detected during preconstruction surveys, the Conservation Measures listed below will avoid take of individual kit foxes. Additionally, avoidance of impacts to occupied kit fox dens will be implemented per the Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or during Ground Disturbance (USFWS 1999) and EACCS Measure MAMM-1.

#### **EACCS Measure MAMM-1**

- If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the proposed work area and cannot be avoided during construction, a qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999).
- Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or the following standards listed in the PBO for the EACCS:
  - Potential Den— A total of 4-5 flagged stakes will be placed 50 ft from the den entrance to identify the den location;
  - Known Den— Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 ft from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den;
  - Natal or Pupping Den— The USFWS will be contacted immediately if a natal or pupping den is discovered at or within 200 ft from the boundary of the construction area.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

## 2.5. Compensation

Compensatory mitigation for the permanent loss of 1.16 ac of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS (ICF International 2010). The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (on an acreage basis). Mitigation will take the form of purchase of mitigation credits from a conservation bank or Project-specific mitigation consisting of the preservation, enhancement, and long-term management of suitable habitat occupied by these species.

Because the Project will not impact important habitat used regularly (or possibly at all) by the San Joaquin kit fox and will not result in injury or mortality of individuals, no compensatory mitigation for impacts to this species is necessary. Furthermore, lands providing compensatory mitigation for impacts to the California red-legged frog and California tiger salamander are expected to be at least as suitable for the San Joaquin kit fox as habitats on the Project site.

## Chapter 3. Environmental Baseline

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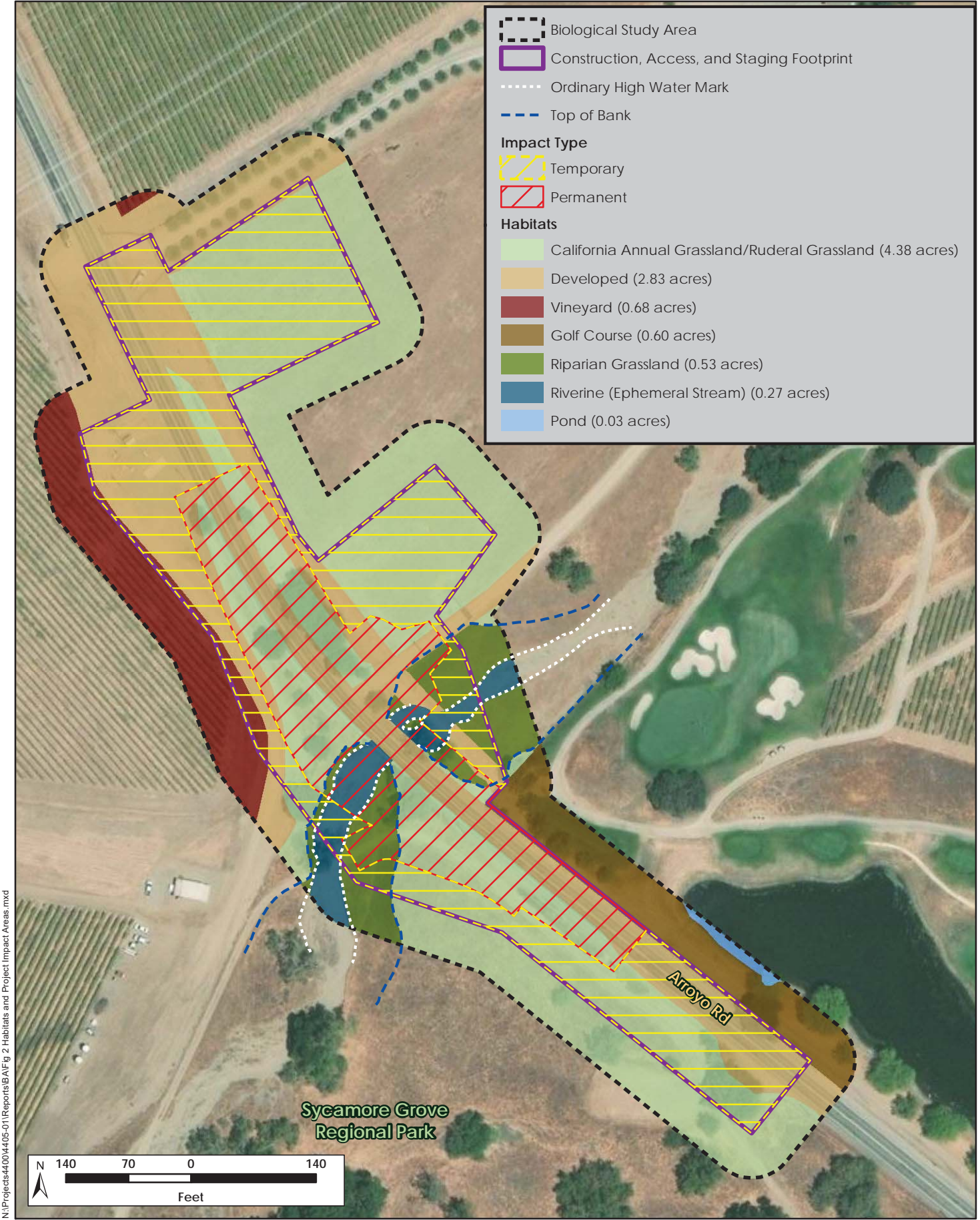
Environmental baseline refers to the condition of the listed species or its designated critical habitat in the Action Area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed federal projects in the Action Area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR §402.02).

### 3.1. Summary of Environmental Baseline

### 3.2. Description of the Action Area

The “Action Area”, as defined in 50 CFR 402.02 for the Caltrans’ Section 7 consultation with the USFWS includes all areas in which federally listed species may be affected directly and indirectly by proposed Project activities authorized by Caltrans, and by activities interdependent or interrelated with those activities. The Action Area includes the BSA and adjacent areas that may be affected by Project-related activities other than ground disturbance, including impacts from noise. Figure 2 depicts the extent of the Project footprint (i.e., the permanent and temporary impact areas) and the larger BSA that was evaluated for potential indirect effects. The extent to which indirect impacts extend outside the Project footprint is not possible to determine (e.g., the distance over which increased noise or vibration could disturb California tiger salamanders or California red-legged frogs) and may vary by species, and therefore, the precise limits of the Action Area are not mapped.

The 9.32-ac BSA is located along a 0.25 mi stretch of Arroyo Road at Dry Creek within the *Livermore, California* USGS 7.5-minute quadrangle in Alameda County, California (Figure 1). The BSA encompasses all areas and features that may be temporarily or permanently affected by the proposed Project, as well as surrounding areas that may be indirectly affected, or where important biological resources occur and were considered in the analysis. The BSA is adjacent to Wentz Vineyard properties (i.e., vineyards and golf course) found along the north, northwest, and southeast boundaries; a ranch with grazing pastures located along the northeast boundary of the BSA; and the City of Livermore’s Sycamore Grove Park, which is located along the southern and southwest boundary of the BSA. Dry Creek, an ephemeral stream that originates in the Diablo Range approximately 3.5 mi southeast from the Project site, flows northeast to southwest underneath Arroyo Road through the BSA and joins with Arroyo Valle, approximately 0.2 mi southwest of the BSA.



N:\Projects\44004\405-01\Reports\BA\Fig 2 Habitats and Project Impact Areas.mxd



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

**Figure 2. Habitats and Project Impact Areas**

Arroyo Road Over Dry Creek Bridge Project – Biological Assessment (4405-01)  
December 2022

Improvements to the lands surrounding the BSA generally consist of private paved and unpaved roads used to access private property, fences, barns, corrals, wells, water tanks, single-family homes and various outbuildings.

### 3.3. Habitat Conditions in the Action Area

#### 3.3.1. Physical Conditions

Elevations in the BSA range from approximately 496 ft to 538 ft above mean sea level (North American Vertical Datum of 1988) (Google Inc. 2022). Mild cool temperatures are common in the winter. The summer is characterized by mild to hot temperatures. Climate conditions in the BSA include a 30-year average of approximately 15.6 inches of annual precipitation, and an average temperature range from 48.6°F to 71.9°F (PRISM 2022).

The BSA is underlain by five soil types: 1) Livermore (Lm), a very gravelly coarse sandy loam; 2) Pleasanton (PgB), a gravelly loam, 3-12 % slopes; 3) Riverwash (Rh); 4) Shedd silt loam (SdE2), 30-45 % slopes, eroded; and 5) Shedd, a paralithic bedrock (NRCS 2022). Serpentine soils are not present within the BSA.

The existing bridge crosses Dry Creek, which originates in the Diablo Range and joins with Arroyo Valle.

#### 3.3.2. Biological Conditions

Seven biotic habitat/land cover types were identified within the 9.23-ac BSA (Figure 2), which are listed below in Table 2. Appendix C includes photos of various habitats across the BSA. Vegetation and wildlife occurrence within each of these biotic habitat/land cover types is described in more detail below.

Table 2: Biotic Habitat/Land Cover Types within the BSA

<b>Biotic Habitat/Land Cover Type</b>	<b>Acreage within the BSA</b>	<b>Percent (%) of the BSA</b>
California Annual Grassland/Ruderal Grassland	4.38	47%
Developed	2.83	30%
Vineyard	0.68	7%
Golf Course	0.6	6%
Riparian Grassland	0.53	6%
Riverine (Ephemeral Stream)	0.27	3%
Pond	0.03	1%
<b>Total</b>	<b>9.32</b>	<b>100%</b>



### 3.3.2.1. California Annual Grassland/Ruderal Grassland

**Vegetation.** The majority (4.38 ac) of the BSA consists of California annual grassland/ruderal grassland habitat (Photos 1 through 4, Appendix D) with scattered trees. Much of this habitat is dominated by a suite of non-native grasses, such as foxtail barley (*Hordeum murinum*), wild oat (*Avena fatua*), smilo grass (*Stipa miliacea*), and ripgut brome (*Bromus diandrus*). Common weedy, non-native forbs include bristly ox tongue (*Helminthotheca echioides*), dove's-foot crane's-bill (*Geranium molle*), and cheeseweed (*Malva parviflora*). Very few native grassland and forb species occur in this habitat; however, a few small patches of native tall annual willowherb (*Epilobium brachycarpum*) and common fiddleneck (*Amsinckia intermedia*) were observed. Scattered trees occur throughout the grasslands in the BSA, including mature native coast live oaks (*Quercus agrifolia*), blue oaks (*Quercus douglassii*), California sycamores (*Platanus racemosa*), California buckeyes (*Aesculus californica*), and one mature valley oak (*Quercus lobata*). Other species of mature trees found in this habitat include non-native olive (*Olea europea*) and pine (*Pinus* sp.) trees.

Several invasive species occur in the grasslands of the BSA, including but not limited to, stinkwort (*Dittrichia graveolens*), yellow star thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). The grassland habitat in the southwest portion of the BSA (within Sycamore Grove Park) is infrequently disturbed and therefore is taller and denser than the grassland habitats found in the northeast area of the BSA, which are disturbed by grazing and therefore shorter and less dense with more ruderal vegetation.

**Wildlife.** Small mammals such as the California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) are common residents of annual and ruderal grasslands, and burrows of these species were observed in the BSA. Deer mice (*Peromyscus maniculatus*) and California voles (*Microtus californicus*) are likely common throughout this habitat as well. Black-tailed deer (*Odocoileus hemionus columbianus*) are common browsers in this habitat, and coyotes (*Canis latrans*) hunt prey in the grasslands of the BSA.

A number of common bird species may utilize the scattered trees in this habitat for cover, nesting, and foraging, including Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Dryobates nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), Hutton's vireo (*Vireo huttoni*), California scrub-jay (*Aphelocoma californica*), violet-green swallow (*Tachycineta thalassina*), chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltiriparus minimus*), and Bewick's wren (*Thryomanes bewickii*). These trees may also provide hunting perches and nesting substrate for native raptors, such as the great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*).

Bird species that nest in nearby woodland habitats will forage within grassland areas during the nesting season as well; these include the western bluebird (*Sialia mexicana*), violet-green swallow, mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), and California scrub-jay. Raptors such as the red-tailed hawk and white-tailed kite (*Elanus leucurus*) may forage for small mammals within these grassland habitats.

Several reptile species regularly occur in grassland habitats, including the western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), Pacific rattlesnake (*Crotalus oreganus*), and common kingsnake (*Lampropeltis getula*). Burrows of Botta's pocket gophers provide refugia for these reptile species, as well as for common amphibians such as the western toad (*Anaxyrus boreas*) and Pacific treefrog (*Pseudacris regilla*).

Mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and the non-native Virginia opossum (*Didelphis virginiana*) are also expected to occur in this habitat type. Trees with cavities or loose bark may provide roosting habitat for small numbers of bats, including the California myotis (*Myotis californicus*) and Mexican free-tailed bat (*Tadarida brasiliensis*), but no trees capable of supporting large day roosts are present in the BSA, and no evidence of substantial day roosts or maternity colonies were observed during the reconnaissance survey.

### 3.3.2.2. Developed

**Vegetation.** Approximately 2.83 ac of developed habitat is present in the BSA in the form of the existing bridge, wooden pedestrian pathway (Photos 5 and 6, Appendix C), hardscaped areas along Arroyo Road, and hard pack dirt and gravel roads (Photo 7, Appendix C). Small landscaped areas with ornamental trees are found along the edges of the ranch property driveway, east of Arroyo Road and adjacent to the Wente Vineyards Golf Course in the southeast section of the BSA. With the exception of minimal ornamental vegetation such as a Japanese cherry tree (*Prunus serrulata*) and ornamental rose (*Rosa* sp.) bushes, these areas are unvegetated and heavily/frequently disturbed.

**Wildlife.** Although these developed areas provide little to no wildlife habitat value, some wildlife species that are typically accustomed to high levels of human disturbance may occur in this habitat. These include native bird species such as the native house finch and non-native European starling (*Sturnus vulgaris*) and rock pigeon (*Columba livia*). Additional bird species, such as Anna's hummingbird, American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), and lesser goldfinch may utilize trees or other vegetation within developed areas for nesting. Mammals such as the non-native house mouse (*Mus musculus*) and Norway rat (*Rattus norvegicus*) and the native raccoon can also occur in developed portions of the BSA. Reptiles such as western fence lizards and gopher snakes bask on the paved surfaces in order to raise their body temperature.

### 3.3.2.3. Vineyard

**Vegetation.** The vineyard land cover type encompasses 0.68 ac in the northeast section of the BSA (Photo 9, Appendix D). No trees or other naturally occurring vegetation is present in this intensively cultivated vineyard area of the BSA.

**Wildlife.** This vineyard land cover type supports relatively few wildlife species due to the frequent disturbance associated with farming, the low stature of the vineyard trellises,

and the lack of structural diversity in the vegetation. Rodent control is practiced throughout many agricultural and vineyard fields, reducing the abundance of small mammals and the suitability of these fields as foraging habitat for raptors and larger mammals that prey on smaller mammals. Nevertheless, the infrequency of human presence and heterogeneity of habitats in some agricultural and vineyard areas results in fairly heavy wildlife use, at least by some species. California ground squirrel and Botta's pocket gopher burrows occur along margins of the vineyard within the BSA, and raptors such as red-tailed hawks, American kestrels (*Falco sparverius*), and white-tailed kites forage at the edges of fields. Gopher snakes and western fence lizards are among the reptiles that forage at the edges of vineyard and agricultural lands.

#### **3.3.2.4. Golf Course**

**Vegetation.** The Wente Vineyards Golf Course comprises approximately 0.60 ac of the BSA on the east side of Arroyo Road in the southeast section of the BSA (Photo 8, Appendix D). A few trees, including olive and California sycamore planted along the paved golf course pathway, fall within this habitat type in the BSA. The remainder of this land cover type within the BSA consists of manicured lawn.

**Wildlife.** Wildlife use of the golf course within the BSA is limited by human disturbance (e.g., due to mowing and recreational use) and the limited extent of the vegetation present. Nevertheless, this vegetation provides some value to local wildlife species. Trees provide nesting and foraging opportunities for urban-adapted species of birds such as the Anna's hummingbird, American robin, and mourning dove. Additional common bird species that could nest in trees and other vegetation on the golf course include the American crow, house finch, lesser goldfinch, bushtit, and dark-eyed junco (*Junco hyemalis*). Migrants and wintering birds such as the white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), yellow-rumped warbler (*Setophaga coronata*), and cedar waxwing (*Bombycilla cedrorum*) will forage in the trees within the golf course during spring, fall, and winter.

The urban-adapted, non-native eastern gray squirrel (*Sciurus carolinensis*) may utilize the larger California sycamore trees on the golf course for nesting and foraging. Native raccoons and striped skunks and non-native Norway rats, and house mice are also common in these habitats. Western fence lizards commonly occur on golf courses, and may bask on paved pathways in order to raise their body temperature.

#### **3.3.2.5. Riverine (Ephemeral Stream)**

Dry Creek was mapped as riverine (ephemeral stream) habitat and its channel makes up approximately 0.27 ac of the BSA. Ephemeral streams convey water during and immediately following rain events, and then dry out shortly afterwards, typically staying dry throughout the summer months. No water or wet conditions were present in Dry Creek during the reconnaissance surveys conducted in February 2020. Dry Creek has a narrow channel bed (15-20 ft) on the east side of the existing bridge. The channel runs underneath the bridge on Arroyo Road to the southwest, where it widens to

approximately 47 ft. The substrate of the channel bed consists of sand, gravel, and some small to medium cobble.

The northwest bank of Dry Creek cuts into the upslope of the riparian grassland habitat (Photo 10, Appendix C). The remaining banks at OHWM are relatively shallow and intergrade with the adjacent grassland habitats that are part of the floodplain of Dry Creek (Photo 11, Appendix C), up to the mapped top of bank as shown on Figure 3. A portion of the channel that is immediately east of the existing bridge is cut off from the eastern extent of the channel by a hard pack gravel service road (Photo 12, Appendix C).

No emergent wetland vegetation was observed within the riverine habitat of Dry Creek, although there were a few scattered patches of a hydrophytic rush (*Juncus* sp.). However, the density of this species did not meet the minimum 5% cover threshold for vegetated wetlands. The majority of the riverine habitat was not shaded, with the exception of small areas near the existing bridge where large trees were present. The channel contains some woody debris (e.g., downed limbs), from adjacent trees and a few patches of ruderal grasses and forbs, primarily on the east portion of the channel. (Photo 3 of Appendix C shows this vegetation in the channel).

**Wildlife.** The ephemeral nature of Dry Creek precludes the presence of fish. Similarly, aquatic wildlife species are not expected to occur regularly within the channel, but may utilize this habitat for dispersal when water is present. Wildlife using adjacent habitats are expected to forage and take shelter in the vegetation along the banks of the channel. However, due to the limited extent of this habitat type within the BSA, it is not expected to support wildlife species not found in adjacent, more extensive, grassland habitats.

### 3.3.2.6. Riparian Grassland

Riparian habitat in the BSA (0.53 ac) comprises grassy habitats similar to the California Annual Grassland discussed in section 3.3.2.1. Riparian trees are largely absent from this habitat type, with the exception of one mature, 58-inch diameter at breast height California sycamore rooted within the channel of Dry Creek (Photo 4, Appendix C). The herbaceous layer of this habitat supports similar species to those found in the adjacent grassland habitat, with which it intergrades with to the north.

**Wildlife.** Riparian habitat is typically of high value to wildlife, with water and streamside vegetation supporting a diverse and abundant fauna. However, the lack of structural diversity and limited extent of riparian trees in the BSA, as well as the generally dry conditions of Dry Creek for the most of the year, greatly limits its value for wildlife. Riparian grasslands mapped in the BSA consist of non-native grasslands with sparsely scattered native trees intergrading into the surrounding habitats. Thus, the species occurring within the surrounding grassland habitats (described above) are expected to utilize this habitat as well.

### 3.3.2.7. Pond

**Vegetation.** A portion of the pond on the Wente Vineyards Golf Course makes up approximately 0.03 ac of the BSA (Photo 8, Appendix C). It is located in the southeast section of the BSA and is surrounded by manicured lawns of the golf course and bordered on its west side by two non-native Chinese weeping willows (*Salix* sp.) and a native California sycamore. The pond does not support any emergent vegetation within the section of the BSA where it occurs.

**Wildlife.** Ponds and other water features on golf courses typically support relatively few wildlife species due to heavy disturbance from golf course management activities, including the removal of emergent aquatic vegetation in ponds. Nonetheless, a few aquatic species may occur in the pond including the native Pacific treefrog and western toad, as well as non-native bullfrogs (*Lithobates catesbeianus*), red swamp crayfish (*Procambarus clarkia*), and red-eared sliders (*Trachemys scripta elegans*).

No fish were observed in the pond during the reconnaissance survey; however, it is possible that the pond may provide habitat for some non-native fish species such as western mosquitofish (*Gambusia affinis*), which in the past were introduced to golf course water features to reduce the levels of mosquito larvae.

Invertebrates likely to be present in this habitat include species in the orders Diptera (aquatic flies), Trichoptera (caddisflies), and Ephemeroptera (mayflies).

A number of bird species may forage across the pond and at its edges including violet-green swallows, black phoebe (*Sayornis nigricans*), spotted sandpiper (*Actitis macularius*), as well as a number of common waterbird species such as the American coot (*Fulica americana*), Canada goose (*Branta canadensis*), and mallard (*Anas platyrhynchos*).

### 3.3.3. Habitat Conditions for Listed Species

In addition to the common wildlife species listed above, all habitats in the BSA provide at least one of the USFWS defined physical or biological features (PBFs) essential for the conservation of the California red-legged frog and California tiger salamander as discussed in this BA. These features, along with suitable habitat conditions found in the BSA for the San Joaquin kit fox (which does not have USFWS defined PBFs, due to the absence of designated Critical Habitat for the species) are discussed in detail in Section 3.4.6, below.

## 3.4. Status of Federally-Listed/Proposed Species

Table 3, below, lists all plant and wildlife species that are listed as endangered, threatened, proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) ([7 USC§136](#), [16 USC§1531](#) et seq.) that occur in the Project region, developed from the resources described in Section 1.6.

### 3.4.1. Plant Species

Only one federally-listed plant, Palmate-bracted bird's beak, is known to occur in the Project region, and it was determined to be absent from the BSA based on (1) a lack of suitable microhabitat conditions within the BSA, (2) a lack of suitable edaphic conditions, and (3) the level of disturbance within the BSA. A search of the California Natural Diversity Database (CNDDDB) yielded no records of federally listed or proposed plant species within the Project vicinity.

### 3.4.2. Animal Species

A number of federally listed animal species are known to occur in the Project region, but most are not expected to occur on the site because of the lack of suitable habitat or because the site is outside of the known range of the species. These species are included in Table 3, below, to indicate the rationale for considering them absent from the site. CNDDDB-mapped occurrences of federally listed, proposed, and candidate animal species within the Project vicinity are shown on Figure 3.

Three federally listed or proposed animal species have some potential to occur in habitats in or adjacent to the site and may potentially be affected by the Project: the California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The biology of those species is discussed in detail below. Section 4.4 discusses the reasoning for the determinations of Project effects on these species in detail.

Table 3: Threatened, endangered, and proposed species and effect determinations

Common Name	Scientific Name	<sup>1</sup> Status	General Habitat Description	Presence of Species in Action Area (Yes/No)	Rationale	Determination
Palmate-bracted bird's beak	<i>Cordylanthus palmatus</i>	FE	Alkaline flats or barrens within chenopod scrub and valley/foothill grassland.	No	Suitable alkaline flat or barrens are absent from the BSA. Only known in Alameda County from the Livermore Wetlands Preserve, approximately 6 mi east of the BSA. Considered absent due to lack of suitable habitat.	No effect
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE	Ephemeral freshwater and playa pools in the Central Valley and the San Francisco Bay Area.	No	No CNDDDB records of the species are found within the BSA region. Furthermore, the BSA is outside of the species' range and the East Alameda County Conservation Strategy (EACCS) does not map any portions of the BSA (or adjacent areas) as suitable habitat for this species (ICF International 2010). Determined to be absent.	No effect

Common Name	Scientific Name	<sup>1</sup> Status	General Habitat Description	Presence of Species in Action Area (Yes/No)	Rationale	Determination
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FE	Ephemeral freshwater and vernal pools in the Central Valley and the San Francisco Bay Area.	No	The nearest historical CNDDDB records of the species is found approximately 6 mi north of the BSA, where in the early 1990s individuals of the species were found in an alkali sink containing vernal pools on the Springtown site. Other individuals were found in pools within seasonal wetlands on the Stonechase site. The most recent record comes from 2005, when the species was detected in vernal pools in a heavily grazed pasture north of Livermore, approximately 7 mi northeast of the BSA (CNDDDB 2022). However, no suitable habitat for the species was identified within the BSA. Further, the EACCS does not map any portions of the BSA (or adjacent areas) as suitable habitat for this species (ICF International 2010). Determined to be absent.	No effect

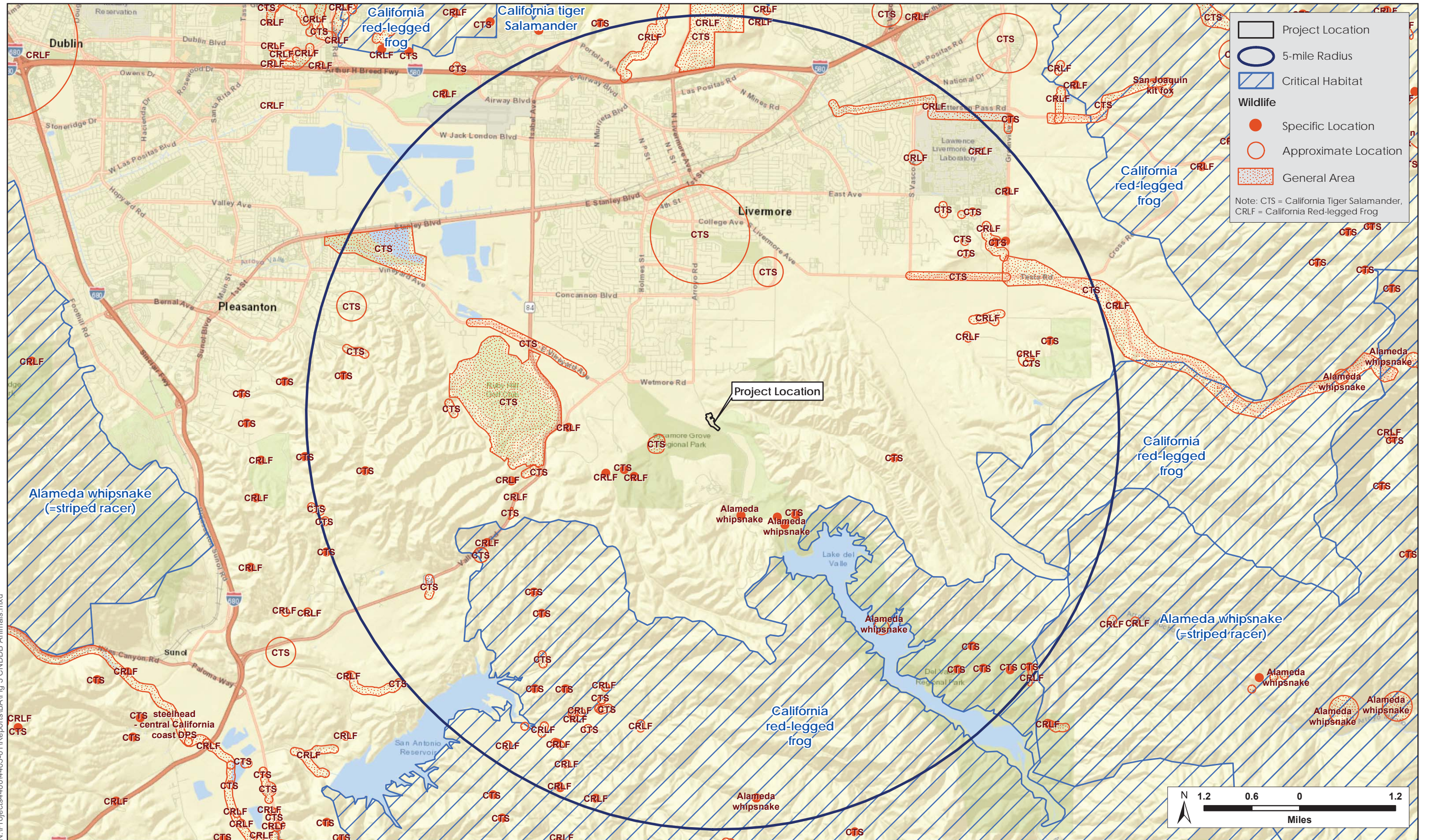


Common Name	Scientific Name	<sup>1</sup> Status	General Habitat Description	Presence of Species in Action Area (Yes/No)	Rationale	Determination
Delta smelt	<i>Hypomesus transpacificus</i>	FT	Shallow, tidal water in the Sacramento/San Joaquin River Delta.	No	Dry Creek is an ephemeral stream which lacks sufficient hydroperiod in the BSA for the Delta smelt or other fish. Determined to be absent.	No effect
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT	Primarily associated with scrub and chaparral. Also may occur in any associated inner Coast Range plant community.	No	Although the EACCS maps the BSA as part of a recovery unit area for the species (ICF International 2010), there is no primary scrub or chaparral habitat within or near the BSA. Determined to be absent.	No effect
California red-legged frog	<i>Rana draytonii</i>	FT	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	Yes. Present in the BSA as a forager, dispersant, and possibly as a breeder.	California red-legged frogs are known in Arroyo Valle, which flows within 1000 ft of the BSA, and suitable upland dispersal, foraging, and refugial habitat is present in the BSA. Ostensibly suitable breeding habitat is also present in the southwest corner of the BSA, but breeding is not known in the BSA.	May affect, likely to adversely affect

Common Name	Scientific Name	<sup>1</sup> Status	General Habitat Description	Presence of Species in Action Area (Yes/No)	Rationale	Determination
California tiger salamander	<i>Ambystoma californiense</i>	FT	Vernal or temporary pools in annual grasslands or open woodlands.	Yes. Present in the BSA as a forager, dispersant, and possibly as a breeder.	The species is known to breed within dispersal distance of the BSA, and suitable upland dispersal, foraging, and refugial habitat is present in the BSA. Ostensibly suitable breeding habitat is also present in the southwest corner of the BSA, but breeding is not known in the BSA.	May affect, likely to adversely affect
California least tern	<i>Sternula antillarum browni</i>	FE	Nests along the coast on bare or sparsely vegetated, flat substrates. In the San Francisco Bay, nests in salt pannes and on an old airport runway. Forages for fish in open waters.	No	No nesting, roosting, or suitable open water foraging habitat is present in the BSA. Determined to be absent.	No effect

Common Name	Scientific Name	<sup>1</sup> Status	General Habitat Description	Presence of Species in Action Area (Yes/No)	Rationale	Determination
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	Extensive open grasslands or grasslands with scattered shrubby vegetation.	Yes	Suitable grassland is present in the BSA, and the BSA is within the historic range of the species. However, all available current data indicate that the current range of the San Joaquin kit fox does not extend into the BSA. Nevertheless, individual kit foxes may occur in the BSA as rare dispersants or foragers.	May affect, not likely to adversely affect

<sup>1</sup>Status: Federally Endangered (FE); Federally Threatened (FT).



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**Figure 3. CNDDDB-Mapped Records of Federally Listed Animal Species**

### 3.4.3. Discussion of the California Red-legged Frog

#### Distribution

The historical distribution of the California red-legged frog extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. However, the species' current distribution is much reduced. The species is predominantly extirpated from the southern Transverse and Peninsular ranges, and there are only five or six known populations in the Sierra foothills, and only two extant populations in southern California (Fellers 2005). In the central California Coast Ranges, California red-legged frogs are still present throughout much of their former range, although the number of extant populations has been reduced substantially (Fellers 2005).

#### Habitat and Biology

The California red-legged frog inhabits perennial freshwater pools, streams, and ponds. California red-legged frogs have been observed in a number of aquatic and terrestrial habitats throughout their historical range. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (Jennings 1988). The key to this species' occurrence in these habitats is the presence of perennial, or near perennial, water and a general lack of introduced aquatic predators such as centrarchid fishes (e.g., largemouth bass [*Micropterus salmoides*], green sunfish [*Lepomis cyanellus*], and bluegill [*Lepomis macrochirus*]), crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), and bullfrogs. As long as there is standing water at least several inches deep, and introduced aquatic predators are rare or nonexistent, conditions are at least potentially suitable for red-legged frogs. If the aquatic habitat favors introduced aquatic predators, then red-legged frogs will probably disappear over time unless there is a nearby breeding site available that excludes introduced predators. Adults need dense shrubby or emergent riparian vegetation closely associated with deep (more than 2.3 ft deep) still or slow-moving water (USFWS 2015). Preferred breeding habitat consists of deep perennial pools with emergent vegetation such as cattails, tules (*Scirpus* spp.), or sedges for attaching egg clusters (Hayes and Jennings 1988, Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). However, California red-legged frogs have also been observed to inhabit stock ponds, sewage treatment ponds, and artificial (i.e., concrete) pools completely devoid of vegetation (Storer 1925). Continued survival of frogs in all aquatic habitats seems to be based on the continued presence of ponds, springs, or pools that are disjunct from perennial streams. Such habitats provide the continued basis for successful reproduction and recruitment year after year into nearby drainages that may lose frog populations due to stochastic events such as extreme flooding or droughts. Non-breeding frogs may be found adjacent to streams and ponds in grasslands and woodlands. They use small mammal burrows in or under vegetation, willow root wads, the undersides of old boards and other debris within the riparian zone, and large cracks

in the bottom of dried ponds as refugia (Jennings and Hayes 1994, USFWS 2002). Individuals may also occasionally use ground squirrel burrows as refugia (Tatarian 2008).

Adults have been observed to breed from late November through early May after the onset of warm rains (Storer 1925, Jennings and Hayes 1994). Females attach an egg mass of 2,000 to 6,000 moderate-sized (0.08 to 0.11-inch diameter) eggs to an emergent vegetation brace, such as tule stalks, annual grasses (Poaceae), or willow roots just below the water surface (Storer 1925). Embryos hatch in 1 to 4 weeks, and the resulting larvae require 3 to 5 months to attain metamorphosis (Cook 1997). Most larvae metamorphose into juvenile frogs between July and September. Adult frogs apparently eat a variety of animal prey, including invertebrates, small fishes, frogs, and small mammals (Hayes and Tennant 1985, Arnold and Halliday 1986).

California red-legged frogs do not have a distinct breeding migration. Some frogs remain at breeding sites all year while others disperse. Red-legged frogs are often found in summer months in summer foraging habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat. Movements may occur along riparian corridors, but some individuals move directly from one site to another through normally inhospitable habitats (e.g., heavily grazed pastures or oak-grassland savannas) (USFWS 2002, Fellers 2005, Fellers and Kleeman 2007). Evidence from marked and radio-tagged frogs on the San Luis Obispo County coast suggests that frog movements, via upland habitats, of about 1 mi are possible over the course of a wet season (USFWS 2002). A radio-tracking study in Marin County found a range of migration distances (0.02–0.87 mi, straight-line) (Fellers and Kleeman 2007), and migrating frogs in northern Santa Cruz County traveled straight-line distances of 0.12–1.74 mi (Bulger et al. 2003). The distance moved is highly site-dependent, as influenced by the local landscape (Fellers and Kleeman 2007). The USFWS (2010) considered 1 mi a more typical dispersal distance for the species in its critical habitat designation.

## Threats

Current working hypotheses to explain the decline of the California red-legged frog include climate change, increased exposure to UV-B and pesticides, historical over-harvesting, habitat destruction, and introduced species. These factors may work synergistically to decrease the California red-legged frogs' chances for persistence (Hayes and Jennings 1988, Fisher and Shaffer 1996, Kiesecker et al. 2001, Blaustein and Kiesecker 2002, Doubledee et al. 2003). Recent studies of California red-legged frog distribution have found an association between declines of the frog and landscape-level factors, such as upwind pesticide use and extent of urbanization (Davidson et al. 2001, 2002, Davidson 2004, D'Amore et al. 2009).

### **3.4.4. Discussion of the California Tiger Salamander**

#### Distribution

The California tiger salamander occurs in the Central Valley and the South Coast Range of California from Yolo County south to Santa Barbara County. In the Coast Ranges, California tiger salamanders occur in scattered populations from Sonoma County south to Santa Barbara County, while in the Central Valley and the foothills of the Sierra Nevada the species occurs from Yolo County south through the San Joaquin Valley to Kern County.

### Habitat and Biology

The California tiger salamander is an endemic member of the California grassland community. The California tiger salamander's preferred breeding habitat consists of temporary (a minimum of 3 to 4 months), ponded environments (e.g., vernal pool, ephemeral pool, or human-made pond) surrounded by uplands that support small mammal burrows. Such ponds provide breeding and larval habitat, while burrows of small mammals such as California ground squirrels and valley pocket gophers in upland habitats provide refugia for juvenile and adult salamanders during the dry season. Ponds that contain populations of exotic predatory fishes, crayfish, and bullfrogs appear unsuitable as breeding habitat (Collins et al. 1988, Shaffer et al. 1993, Jennings and Hayes 1994, Fisher and Shaffer 1996, Shaffer and Trenham 2005).

Although larvae develop in the pools and ponds in which they were hatched, the species is otherwise terrestrial, spending most of its post-metamorphic life in widely dispersed, underground retreats (Trenham 2001). Adults are rarely encountered, even where they are known to be abundant, spending most of the year in or near upland refugia (Storer 1925, Barry and Shaffer 1994, Shaffer and Trenham 2005). Seasonal migration of adults to pools and ponds occurs only for the purposes of breeding. California tiger salamanders avoid desiccation during the dry months of summer and autumn by taking refuge in burrows excavated by ground squirrels and other burrowing mammals. After autumn rains commence, they emerge and begin nocturnal migrations, congregating at breeding sites. Eggs are deposited singly or in small groups of 2 to 4 in relatively shallow water (Storer 1925, Twitty 1941). Following breeding, adults move away from ponds to upland refugia. Eggs hatch 2 to 4 weeks after deposition (Storer 1925, Twitty 1941), and a minimum of approximately 10 weeks is required to complete development through metamorphosis (Jennings and Hayes 1994). Thus, aquatic breeding sites must retain water for a minimum of three months. Following metamorphosis, juveniles leave the drying ponds in late spring or summer and move at night to upland refugia. Juveniles and adults emerge from refugia on cool, moist, or foggy nights to feed on a wide variety of invertebrate and small vertebrate prey (Shaffer et al. 1993).

According to the Final Rule for listing the central population of the California tiger salamander as threatened under FESA (USFWS 2004), "Adult California tiger salamander have been observed up to 2,092 meters (1.3 mi) from breeding ponds (S. Sweet, University of California, Santa Barbara, in litt. 1998), which may be vernal pools, stock ponds, or other seasonal or perennial water bodies." Dr. Sweet has confirmed to H. T. Harvey & Associates that the individual salamander to which this report referred was actually 0.9 mi from the nearest pond, and 1.05 mi from the pond to which Dr.

Sweet thought the salamander was traveling (S. Sweet, pers. comm. 2006). Austin and Shaffer (1992) reported dispersal distances of at least 1 mi. Trenham et al. (2001) observed a high probability of adult California tiger salamander dispersing between pools up to 2,200 ft apart but did not observe dispersal events longer than 2,300 ft. Trenham and Shaffer (2005) estimated 50, 90, and 95% of adult California tiger salamanders were within 492, 1,608, and 2,034 ft of their study pond, respectively, and that 95% of juvenile California tiger salamanders were within 2,067 ft of the pond, with 85% concentrated between 656 and 1,969 ft, but none were found at 2,625 ft. However, Orloff (2007) reported longer-distance dispersal by a few individuals in a population in Pittsburg, California. Her results suggest that some individuals may have been traveling at least 1.3 mi from aquatic breeding habitat to upland refugial habitat. Collectively, these studies suggest that dispersal distances may vary among populations and/or sites, that California tiger salamander abundance likely decreases with increasing distance from a breeding pond, and that a few individuals may disperse up to 1.3 mi from breeding areas.

### Threats

The primary cause of the decline of California tiger salamander populations is the loss and fragmentation of habitat from human activities and the encroachment of non-native predators (Barry and Shaffer 1994, Fisher and Shaffer 1996, Davidson et al. 2002, USFWS 2018). The conversion of grasslands to urban or agricultural uses eliminates ephemeral pools and upland refugia, and grading operations probably result in the mortality of large numbers of adult salamanders (Barry and Shaffer 1994). Hybridization between the threatened native California tiger salamander and the introduced barred tiger salamander (*Ambystoma tigrinum mavortium*) is also a potential threat.

Other potential threats to the California tiger salamander include automobiles and off-road vehicles, which kill a significant number of migrating individuals (Twitty 1941, Barry and Shaffer 1994), and the reduction of ground squirrel populations to low levels through widespread rodent control programs. Such programs may reduce availability of burrows and adversely affect the California tiger salamander (Loredo et al. 1996). Further, poison typically used on ground squirrels is likely to have a disproportionately adverse effect on California tiger salamanders, which are smaller than the target species and have permeable skins (USFWS 2018).

### **3.4.5. Discussion of the San Joaquin Kit Fox**

#### Distribution

Grinnell et al. (1937) described the range of the San Joaquin kit fox prior to 1930 as including most of the San Joaquin Valley from southern Kern County north to Tracy in San Joaquin County on the west side of the Valley and up to La Grange in Stanislaus County on the east side. However, by 1930, they believed that the range of the San Joaquin kit fox had been reduced by half. Subpopulations of the San Joaquin kit fox appear to be increasingly isolated from one another due to developments within its range including cities, aqueducts, irrigation canals, surface mining, road networks,



petroleum fields, other industrial projects, and wind farms (USFWS 1998). The species' range currently includes much of the San Joaquin Valley and adjacent foothills, and interior valleys in San Luis Obispo, Monterey, and San Benito counties, as well as the hills east of the Livermore Valley. Although the majority of the kit fox population occurs in the southern San Joaquin Valley, satellite populations and individuals occur on the western edge of the San Joaquin Valley extending north nearly to Antioch in Contra Costa County (Bell 1994). The "northern range" of the San Joaquin kit fox is considered to be that portion of the range north of the Santa Nella area (State Route 152) along the western foothills of the coast range.

### Habitat and Biology

The San Joaquin kit fox is primarily nocturnal and typically occurs in annual grassland or mixed shrub/grassland habitats in low, rolling hills and valleys. It requires underground dens for temperature regulation, shelter, reproduction, and predator avoidance. Kit foxes commonly modify and use dens constructed by other animals and have also been known to use human-made structures (USFWS 1998). Dens are usually located in loose-textured soils on slopes less than 40 degrees, but vary across the species' geographic range in the number of openings, shape, and ground slope (USFWS 1998). San Joaquin kit foxes change dens frequently and often use numerous dens each year.

Breeding occurs from December through February with pups usually born in February or March. One litter per year, with an average of four pups per litter, is typical (McGrew 1979). The pups remain with their parents until June or July of their birth year and usually disperse between 0.6 mi and 4.4 mi; however, a six-year study at Elk Hills Naval Petroleum Reserves in California reported average dispersal distances of  $5.0 \pm 0.9$  mi (Scriver et al. 1987).

### Threats

Threats to the species include road mortality, increased interspecies competition, reduced prey availability, loss and degradation of habitat by agricultural, industrial, and urban developments and associated practices, decreased carrying capacity of remaining habitat (such losses contribute to kit fox declines through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations), reduced den availability, displacement to marginal habitats, non-native species introductions, and urban-associated benefit to competitive or predatory species. Human actions or natural disturbances that contribute to the fragmentation and subsequent isolation of San Joaquin kit fox populations or their habitat have the potential to move the species closer to extinction. Kit foxes have been observed to disperse across disturbed habitats such as agricultural fields, oil fields, rangelands, highways, and aqueducts (Scriver et al. 1987; see USFWS 1998), but maintaining movement corridors to connect subpopulations remains an important goal of recovery efforts for this species.

### **3.4.6. Survey Results**

#### **3.4.6.1. California Red-legged Frog**

The USFWS has identified four PBFs essential for the conservation of the California red-legged frog. Briefly, they are: aquatic breeding habitat, aquatic non-breeding habitat, upland habitat, and dispersal habitat. All of these PBFs are present in the BSA.

Potentially-occupied aquatic breeding habitat is found in Arroyo Valle, approximately 1000 ft southwest of the BSA, as well as in the Wente Vineyards Golf Course pond, within and southeast of the BSA. While neither of these aquatic habitats are known breeding locations, the CNDDDB identifies breeding in reaches of Arroyo Valle 1.3 mi southeast (approximately 1.75 mi upstream) of the BSA (CNDDDB 2022). While this linear distance is beyond the typical upland dispersal distance for the species, breeding is reasonably likely to occur in other reaches of Arroyo Valle, including reaches that pass within approximately 1000 ft of the BSA as described above. Breeding is also known from a 2005 CNDDDB record in a stock pond approximately 1.15 mi southeast of the BSA. Again, while this is somewhat beyond the species' typical dispersal distance, it is within dispersal distance of Arroyo Valle where it flows within 1000 ft of the BSA.

Aquatic non-breeding habitat is found in Dry Creek, and individuals from nearby breeding populations may occupy Dry Creek when water is present during periods of precipitation. The BSA's grasslands also provide upland habitat where individuals may forage or take shelter in the small mammal burrows clustered throughout the site, and individuals may disperse across all habitats within the BSA, as substantial barriers to movement are largely absent.

The EACCS maps the BSA as potential upland/movement habitat for the California red-legged frog (ICF International 2010).

#### **3.4.6.2. California Tiger Salamander**

The USFWS has identified three PBFs for the California tiger salamander. Briefly, they are: (1) standing bodies of fresh water for breeding, (2) barrier-free upland habitats adjacent to breeding habitats with small mammal burrows, and (3) dispersal habitats between occupied locations with small mammal burrows. All of these PBFs are present in the BSA. While breeding is not known in the BSA, the CNDDDB records indicate that breeding occurs within the species' maximum known dispersal distance (1.3. mi) in a stock pond approximately 0.65 mi west-southwest of the BSA (CNDDDB 2022). Arroyo Valle separates this breeding location from the BSA, but likely does not constitute a complete barrier to dispersal onto the Project site. The Wente Vineyards golf course pond, within and adjacent to the BSA, also provides ostensibly suitable breeding habitat, though, as noted above, breeding is not currently known in this location. The grasslands in the BSA provide upland habitats with small mammal burrows adjacent to this potential breeding habitat, and all habitats in the BSA provide dispersal habitat.

The EACCS maps the BSA as potential upland habitat for the California tiger salamander (ICF International 2010).

#### **3.4.6.3. San Joaquin Kit Fox**

The grassland habitats in the BSA provide ostensibly suitable foraging and dispersal habitat for the San Joaquin kit fox. However, all available data indicates that the current range of the San Joaquin kit fox does not extend into the Project region (USFWS 2020). An historical CNDDDB record of a kit fox den with two adults and two juveniles was recorded in 1989, approximately 7 mi northeast of the BSA, north of the Lawrence Livermore National Laboratory Site and Patterson Pass Road (CNDDDB 2022), and the closest more recent record (2002) is approximately 12 mi to the east (CNDDDB 2022). Additionally, scent dog surveys conducted in 2018 at the Lawrence Livermore National Laboratory Site detected no kit fox sign across approximately 20.5 mi of transects (USFWS 2020). Given the existing high levels of human disturbance and lack of recent records in the Project region, this species is not expected to occur in the BSA except, possibly, as a rare dispersant or forager. It is not expected to den or otherwise reside on the site for a substantial amount of time.

EACCS habitat modeling places the BSA along the outer margin of core habitat for the San Joaquin kit fox (ICF International 2010).

#### **3.4.7. Status of Designated Critical Habitat in the Action Area**

No designated critical habitat for any listed species occurs in the Action Area.

## **Chapter 4. Effects of the Action**

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Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. The analysis of effects of the action first identifies stressors from Project actions, then exposure to stressors, and finally the response to exposure to stressors to determine consequences. The effects of the action are used to make determinations for each listed species and critical habitat.

### **4.1. Stressors from the Action**

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment that can lead to a response from the individual.

Stressors resulting from the Project are similar for California red-legged frog, California tiger salamander, and San Joaquin kit fox, and these three species are thus addressed together in this section.

Stressors resulting from the proposed Project may include:

- Increased human presence in the BSA;
- Increased noise and vibrations from Project construction;
- Increased vehicular and heavy equipment traffic;
- Storage of materials and equipment, such as open pipes;
- Excavation of open trenches;
- Soil compaction from heavy equipment movement;
- Temporary or permanent loss of vegetative cover;
- Increased presence of predators such as raccoons or coyotes due to the presence of human-generated food waste; and
- Degradation of water quality resulting from unregulated discharge of hazardous materials, contaminants, or sediment in aquatic habitats during construction.

### **4.2. Exposure to Stressors from the Action**

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the Project action.

California red-legged frogs and California tiger salamanders may encounter Project-related stressors in the Project footprint as dispersing, foraging, or sheltering individuals. They may also encounter stressors as breeders (i.e. if they were to breed in the Wente Vineyards Golf Course pond), though no breeding is currently known in the BSA. Dispersing individuals may alter travel routes to avoid contact with humans, may encounter areas where vegetative cover has been removed, and may seek shelter in staged construction materials or equipment. They may also encounter open trenches while moving through the Project footprint during Project construction. Individual frogs or salamanders sheltering in small mammal burrows may encounter stressors when heavy equipment excavates or compresses burrows. If individuals are detected during pre-activity surveys, or during Project construction, they would be exposed to stressors from handling and relocation. If water is present when Project activities commence, individual California red-legged frogs could encounter hazards associated with stream dewatering. While neither species is known to breed in the BSA, it is possible that any individuals breeding, as well as any eggs or larvae that are present, in the Wente Vineyards Golf Course pond could encounter stressors associated with degradation of water quality from Project activities.

Individual San Joaquin kit foxes are not expected to encounter Project-related stressors, because there is no evidence or expectation that the Action Area is occupied by kit foxes. However, if a kit fox were to occur in the BSA, it would be expected to encounter stressors associated with human presence, movement of vehicles and equipment, staged equipment and materials, temporary or permanent loss of vegetative cover, increased predation risk, and degradation of water quality.

Approximately 1.16 ac of potential California tiger salamander and California red-legged frog foraging, dispersal, and upland refugial habitat would be permanently lost due to Project construction in areas that currently provide natural habitat that may be used by California red legged frogs and California tiger salamanders.

The Project will, similarly, result in the permanent loss of approximately 1.16 ac of potentially suitable grassland habitat for San Joaquin kit fox. However, because kit foxes occur in the Action Area very infrequently (if they occur at all), the habitat to be lost is not valuable to individuals of this species, or to maintenance of the species' populations.

Approximately 1.95 ac of potential California tiger salamander and California red-legged frog foraging, dispersal, and upland refugial habitat will be temporarily impacted by utilization as construction access and staging while the Project is being constructed. If stream dewatering were necessary, any temporarily available aquatic habitat would be lost for the duration of construction activities. However, these temporarily impacted areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction. Again, because San Joaquin kit foxes are not expected to occur in the Action Area, they are unlikely to be exposed to stressors associated with temporary loss of foraging or movement habitat.

### **4.3. Response to the Exposure**

Responses to exposure to Project stressors include:

- Physiological stress or impaired health due to disruption of daily or seasonal movements in response to human presence, construction noise and vibrations, movement of equipment and personnel, or loss of habitat;
- Increased predation and/or desiccation risk for frogs or salamanders if individuals sheltering in small mammal burrows vacate them or are exposed by vibration, excavation, flooding, or other construction related disturbance;
- Crushing of frogs or salamanders sheltering in small mammal burrows during ground disturbing or vegetation removal activities;
- Injury or mortality due to entrapment in open trenches;
- Injury or mortality due to movement of equipment or materials in which individuals are sheltering;
- Impaired health, reduced reproductive output, or mortality associated with degradation of water quality in foraging or breeding habitats;
- Increased exposure to predators, such as raccoons and coyotes, which are attracted to food-related trash.

#### **4.4. Effects of the Action**

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur (50 CFR §402.17). Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR §402.02). The effect of the action is the consequence (behavioral, physical, or physiological) of a response to a stressor.

A conclusion that activities are reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available. Factors to consider whether an activity caused by the proposed action is reasonably certain to occur include, but are not limited to: past experiences with similar activities that have resulted from actions that are similar in scope, nature and magnitude to the proposed action; existing plans for the activities; any remaining economic, administrative and legal requirements necessary for the activity to go forward.

Considerations for determining a consequence to the species or critical habitat is not caused by the proposed action include, but are not limited to: the consequence is so remote in time from the proposed action that it is not reasonably certain to occur; or the consequence is so geographically remote from the immediate area involved in the

proposed action that it is not reasonably certain to occur; or the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur (50 CFR §402.17).

#### **4.4.1. California Red-legged Frog**

The Project has the potential for take of adult or juvenile California red-legged frogs through the direct mortality associated with vegetation removal; construction equipment and personnel; construction activities; unintentional spills of toxic contaminants; and being crushed or exposed in their burrows during ground disturbance or vegetation removal. Mortality or impaired health could also result from disruption of daily or seasonal movements due to disturbance and habitat alteration; disruption of foraging as a result of new noise and vibrations; and increased exposure to predators.

Approximately 1.16 ac of potential California red-legged frog foraging, dispersal, and upland refugial habitat would be permanently lost due to the construction of the new bridge in areas that currently provide natural habitat that may be used by the species.

The Project has the potential for take of California red-legged frogs, and will permanently affect non-breeding habitat. Therefore, the action is likely to adversely affect this species. The conservation measures described in Section 2.4 will help avoid and minimize potential construction effects on this species, and the compensatory mitigation described in Section 2.5 will help offset any permanent habitat impacts.

#### **4.4.2. California Tiger Salamander**

The Project has the potential for take of adult or juvenile California tiger salamanders through the direct mortality associated with vegetation removal; construction equipment and personnel; construction activities; unintentional spills of toxic contaminants; and being crushed or exposed in their burrows during ground disturbance or vegetation removal. Mortality or impaired health could also result from disruption of daily or seasonal movements due to disturbance and habitat alteration; disruption of foraging as a result of new noise and vibrations; and increased exposure to predators.

Approximately 1.16 ac of potential California tiger salamander foraging, dispersal, and upland refugial habitat would be permanently lost due to the construction of the new bridge in areas that currently provide natural habitat that may be used by the species.

The Project has the potential for take of California tiger salamanders, and will permanently affect non-breeding habitat. Therefore, the action is likely to adversely affect this species. The conservation measures described in Section 2.4 will help avoid and minimize potential construction effects on this species, and the compensatory mitigation described in Section 2.5 will help offset any permanent habitat impacts.

#### **4.4.3. San Joaquin Kit Fox**

The Project is not expected to impact, directly or indirectly, the San Joaquin kit fox because there is no evidence or expectation the Action Area is occupied by kit foxes.

However, due to the presence of ostensibly suitable grassland habitat in the BSA and in areas between the BSA and historical occurrences to the east, there is some potential for an occasional kit fox to disperse into the BSA. In the event that a kit fox were to occur in the BSA, implementation of conservation measures such as preconstruction surveys (e.g., for dens), construction monitoring, and proper storage of pipes and other materials that a kit fox could use for refuge would avoid impacts to individuals. Although there is some potential for kit fox to be affected by vehicle collisions during construction, the probability of such impacts is very low given the low likelihood that individuals would occur on the site. It is also highly unlikely that a kit fox would den in the BSA, given the current levels of human disturbance associated with roadways, agriculture, and the adjacent golf course, and because this species is expected to occur only rarely in the vicinity, if at all. However, if a den were detected, it would be avoided while it is occupied by a kit fox.

The Project will permanently affect approximately 1.06 ac of potentially suitable annual grassland habitat for San Joaquin kit fox. Because kit foxes may occur in the Action Area very infrequently (if they occur at all), the habitat to be lost is not valuable to individuals of this species, or to maintenance of the species' populations. As a result, loss of this habitat would not significantly impair essential behavioral patterns such as breeding, feeding, or sheltering, and no injury or mortality of kit foxes would result from this habitat loss. In summary, the Project is not expected to result in a reduction in the number, reproductive potential, or distribution of the San Joaquin kit fox, and therefore it would have no impacts on this species' populations.

Because the implementation of the conservation measures described in Section 2.4.2 will avoid take of individual kit foxes, the Project may affect, but is not likely to adversely affect the San Joaquin kit fox.

#### **4.5. Cumulative Effects**

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the Action Area described in this biological assessment. Future federal actions that are unrelated to the proposed action are not considered in this cumulative effects analysis because those actions will require separate consultation pursuant to section 7 of the Federal Endangered Species Act.

Future development activities in Alameda County, and around the Action Area, will result in impacts on the same types of habitats and species that will be affected by the Project. The Project, in combination with other projects in the area and other activities that affect the species that are affected by this action, could have cumulative effects on sensitive habitats and special-status species. Other projects in the area include past and planned transportation and commercial development projects that could adversely affect these species and restoration projects that will benefit these species.

However, the EACCS contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources. Projects in the region that affect resources similar to those affected by the



Project will be subject to California Environmental Quality Act (CEQA) requirements, and many (if not all) will require regulatory permits as well. It is expected that such projects will mitigate their impacts on sensitive habitats and special-status species through the incorporation of mitigation measures and compliance with permit conditions. Future projects that will seek regulatory permits are expected to be required by those agencies to also mitigate impacts per the requirements of the EACCS, ensuring these projects provide adequate mitigation in a regional framework intended to prevent deleterious cumulative impacts to species and their habitats. Thus, provided that this Project successfully incorporates the mitigation measures described in the EACCS, the Project will not have a cumulatively considerable contribution to cumulative effects on California red-legged frog and California tiger salamander.

The probability that the Project would affect the San Joaquin kit fox is very low, and the action is not expected to contribute substantially to cumulative impacts on this species. Nevertheless, compensatory mitigation for California red-legged frog and California tiger salamander will likely benefit San Joaquin kit fox as well. In addition, projects in the region that affect resources similar to those affected by the Project will be subject to CEQA requirements, and many (if not all) will require regulatory permits as well. It is expected that such projects will mitigate their impacts on sensitive habitats and special-status species through the incorporation of mitigation measures and compliance with permit conditions. Thus, the Project will not have a cumulatively considerable contribution to cumulative effects on the San Joaquin kit fox.

#### **4.6. Discussion Supporting Determination**

Only one federally-listed plant species, the palmate-bracted bird's beak, is known to occur in the Project region. However, it was determined to be absent from the BSA based on (1) a lack of suitable microhabitat conditions within the BSA, (2) a lack of suitable edaphic conditions, and (3) the level of disturbance within the BSA.

A number of federally listed animal species are known to occur in the Project region, but most are not expected to occur on the site because of the lack of suitable habitat or because the site is outside of the known range of the species. These species are included in Table 3 under Section 3.4.2, above, to indicate the rationale for considering them absent from the site.

Three federally listed or proposed animal species occur in habitats in or adjacent to the site and may potentially be affected by the Project: the California red-legged frog, California tiger salamander, and San Joaquin kit fox. Section 4.4, above, discusses the reasoning for the determinations of Project effects on those species in detail.

#### **4.7. Determination**

The following determinations are made for each listed or proposed species and critical habitat and corresponds with the determination and rationale as presented in Table 1 and Table 3.

#### **4.7.1. Species and critical habitat determination**

##### **1) No Effect**

A no effect determination was made for the following species and designated critical habitat. No consultation is required.

- Palmate-bracted bird's beak
- California least tern
- Alameda whipsnake
- Delta smelt
- Conservancy fairy shrimp
- Vernal pool fairy shrimp

##### **2) May Affect-Not Likely to Adversely Affect**

A may affect-not likely to adversely affect determination was made for the following species and designated critical habitat. Informal consultation is required.

- San Joaquin kit fox

##### **3) May Affect-Likely to Adversely Affect**

A may affect-likely to adversely affect determination was made for the following species and designated critical habitat. Formal consultation is required.

- California red-legged frog
- California tiger salamander

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## **Appendix A USFWS Species List**

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# United States Department of the Interior



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

In Reply Refer To:  
Project Code: 2022-0082040  
Project Name: Arroyo Road Bridge Over Dry Creek

September 02, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location 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, 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 U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

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 Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List

## **Official Species List**

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

This species list is provided by:

### **Sacramento Fish And Wildlife Office**

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
(916) 414-6600

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## Project Summary

Project Code: 2022-0082040  
Project Name: Arroyo Road Bridge Over Dry Creek  
Project Type: Bridge - Replacement  
Project Description: Bridge replacement.  
Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.63823305,-121.76425044020996,14z>



Counties: Alameda County, California

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## Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

### Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2873">https://ecos.fws.gov/ecp/species/2873</a>	Endangered

### Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered

### Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/5524">https://ecos.fws.gov/ecp/species/5524</a>	Threatened

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## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

## Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a>	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened

## Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak <i>Cordylanthus palmatus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1616">https://ecos.fws.gov/ecp/species/1616</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **IPaC User Contact Information**

Agency: California Department of Transportation District 4  
Name: Jane Lien  
Address: 983 University Avenue  
City: Los Gatos  
State: CA  
Zip: 95032  
Email: [jlien@harveyecology.com](mailto:jlien@harveyecology.com)  
Phone: 4084583200

## **Lead Agency Contact Information**

Lead Agency: Federal Highway Administration

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## **Appendix B NOAA Fisheries Species List**

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Quad Name **Livermore**

Quad Number **37121-F7**

### **ESA Anadromous Fish**

SONCC Coho ESU (T) -  
CCC Coho ESU (E) -  
CC Chinook Salmon ESU (T) -  
CVSR Chinook Salmon ESU (T) -  
SRWR Chinook Salmon ESU (E) -  
NC Steelhead DPS (T) -  
CCC Steelhead DPS (T) -  
SCCC Steelhead DPS (T) -  
SC Steelhead DPS (E) -  
CCV Steelhead DPS (T) -  
Eulachon (T) -  
sDPS Green Sturgeon (T) -

### **ESA Anadromous Fish Critical Habitat**

SONCC Coho Critical Habitat -  
CCC Coho Critical Habitat -  
CC Chinook Salmon Critical Habitat -  
CVSR Chinook Salmon Critical Habitat -  
SRWR Chinook Salmon Critical Habitat -  
NC Steelhead Critical Habitat -  
CCC Steelhead Critical Habitat -  
SCCC Steelhead Critical Habitat -  
SC Steelhead Critical Habitat -  
CCV Steelhead Critical Habitat -  
Eulachon Critical Habitat -  
sDPS Green Sturgeon Critical Habitat -

### **ESA Marine Invertebrates**

Range Black Abalone (E) -  
Range White Abalone (E) -

### **ESA Marine Invertebrates Critical Habitat**

Black Abalone Critical Habitat -

### **ESA Sea Turtles**

East Pacific Green Sea Turtle (T) -  
Olive Ridley Sea Turtle (T/E) -  
Leatherback Sea Turtle (E) -  
North Pacific Loggerhead Sea Turtle (E) -

### **ESA Whales**

Blue Whale (E) -  
Fin Whale (E) -  
Humpback Whale (E) -  
Southern Resident Killer Whale (E) -  
North Pacific Right Whale (E) -  
Sei Whale (E) -  
Sperm Whale (E) -

### **ESA Pinnipeds**

Guadalupe Fur Seal (T) -  
Steller Sea Lion Critical Habitat -

### **Essential Fish Habitat**

Coho EFH - **X**  
Chinook Salmon EFH - **X**  
Groundfish EFH -  
Coastal Pelagics EFH -  
Highly Migratory Species EFH -

### **MMPA Species (See list at left)**

### **ESA and MMPA Cetaceans/Pinnipeds**

**See list at left and consult the NMFS Long Beach office  
562-980-4000**

MMPA Cetaceans -  
MMPA Pinnipeds -

## Appendix C Site Photographs

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**Photo 1: Representative photo of the California annual grassland habitat in the southwest portion of the BSA (part of Sycamore Grove Regional Park).**



**Photo 2: Representative photo of the ruderal grassland habitat located in the northeast portion of the BSA (part of a pasture to be used as a staging area).**



**Photo 3: Representative photo of the California annual grassland habitat located in the southwest portion of the BSA (part of Sycamore Grove Regional Park).**



**Photo 4: Representative photo of riparian grassland habitat on the top of the northwest bank of Dry Creek in the BSA.**



**Photo 5: Photo of existing bridge on Arroyo Road in the BSA, looking east from the Dry Creek channel.**



**Photo 6: Photo of existing wooden pedestrian pathway on east side of bridge, looking south along Arroyo Road.**



**Photo 7: Representative photo of developed areas (with vineyard in the back) located in the northwest portion of the BSA. Wente Vineyard property shown west of Arroyo Road.**



**Photo 8: Representative photo of the Wente Vineyards Golf Course and Pond land cover types in the southeast portion of the BSA, east of Arroyo Road.**



**Photo 9: Representative photo of the vineyard land cover type (behind developed area) located in the northwest portion of the BSA.**



**Photo 10: Representative photo of the riverine (ephemeral stream) habitat of Dry Creek located on the west side of the existing bridge, where the channel cuts into the bank of the riparian habitat area on top.**



**Photo 11: Representative photo of the Dry Creek channel on the east side of the existing bridge, where the riverine habitat intergrades with ruderal grasslands in the BSA.**



**Photo 12: Photo of the east side of the Dry Creek channel that is cut off by a hardpacked gravel access road and fenceline.**












# 5933 (138) Arroyo Rd BA

Final Audit Report

2023-02-06

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