



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

**RED TOP CONVEYANCE PROJECT
BIOLOGICAL RESOURCES REPORT
MADERA AND FRESNO COUNTIES, CALIFORNIA**



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EXECUTIVE SUMMARY

In November of 2015, Live Oak Associates, Inc. (LOA) examined a 2-acre site in and adjacent to the San Joaquin River (SJR) in Madera and Fresno Counties for biological resources, and evaluated a pipeline project for possible impacts to such resources. The project site is located south of the State Route 152 crossing of the SJR immediately west of the intersection of Rd 1 and the Ave 18 ½ alignment. The proposed project includes the construction of a turnout on the Poso Canal and installation of an underground irrigation pipe across the SJR.

This document was prepared in order to assist the Central California Irrigation District and the Bureau of Reclamation in meeting the requirements of the California Environmental Quality Act, National Environmental Policy Act, the Clean Water Act, the state and federal endangered species acts, and miscellaneous other local, state and federal environmental regulations prior to project implementation. The information in this document was based on a review of existing literature and a reconnaissance level field survey conducted by LOA on November 9, 2015.

The project site is located in a somewhat disturbed stretch of the SJR surrounded by agricultural lands. Four land uses/biotic habitats were identified within the project site. These included ruderal, SJR channel, valley riparian, and Poso Canal. The river serves as a movement corridor for native wildlife. The river was dry during LOA's November field survey, but flows other times of the year.

The site provides unsuitable habitat for special status plant species. However, the site does provide some habitat for a few special status animal species. Special status animals potentially using habitats of the site include the Chinook salmon, steelhead, San Joaquin kit fox, and various avian species (including Swainson's hawk, white-tailed kite, northern harrier, loggerhead shrike, tricolored blackbird, and yellow-headed blackbird). Habitats of the site are marginal, at best, for the burrowing owl, and the burrowing owl is considered unlikely to occur on site under present conditions; however, should California ground squirrels colonize the site at some point in the future, burrowing owls could potentially follow. Other special status wildlife species are not expected to occur on the project site, except for occasional wildlife foraging on it during migration or dispersal movements. Waters subject to the jurisdiction of the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, the Central Valley Regional Water Quality Control Board, and the State Lands Commission were present within the project site.

The project would have no effect on special status plant species and a less than significant/not likely to effect on Chinook salmon, most special status wildlife species, wildlife movement corridors, designated critical habitat, essential fish habitat, and fish and wildlife habitat. The project is consistent with local ordinances protecting biological resources. While the project will not adversely affect or significantly impact Waters of the U.S., a Clean Water Act Nationwide permit, California Water Quality Certification, and Stream Alteration Agreement will be required. Mitigation measures are not proposed in this report nor warranted for impacts to the above biotic resources.

Potentially significant project impacts include construction-related mortality or disturbance of nesting birds (including but not limited to Swainson's hawk, white-tailed kite, loggerhead shrike, and tricolored blackbird), construction-related mortality or disturbance of the burrowing owl, construction-related mortality or disturbance of the San Joaquin kit fox, impacts to riparian habitat, and degradation of water quality downstream of the project site. An employee education program addressing avoidance and minimization measures for potentially significant biological impacts would be conducted by a qualified biologist prior to project construction. Measures appropriate for mitigating project impacts to nesting birds would include 1) pre-construction surveys for active nests during the nesting season (Feb.-Aug.), and 2) avoidance of active nests. Potential project impacts to the burrowing owl would be mitigated through pre-construction surveys for active burrows, passive relocation of burrowing owls outside of the nesting season, and/or avoidance of active burrows during the nesting season. Potential project impacts to the San Joaquin kit fox would be mitigated through pre-construction surveys for active dens and avoidance of those dens. Should riparian trees be removed as a result of project construction, replacement plantings and monitoring will reduce impacts to riparian habitat. Implementation of erosion control measures and best management practices will protect aquatic habitat of the SJR from degradation.

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1.0 INTRODUCTION

This technical report describes the biotic resources of an approximately 2-acre site (hereafter referred to as the “project site” or “site”) in Madera and Fresno Counties upon which a turnout from Poso Canal and pipeline crossing of the San Joaquin River (SJR) are proposed. The project site is located south of the State Route 152 crossing of the SJR immediately west of the intersection of Road 1 and the Avenue 18 ½ alignment (Figure 1). The project site is located on Assessor Parcel Numbers 020-200-001 and 001-090-03T in Section 2 of Township 11 South, Range 13 East, M. D. B. & M., on the *Santa Rita Bridge* U.S.G.S quadrangle (Figure 2).

1.1 PROJECT DESCRIPTION

The proposed project will convey surface water from Central California Irrigation District’s (CCID) Poso Canal across the SJR to areas in Western Madera County. The water will be conveyed to farmers on the east side of the river and to future and existing grower recharge basins through existing pipelines and turnouts. The project consists of a new pipeline crossing of the SJR described as the Vlot-Triangle T crossing, and a new cast in place concrete box turnout on the Poso Canal. The pipeline will connect the new turnout at the Poso Canal to an existing pump stand on the other side of the SJR. The project will entail installing a 36-inch single wall reinforced concrete pipe or mortar lined and coated steel pipeline from a 36-inch stub on a 48 inch by 48 inch cast in place concrete box turnout in the Poso Canal, across the SJR where it will connect to an existing pump station and conveyance facilities running east along the mid-section line of the section. The connecting pipeline will be approximately 452 feet in length and will be placed across the river using an open cut trench. If feasible the trench will be oriented to avoid the removal of any trees. The pipeline will be buried with a minimum cover of six feet below the river bed. All work in the river bed will occur when the river is dry.

Construction of the crossing will require temporary disturbance of the channel area by the clearing of riparian shrubs and possibly some trees. A geotechnical investigation will be conducted within the proposed alignment prior to construction to determine the soils profiles, associated soils types and groundwater elevations. The investigation report will make recommendations regarding placement of fills in the embankments and pipe protection measures across the river corridor.

Figure 1. Vicinity Map.

Figure 2. USGS Map.

After construction is completed, the disturbed area will be graded back to the original contour and will be reseeded with a seed mixture of native plants, approved by a qualified biologist.

The width of the temporary disturbed area for excavating the trench and installing the pipeline will be approximately 80 feet. The total temporary disturbed area for the pipe crossing across the SJR from the Poso Canal Turnout to the existing pump station will be approximately 0.83 acres. The total permanent impacts will be approximately 16 square feet, associated with the cast in place turnout on Poso Canal. The total temporary disturbed area within the ordinary high water mark of the SJR will be approximately 0.18 acres.

Construction equipment is expected to include the use of graders, compacters, backhoes, excavators, forklifts, skid steers, front-end loaders, generators, water trucks and materials and equipment hauling trucks. Construction will be conducted during daylight hours, Monday through Friday, excluding holidays. Project construction will include removal of vegetation, trenching, placing of pipeline, backfilling and compaction. Post construction activities will include site clean-up and re-vegetation of crossings.

It is anticipated that project construction will require 10-12 construction workers. Approximately one daily construction equipment delivery truck is anticipated and 20 construction worker trips per day are anticipated during the two months of construction, totaling an average of 11 construction vehicle round trips per day.

The construction staging area for the project will be entirely outside of the SJR and have an area of 0.95 acres. The staging area will be located to the northeast of the proposed pipeline.

The proposed project would require approximately 0.15 acre-feet of water for dust control and trench compaction during the construction period.

The proposed project is not anticipated to generate large amounts of construction waste since the majority of construction activities would be limited to trenching. Excess material from trenching would be stockpiled temporarily within the staging area. This material will be hauled off for use by the District or contractors for other projects.

1.2 REPORT OBJECTIVES

Projects such as the Red Top Conveyance Project can potentially damage or modify biotic habitats used by sensitive plant and wildlife species as defined by state and regulatory agencies. Furthermore, the proposed project may be regulated by state and/or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), and/or and covered by policies of the County of Madera and Fresno General Plans. This report addresses issues related to: 1) sensitive biotic resources occurring on the project site; 2) the federal, state, and local laws regulating such resources; and 3) mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development.
- Identify and discuss project impacts to biological resources that may occur on the site within the context of CEQA and NEPA guidelines and relevant state and federal laws.
- Identify avoidance and mitigation measures that would reduce the magnitude of project impacts in a manner consistent with the requirements of CEQA and NEPA and that are generally consistent with recommendations of the resource agencies regulating affected biological resources.

1.3 STUDY METHODOLOGY

The impact analysis, as discussed in Section 3.0 of this report, is based on the potential and known biological resources of the project site as discussed in Section 2.0. Information sources used in the preparation of this analysis included: the *California Natural Diversity Data Base* (CNDDB) (CDFW 2015a); the online *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2015); current listings from *Special Animals* (CDFW 2015b) and *Special*

Vascular Plants, Bryophytes, and Lichens (CDFW 2015c); *The Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens 2009); biological studies conducted by Live Oak Associates, Inc. (LOA) on other properties along the SJR; and additional manuals and references related to plants and animals of California's Central Valley. Supplemental information was gathered in the field by LOA biologist Jeff Gurule on November 9, 2015. This survey consisted of walking the project site in order to identify principal land uses and habitats of the site, noting each habitat's constituent plants and animals, and mapping habitat suitable for special status species and other sensitive biological resources.

Detailed surveys for sensitive biological resources (including special status species) were not conducted for this study. The level of effort was, however, sufficient to locate and establish the general extent of habitat suitable for special status species that might be present on the site and adjacent lands.

2.0 EXISTING CONDITIONS

2.1 TOPOGRAPHY

The project site is located within the interior of the San Joaquin Valley. The topography of the site is concaved within the SJR channel and flat outside the channel. Site elevations vary from approximately 107 feet National Geodetic Vertical Datum (NGVD) at the low point of the channel to approximately 120 feet NGVD at the area of the site east of the SJR channel.

2.2 CLIMATE

The project site, like most of California west of the Sierra Nevada, experiences a Mediterranean climate. Summers are hot and dry. Winters are cool and moist. Average annual precipitation in the general vicinity of the site is approximately 15 inches, most of which falls as rain between the months of October and April. Precipitation amounts vary considerably from year to year. During drought years, rainfall can be as little as 6-7 inches. During wet winters, rainfall can exceed 20 inches.

2.3 HYDROLOGY

The hydrology of the stretch of SJR within the site and in the vicinity has been substantially altered by decades of agricultural activity in the region that have resulted in the removal of riparian vegetation, river channelization, and the installation of dams and other irrigation infrastructure. Currently, the river is contained by large levees on each side of the channel. The river bottom consists of an intermittent ordinary high water channel on the east side of the channel and an adjacent flood plain on the west side of the channel. Google Earth historic aerial photography from 1998 to 2015 shows inundation within ordinary high water during the winter, spring, and some summers.

The majority of the site is located outside of, but immediately adjacent to, the SJR channel. Precipitation in upland areas of the site either percolates into the soil, or during the most intense storms drains from the site as sheet flow into the SJR.

2.4 SOILS

Three soil mapping units from two soil series were identified within the project site (California Soil Resources Lab 2008) (Table 1). All three soils are considered hydric. Hydric soils are soils that are saturated, flooded, or ponded long enough to develop anaerobic conditions in the upper part; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation (USDA Soil Conservation Service 1985, as amended by the National Technical Committee for Hydric Soils in December 1986).

The entire site is located on alluvium transported from the Sierra Nevada. Alluvium of the site consists of sands and gravels derived from granite and some older metamorphic and sedimentary rock. This alluvium has accumulated on site since the time of the Pleistocene from overbank flooding of the San Joaquin River.

TABLE 1. SOILS OF THE PROJECT SITE.				
Soil Mapping Unit	Map Unit Symbol	Parent Material	Drainage Class	Hydric
<i>Fresno County, California</i>				
Elnido sandy loam, drained, 0 to 1 percent slopes	320	Alluvium derived from igneous rock	Poorly drained	Yes
Bisgani-Elnido association, 0 to 1 percent slopes	941	Alluvium derived from igneous rock	Poorly drained	Yes
<i>Madera County, California</i>				
Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	CmtA	Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock	Somewhat poorly drained	Yes

2.5 SURROUNDING LANDS

The project site occurs within a region dominated by agricultural land uses and is immediately bordered by the SJR and agricultural lands. Human activities have substantially modified the project site and adjacent lands from historic conditions. The biotic habitats of the site and surrounding lands retain little to no elements of the native habitats once present.

2.6 BIOTIC HABITATS/LAND USES

Four land uses/biotic habitats were identified within the project site. These included ruderal, SJR channel, valley riparian, and Poso Canal (Figure 3). A list of the vascular plants observed in the project site is included in Appendix A. A list of terrestrial vertebrates using, or potentially using, the project site is included in Appendix B. Selected photographs of the site are included in Appendix C.

2.6.1 Ruderal

The majority of the project site consists of ruderal areas in the form of an agricultural staging area, dirt roads, and barrier ditches. Vegetation within ruderal areas was sparse and primarily comprised herbaceous non-native weeds. Grasses and forbs found in ruderal areas of the site include Bermuda grass (*Cynodon dactylon*), bractscale (*Atriplex serenana* var. *serenana*), mallow (*Malva* sp.), heliotrope (*Heliotropium curassavicum*), and horehound (*Marrubium vulgare*), among others. Trees and shrubs were absent from this land use area.

Ruderal areas of the type observed on the project site do not provide significant habitat for native terrestrial vertebrate species. However, those species occurring in natural biotic habitats elsewhere on the project site, as described below, no doubt pass through the site's ruderal areas occasionally while foraging. Reptile species potentially foraging in this area include the side-blotched lizard (*Uta stansburiana*). Avian species potentially foraging in this habitat would include savannah sparrows (*Passerculus sandwichensis*), American pipits (*Anthus rebescens*), mourning doves (*Zenaida macroura*), western scrub jays (*Aphelocoma californica*), and common ravens (*Corvus corax*). Mammalian species likely to regularly forage in this area include the Audubon's cottontail (*Sylvilagus audubonii*) and the Botta's pocket gopher (*Thomomys bottae*) (burrows observed).

2.6.2 SJR Channel

The SJR channel within the project site is contained by levee banks on either side of the river channel. The river channel was dry during the November field investigation. The river channel

Figure 3. Biotic Habitats.

consists of a low flow channel at the eastern edge that experiences periodic flows. The remainder of the channel consists of an elevated upland floodplain. Grass species identified in this habitat include soft chess brome (*Bromus hordeaceus*), riggut brome (*Bromus diandrus*), red brome (*Bromus madritensis rubens*), and saltgrass (*Distichlis spicata*). Common forbs identified in this area include black mustard (*Brassica nigra*), rough cocklebur (*Xanthium strumarium*), fiddleneck (*Amsinckia* sp.), telegraph weed (*Heterotheca grandiflora*), and Jersey cudweed (*Pseudognaphalium luteoalbum*). A few shrubby specimens of Goodding's black willow (*Salix gooddingii*) and sandbar willow (*Salix exigua*) also occurred within the SJR channel.

Fish species were absent from the project site at the time of the field survey due to the absence of water. Some fish species may occur on the project site as transients when the river is flowing. These potential transient fish species may include striped bass (*Morone saxatilis*) and juvenile spring-run and/or fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Other fish species such as green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), various catfish species, and common carp (*Cyprinus carpio*) may populate the channel, when water is present, from upstream perennial waters.

Amphibians such as western toads (*Anaxyrus boreas*), and Pacific treefrogs (*Pseudacris regilla*) may breed in river shallows and isolated pools when water is present. Common garter snakes (*Thamnophis sirtalis*) may forage in this habitat for amphibians, small birds, and small mammals during wet times of year. Other common reptile species likely to forage and seek cover on the site during dry times of the year include western fence lizards (*Sceloporus occidentalis*), side-blotched lizards, western whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis melanoleucus*), common kingsnakes (*Lampropeltis getulus*), and western rattlesnakes (*Crotalus viridis*).

A variety of bird species could occur within the SJR channel due to the alternating dry and wet river regime. Many of these species seek the cover of the mixed riparian woodland, but forage in and over the river channel. Avian species likely to utilize this habitat include black phoebes (*Sayornis nigricans*) (observed), red-winged blackbirds (*Agelaius phoeniceus*), great blue

herons (*Ardea herodias*), green herons (*Butorides striatus*), great egrets (*Ardea albas*), mourning doves, western scrub jays, and killdeer (*Charadrius vociferus*), among others.

Mammalian use of this habitat would vary depending on river flows across the site. Rodents are the most abundant mammals within this habitat. Small mammal burrows were observed in the upland flood plain of the SJR channel and Audubon's cottontail droppings were observed throughout the channel. It is expected that the California vole (*Microtus californicus*) would also inhabit this portion of the project site. A number of mammalian predators may regularly forage or move through the channel from time to time, including the gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and coyote (*Canis latrans*). Various bat species likely forage for flying insects over the open area of the river channel as well.

2.6.3 Valley Riparian

Valley riparian habitat within the project site is restricted to the banks of the SJR. Relatively high species diversity occurs in the riparian habitat of the site. Trees identified in the riparian areas of the site included Goodding's black willow and Oregon ash (*Fraxinus latifolia*). Shrubs and vines observed within the valley riparian habitat included sandbar willow, buttonwillow (*Cephalanthus occidentalis*), California rose (*Rosa californica*) and California blackberry (*Rubus ursinus*). Herbaceous vegetation consisted of poison hemlock (*Conium maculatum*), mugwort (*Artemisia douglasiana*), and milk thistle (*Silybum marianum*).

Riparian habitats along rivers provide habitat value for a number of animal species that rely on the moisture-loving vegetation for food and cover. Amphibians likely to occur in this habitat of the project site include western toads and Pacific treefrogs. Reptiles likely to occur in this habitat would be western fence lizards, common gartersnake, and striped racer (*Coluber lateralis*).

Riparian areas also attract a large number of avian species that seek cover, forage, and nest in the various canopy layers. Resident species expected in this habitat included the western scrub-jay (observed), loggerhead shrike (*Lanius ludovicianus*) (observed), Nuttall's woodpecker (*Picoides nuttallii*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis*

trichas), lesser goldfinch (*Spinus psaltria*), and black phoebe (observed). Resident raptors expected in this habitat include red-shouldered hawks, red-tailed hawks (*Buteo jamaicensis*), Cooper's hawks (*Accipiter cooperii*), and great-horned owls (*Bubo virginianus*). Riparian woodlands are of particular importance to various migrant birds. Some, like the white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Setophaga coronata*), and dark-eyed junco (*Junco hyemalis*) arrive on site in late September or early October and remain until April, at which time they return to their breeding habitats in the Sierra Nevada Mountains or in various locations of the northern United States. Summer migrants expected to breed in riparian habitats of the study area include Bullock's orioles (*Icterus bullocki*), western wood-pewee (*Contopus sordidulus*), and western kingbird (*Tyrannus verticalis*), among others. Riparian corridors, such as those found along the San Joaquin River, provide important temporary cover and foraging opportunity for other migrating birds.

Riparian habitat of the project site is likely used by smaller mammals such as the striped skunk, raccoon, deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and ornate shrew (*Sorex ornatus*) for cover and foraging. Larger mammals such as the gray fox and bobcat may utilize riparian habitats of the site for cover.

2.6.4 Poso Canal

The Poso Canal is a regularly inundated irrigation canal that ultimately receives water from the SJR at the Mendota Pool approximately 20 miles upstream of the project site. The canal runs parallel to the SJR in the vicinity of the project site and is dewatered approximately every other year between November and February. The canal is managed to prohibit vegetation growth. Therefore, the canal is largely unvegetated with only sparse wetland vegetation such as Mexican sprangletop (*Leptochloa fusca ssp. uninervia*) occurring along a narrow fringe at the water line.

The inundated areas of the canal provide little value to aquatic and terrestrial vertebrate species. No fish were observed in the canal. Fish species, if present, would likely be limited to introduced species such as mosquito fish and other exotic species. Fish populations would be unsustainable due to the periodic dewatering of the canal. Amphibian species are expected to be absent from the canal due to the steep sides, relatively strong current, and lack of vegetation.

Avian species would find little to no foraging opportunity in the canal. Some mammalian species common to other habitats of the site may utilize the canal as a source of drinking water.

2.7 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Still others have been designated as “species of special concern” by the CDFW. The California Native Plant Society (CNPS) has developed its own lists of native plants considered rare, threatened or endangered (CNPS 2012). Collectively, these plants and animals are referred to as “special status species.”

The *California Natural Diversity Data Base* (CDFW 2015a) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and surrounding the project site (*Santa Rita Bridge, Bliss Ranch, Poso Farm, Oxalis, Dos Palos, Delta Ranch, Turner Ranch, Sandy Mush, and El Nido*). The Sacramento Fish and Wildlife Office’s *Endangered Species List Generator* (USFWS 2015) was queried for federally listed species with the potential to be affected by projects in the same nine quadrangles. These species, and their potential to occur on the project site, are listed in Tables 2 and 3 on the following pages. Sources of information for this table included *California’s Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *Special Animals* (CDFW 2015b), *Special Vascular Plants, Bryophytes, and Lichens* (CDFW 2015c), and *The California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2015).

Special status species occurrences within 3.1 miles (5 kilometers) of the project site are depicted in Figure 4 and San Joaquin kit fox (*Vulpes macrotis mutica*) occurrences within 10 miles of the project site are depicted in Figure 5.

Figure 4 SSS plants and animals.

Figure 5. Kit Fox

TABLE 2. LIST OF SPECIAL STATUS PLANT SPECIES THAT POTENTIALLY OCCUR WITHIN THE RED TOP CONVEYANCE PROJECT SITE.

PLANTS (adapted from CDFW 2015 and CNPS 2015)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status ¹	Habitat	Potential for Occurrence in the Study Area
Palmate-bracted Bird's-beak (<i>Cordylanthus palmatus</i>)	FE, CE, CNPS 1B	Occurs in alkaline grasslands or scrub; blooms May to October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Delta Button Celery (<i>Eryngium racemosum</i>)	CE, CNPS 1B	Occurs in seasonally inundated floodplains on clay soils within riparian scrub habitat. Blooms June - October.	Absent. Clay soils required by this species are absent from the project site. Furthermore, this species is not known to occur in Fresno or Madera Counties.
Hoover's Spurge (<i>Euphorbia hooveri</i>)	FT, CNPS 1B	Occurs in vernal pools on volcanic mudflow or clay substrate. Blooms July - Oct.	Absent. Suitable habitat in the form of vernal pools is absent from the project site.
Colusa Grass (<i>Neostapfia colusana</i>)	FT, CE, CNPS 1B	Occurs in large clay bottomed vernal pools of California's Central Valley. Blooms May-Aug.	Absent. Suitable habitat in the form of vernal pools is absent from the project site.

Species listed as Special Status by the California Native Plant Society

Heartscale (<i>Atriplex cordulata</i>)	1B.2	Occurs in alkaline and saline grasslands, scrub, sandy soils; blooms March to October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Brittlescale (<i>Atriplex depressa</i>)	1B.2	Occurs in alkaline and saline grasslands, scrub, clay soils; blooms May to October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Lesser Saltscale (<i>Atriplex miniscula</i>)	1B.1	Occurs in alkaline and saline grasslands, scrub, sandy soils; blooms May to October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Vernal Pool Smallscale (<i>Atriplex persistens</i>)	1B.2	Occurs in alkaline vernal pools; blooms June - October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Subtle Orache (<i>Atriplex subtilis</i>)	1B.2	Occurs in grasslands; blooms August to October.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Lost Hills Crownscale (<i>Atriplex vallicola</i>)	1B.2	Occurs in alkaline and saline grasslands, scrub; blooms April to August.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Hispid Salty Bird's Beak (<i>Chloropyron molle</i> ssp. <i>hispidum</i>)	1B.1	Occurs in damp alkaline soils, especially in alkaline meadows and alkali sinks with <i>Distichlis spicata</i> . Blooms June–Sept.	Absent. Suitable habitat for this species is absent from the study area.
Hoover Cryptantha (<i>Cryptantha hooveri</i>)	1A	Possibly extinct, but known historically to occur in grasslands, sandy soil; blooms April to May	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.

TABLE 2. LIST OF SPECIAL STATUS PLANT SPECIES THAT POTENTIALLY OCCUR WITHIN THE RED TOP CONVEYANCE PROJECT SITE.

Species listed as Special Status by the California Native Plant Society

Species	Status ¹	Habitat	Potential for Occurrence in the Study Area
Recurved Larkspur (<i>Delphinium recurvatum</i>)	1B.2	Occurs in alkaline and saline grasslands, scrub; blooms March to May.	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Prostrate Vernal Pool Navarretia (<i>Navarretia prostrata</i>)	1B.1	Occurs in mesic and alkaline areas of grasslands or in vernal pools; blooms April - July.	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Sanford's Arrowhead (<i>Sagittaria sanfordii</i>)	1B.2	Occurs in freshwater marsh, ditches, canals; blooms May to October.	Absent. Suitable habitat was largely absent for this species. No evidence of this species was observed within the site.
Wright's Trichocoronis (<i>Trichocoronis wrightii</i>)	2B.1	Occurs in mud flats of vernal lakes, drying river beds and alkali meadows; blooms March to September.	Unlikely. The sandy soils associated with the SJR bed are marginal to unsuitable for this species. The nearest population of this species is approximately 12.5 miles northwest of the project site in the Merced National Wildlife Refuge. No documented occurrences of this species are known from Fresno or Madera Counties.

STATUS CODES:

CDFW listings under the Native Plant Protection Act, the California Endangered Species Act, and the federal Endangered Species Act (CDFW 2015c).

CE = California Endangered

FE = Federal Endangered

California Native Plant Society listings (CNPS 2015)

1A = presumed extinct in California

1B = rare and endangered in California and elsewhere

2B = Rare, Threatened, or Endangered in California, But More Common Elsewhere

4 = plants of limited distribution in California – watchlist species

Threat Code extensions:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 Fairly endangered in California (20-80% of occurrences threatened)

.3 Not very endangered in California (< 20% of occurrences threatened or no current threats known).

TABLE 3. LIST OF SPECIAL STATUS ANIMALS THAT OCCUR OR MAY OCCUR ON OR IN THE VICINITY OF THE RED TOP CONVEYANCE PROJECT SITE.

ANIMALS (adapted from CDFW 2015a)

Species Listed as Threatened or Endangered Under the Federal or State Endangered Species Acts

Species	Status	Habitat	*Occurrence in the Study Area
Conservancy Fairy Shrimp (<i>Branchinecta conservatio</i>)	FE	Found in vernal pools and ruderal pools of California's Central Valley that do not contain fish.	Absent. Vernal pools required by this species are absent from the project site.
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT	Found in vernal pools and ruderal pools of California's Central Valley that do not contain fish.	Absent. Vernal pools required by this species are absent from the project site.
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	FE	Occurs in vernal pools of California containing clear to highly turbid water.	Absent. Vernal pools required by this species are absent from the project site.
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	Absent. Elderberry shrubs, the obligate habitat for the VELB, are absent from the project site and surrounding lands.
Delta Smelt (<i>Hypomesus transpacificus</i>)	FT	This slender-bodied fish is endemic to the San Francisco Bay and Sacramento-San Joaquin Delta upstream through Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties.	Absent. The project site is situated well outside of the known distribution of this species.
Steelhead (Central Valley ESU) (<i>Oncorhynchus mykiss irideus</i>)	FT, CSC	Winters in rivers of the Central Valley. Found in cool, clear, fast-flowing permanent streams and rivers.	Unlikely. The Central Valley steelhead is currently considered extirpated from the San Joaquin River above its confluence with the Merced River.
Chinook Salmon (Spring-run) (<i>Oncorhynchus tshawytscha</i>)	FT, CSC	Historically spawned in the upper Sacramento and San Joaquin watersheds. This population was largely eliminated from the San Joaquin watershed with the construction of the Friant Dam in 1942, but reintroduction into the San Joaquin River upstream of its confluence with the Merced River was initiated in April 2014. Spawns in gravel beds in riffle areas, typically at the downstream end of pools.	Possible. This species historically occurred in the San Joaquin River. Restoration efforts are anticipated to regularly return this species to the reach of river passing through the project site. Spawning habitat is absent from the project site.
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for refuge.	Absent. Breeding and aestivation habitat for this species is absent within the project site and surrounding lands.
California Red-Legged Frog (<i>Rana aurora draytonii</i>)	FT	Perennial rivers, creeks and stock ponds of the Coast Range and northern Sierra foothills with overhanging vegetation.	Absent. The project site and surrounding lands do not provide suitable habitat for this species and are outside of its current known range.
Blunt-nosed Leopard Lizard (<i>Gambelia sila</i>)	FE, CE, CFP	Resident of sparsely vegetated alkali and desert scrub habitats in areas of low topographic relief. Seeks cover in small mammal burrows, under shrubs and structures.	Absent. Habitat required by this species is absent from the study area. The agricultural activities surrounding the project site have eliminated all habitats potentially suitable for this species.

TABLE 3. LIST OF SPECIAL STATUS ANIMALS THAT OCCUR OR MAY OCCUR ON OR IN THE VICINITY OF THE RED TOP CONVEYANCE PROJECT SITE.

ANIMALS (adapted from CDFW 2015a)

Species Listed as Threatened or Endangered Under the Federal or State Endangered Species Acts (cont.)

Species	Status	Habitat	*Occurrence in the Study Area
Giant Garter Snake (<i>Thamnophis gigas</i>)	FT, CT	Found in freshwater marsh and low gradient streams.	Absent. Suitable aquatic habitat for this species in the form of freshwater marsh is absent from the project area.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	FD, CE, CFP	Found throughout most of California near lakes, reservoirs, rivers and coastal wetlands.	Unlikely. Foraging habitat is marginal on the project site due to the absence of deep open waters and the absence or paucity of fish expected on the site due to irregular river flows. Occurrences of this species in this part of the valley are rare.
Golden Eagle (<i>Aquila chrysaetos</i>)	CFP	Forages in grasslands, oak savannah, and open rangelands. Nests on cliffs or large trees.	Present. A golden eagle was observed flying high over the site during the field survey. Foraging habitat is marginal on the site and nesting habitat is absent from the project site.
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	CFP	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter.	Unlikely. The site provides marginal foraging habitat for transients and migrating birds. This site is not within suitable breeding range.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Uncommon resident and migrant in the Central Valley. Forages in grasslands and fields close to riparian areas.	Possible. Swainson's hawks may fly over the project site while foraging on surrounding lands. Nesting habitat is marginal due to the small size of trees. No evidence of raptor nesting in the form of stick nests was observed on site during the field study. A very small amount of foraging habitat occurs within upland areas of the SJR channel on the site.
Mountain Plover (<i>Chardrius montanus</i>)	FPT	Forages in short grasslands and freshly plowed fields of the Central Valley during the winter. Breeds outside California.	Absent. Suitable habitat for this species is absent from the project area.
Nelson's antelope squirrel (<i>Ammospermophilus nelsoni</i>)	CT	Occurs in the southwest portion of the San Joaquin Valley on dry, sparsely vegetated loamy soils.	Absent. Natural habitats suitable for this species are absent from the project site and surrounding lands.
Fresno Kangaroo Rat (<i>Dipodomys nitratoideis exilis</i>)	FE, CE	Occurs in alkali scrub and herbaceous habitats with scattered shrubs in the southwestern San Joaquin Valley.	Absent. Natural habitats suitable for this species are absent from the project site and surrounding lands.
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Occurs in desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats.	Possible. Historical observations of this species are absent from the project site and vicinity. The nearest documented occurrences are approximately 8.0 miles to the north and south of the site (CDFW 2015a). The study area provides no suitable breeding habitat for this species and only marginal foraging habitat. Dispersing individuals may cross the site in route to more suitable habitat.

TABLE 3. LIST OF SPECIAL STATUS ANIMALS THAT OCCUR OR MAY OCCUR ON OR IN THE VICINITY OF THE RED TOP CONVEYANCE PROJECT SITE.

ANIMALS (adapted from CDFW 2015a)

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Chinook Salmon - Central Valley Fall/Late Fall (<i>Oncorhynchus tshawytscha</i>)	CSC	Historically spawned in the Sacramento and San Joaquin drainages in the valley floor and lower foothill reaches. Until recently was absent from the San Joaquin above its confluence with the Merced, but is now being reintroduced to this reach. Spawns in gravel beds in riffle areas, typically at the downstream end of pools. Juvenile fall-run Chinook salmon spend 3 to 6 months rearing in freshwater before migrating to the sea. Extant in a wide array of suitable river habitats during fall migrations. Requires rivers with gravely substrate to spawn.	Possible. This species historically occurred in the San Joaquin River. Restoration efforts are anticipated to regularly return this species to the reach of river passing through the project site. Spawning habitat is absent from the project site.
Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Prefer clear, deep pools and runs with sand-gravel-boulder substrates in undisturbed areas of larger low to mid elevation streams.	Absent. This species is absent from valley reaches of the SJR.
Sacramento Splittail (<i>Pogonichthys macrolepidotus</i>)	CSC	Inhabits slow-moving sections of rivers and sloughs in the Central Valley and San Francisco Bay.	Unlikely. Historically found in the SJR as far south as Friant. The current known range of the species in the SJR extends to Salt Slough 27 air miles northwest of the project site.
Western Spadefoot (<i>Spea hammondi</i>)	CSC	Frequents annual grasslands and foothill hardwood woodlands; requires vernal pools or other temporary wetlands for breeding.	Absent. Suitable habitat for this species is absent from the study area.
Western Pond Turtle (<i>Emys marmorata</i>)	CSC	Occurs in suitable aquatic habitats such as ponds and rivers throughout California.	Unlikely. The intermittent flows of the SJR on the project site result in only marginal habitat for this species.
Blainville's Horned Lizard (<i>Phrynosoma blainvillii</i>)	CSC	Frequents sandy washes with scattered shrubs, grasslands, scrublands, and oak woodlands of Central California.	Unlikely. Although some habitat for this species occurs in the upland floodplain area of the site; no harvest ants, the main food source for the horned lizard, were observed anywhere on the study site.
Northern Harrier (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Possible. This species may forage over the site. Nesting habitat is absent.
White-tailed Kite (<i>Elanus leucurus</i>)	CFP	Open grasslands and agricultural areas throughout central California.	Possible. This species may forage over the site. Nesting habitat is marginal due to the small size of trees. No evidence of raptor nesting in the form of stick nests was observed on site during the field study.

TABLE 3. LIST OF SPECIAL STATUS ANIMALS THAT OCCUR OR MAY OCCUR ON OR IN THE VICINITY OF THE RED TOP CONVEYANCE PROJECT SITE.

ANIMALS (adapted from CDFW 2015a)

State Species of Special Concern (cont.)

California Spotted Owl (<i>Strix occidentalis occidentalis</i>)	CSC	Forest habitats of the western slope of the Sierra Nevada, in the southern Coast Ranges of Monterey County to Santa Barba County, and in the Transverse Ranges from Southern California to Baja California.	Absent. Habitats required by this species are absent from the project site.
Short-eared owl (<i>Asio flammeus</i>)	CSC	Occurs in open grasslands and marshlands of North America, South America, and Eurasia, and on many oceanic islands.	Absent. Habitats required by this species are absent from the project site.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. This species is dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Unlikely. Suitably sized burrows were absent from the project site and surrounding lands. No evidence of this species occupying the site was observed during the field survey. Foraging habitat is limited on the site but somewhat more available on surrounding lands.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	Present. This species was observed foraging on the project site and surrounding lands during the field survey. Suitable nesting habitat is available on the project site.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	Possible. Marginal breeding habitat is present on the project site in California rose thickets along the east bank of the SJR. Foraging habitat is present throughout the site.
Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>)	CSC	Nests in emergent wetland with dense vegetation and deep water. Forages in open areas, including cropland and muddy shores.	Possible. Suitable breeding habitat is absent from the project site. However, potential foraging habitat is present.
American Badger (<i>Taxidea taxus</i>)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	Unlikely. Marginal habitat for this species is present onsite. Adjacent agricultural lands provide limited foraging and breeding opportunities.

*** Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the site at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the site, but it could occur there from time to time.

Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient

Absent: Species not observed on the site, and precluded from occurring there because habitat requirements were not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPT	Federally Proposed Threatened	CSC	California Species of Special Concern
FC	Federal Candidate	CNPS	California Native Plant Society Listing
FD	Federally Delisted	CFP	California Fully Protected

An expanded discussion is warranted for special status species that are known to occur in the project vicinity. Activities that could harm these species are regulated by the USFWS and/or the CDFW.

2.7.1 Chinook Salmon (*Oncorhynchus tshawytscha*); Central Valley Spring Run: Federally Threatened, State Threatened; Central Valley Fall Run: California Species of Special Concern

Ecology and conservation of the species. Chinook salmon have an anadromous life history, meaning that they spend most of their lives in the ocean and migrate to freshwater to spawn. Races, or runs, of Chinook salmon are named according to the time of year that adults migrate into freshwater. Fall-run Chinook salmon return to their natal streams in the fall, and begin spawning within a few days or weeks. Spring-run Chinook salmon return to their natal streams in the spring and early summer, and spend the summer holding in deep pools before spawning in the late summer and fall. Spawning takes place in riffle areas, typically at the downstream end of pools. The resulting juveniles rear in slower-moving water along the stream margin before migrating to the ocean. Adult Chinook salmon typically spend 2 to 4 years at sea before returning to their natal streams to spawn.

Prior to the construction of the Friant Dam in 1942, the San Joaquin River supported one of the largest spring runs of Chinook salmon on the Pacific coast. In the late 1800s, runs in the San Joaquin River probably exceeded 200,000 fish (Moyle et al. 1995). Construction of the dam resulted in most of the San Joaquin River's water being diverted by the Friant-Kern and Madera Canals to the San Joaquin Valley for agricultural use. These diversions ceased flow for portions of approximately 153 miles of the river, resulting in the extirpation of salmon runs from the San Joaquin River above its confluence with the Merced River.

In 1988, a coalition of environmental and fishing groups filed a lawsuit to provide sufficient fish habitat in the San Joaquin River below Friant Dam. A settlement was reached in 2006, and implemented in 2009 in the form of the San Joaquin River Restoration Program (SJRRP). The SJRRP has as its central aim the restoration and maintenance of fish populations in the San Joaquin River between Friant Dam and the Merced River, including naturally reproducing and self-sustaining populations of Chinook salmon. Important SJRRP activities to date have included the restoration of sustainable flows in the river, and initial Chinook salmon reintroduction efforts. Interim flow water releases from the Friant Dam began in 2009, and restoration flow water releases in 2014. Transport of adult fall-run Chinook salmon from the San Joaquin River above the Hills Ferry Barrier to the San Joaquin River upstream of Highway 99 has been occurring each fall (October to December) since 2012. Reintroduction of spring-run Chinook salmon into the San Joaquin River below Friant Dam commenced in April 2014 with the release of 54,000 juveniles, and will continue to take place annually in the springtime for five years.

Potential to occur onsite. Due to SJRRP reintroduction efforts, both spring-run and fall-run Chinook salmon have the potential to occur in the reach of the San Joaquin River passing through the project site. However, the Sack Dam located 3 air miles upstream of the project site and the Hills Ferry Barrier pose significant impediments to salmon passage through the project site. Their potential for occurrence would fluctuate throughout the year. Reintroduced salmon are currently transported around the stretch of river in which the project site is located. Therefore, the likelihood of the Chinook salmon occurring on the project site during periods of river flow is low. Furthermore, since project construction will occur at a time when the riverbed is dry, Chinook salmon would be absent from the site at the time of construction.

2.7.2 Swainson's Hawk (*Buteo swainsoni*). Federal Listing Status: None; State Listing Status: Threatened.

Ecology of the species. The Swainson's hawk is designated as a California Threatened species. The loss of agricultural lands (i.e., foraging habitat) to urban development and additional threats such as riverbank protection projects have contributed to its decline. However, in recent years the Central Valley Swainson's hawk population has been increasing.

Swainson's hawks are large, broad-winged, broad-tailed hawks and have a high degree of mate and territorial fidelity. They arrive at their nesting sites in March or April. In the Central Valley, Swainson's hawks typically nest in large trees in or peripherally to riparian systems adjacent to suitable foraging habitats. The young hatch sometime between March and July and do not leave the nest until some 4 to 6 weeks later. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. Central Valley Swainson's hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Their primary food source during the breeding season is voles; however, they also prey on other small mammals, birds, and insects during this time.

Potential to occur onsite. Swainson's hawks are known to occur in the project vicinity. Documented nest sites are absent from the project area but occur within the project vicinity, as illustrated in Figure 4. Trees within the project area are small and contained no stick nests. It is highly unlikely that a Swainson's hawk would nest within the project area. During LOA's November field visit one inactive stick nest was observed in a Fremont cottonwood (*Populus fremontii*) tree approximately 400 feet south of the project area on the east bank of the SJR. However, the species of bird that has built and/or subsequently utilized this nest is unknown. The last use date of this nest is also unknown. This nest was not occupied by any avian species at the time of the field survey and no indications were found of recent raptor use such as prey remains, feathers, or whitewash on the ground beneath. The site offers very limited foraging habitat due to the ruderal nature of the project site and the periodic inundation of the SJR channel that would render the channel unsuitable for foraging.

2.7.3 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened

Ecology of the species. By the time the San Joaquin kit fox (SJKF) was listed as federally endangered in 1967 and California threatened in 1971, it had been extirpated from much of its historic range. The smallest North American member of the dog family (Canidae), the kit fox historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Local surveys, research projects, and incidental sightings indicate that kit fox currently occupy available habitat on the San Joaquin Valley floor

and in the surrounding foothills. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998).

The SJKF prefers habitats of open or low vegetation with loose soils. In the southern and central portion of the Central Valley, kit fox are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit fox may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998). They require underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals such as California ground squirrels. The SJKF is primarily carnivorous, feeding on rodents such as kangaroo rats, black-tailed hares, and desert cottontails, insects, reptiles, and some birds.

Potential to occur onsite. The deep unconsolidated sand within the SJR channel, periodically inundated areas of the SJR channel, the thick tangle of riparian trees and shrubs, and ruderal habitats of the project site provide marginal foraging habitat and unsuitable denning habitat for the San Joaquin kit fox. Surrounding agricultural lands are similarly unsuitable. Documented kit fox sightings are absent from the project site and vicinity. The nearest occurrences are approximately 8 miles to the north and south of the project site (Figure 5). Based on the documented presence of kit fox to the north and south, it is possible that individual foxes occasionally pass through the site, making use of the SJR corridor for dispersal movements. No burrows of suitable dimensions for the San Joaquin kit fox were observed on the project site or surrounding lands at the time of the field survey.

2.8 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, other natural drainages having a defined bed and bank (creeks), lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the CDFW and the Regional Water Quality Control Board (RWQCB) (see Section 3.2.9 of this report for additional information).

The USACE and RWQCB have jurisdiction over all areas of the SJR and Poso Canal below ordinary high water (OHW). The CDFW has jurisdiction over the SJR to the top of bank. State Lands Commission may have jurisdiction over all areas below mean high water. The stretch of the SJR on the project site is designated a Section 10 water by the USACE.

2.9 DESIGNATED CRITICAL HABITAT

As will be discussed further in Section 3.2.3, the USFWS often designates areas of “critical habitat” when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Units of critical habitat are absent from the project site and surrounding lands.

2.10 ESSENTIAL FISH HABITAT

As will be discussed further in Section 3.2.4, the National Marine Fisheries Service (NMFS) has designated “essential fish habitat” (EFH) for fish managed under the federal Magnuson-Stevens Fishery and Conservation Act. EFH encompasses all habitats required by federally managed species over the course of their life cycles under the three Fishery Management Plans (FMPs) (Pacific Coast FMP, Pacific Groundfish FMP, and the Coastal Pelagic Species FMP). Activities that have the potential to adversely affect EFH include dredging, filling, excavation, mining, discharge, water diversion, thermal additions, actions which contribute to non-point source pollution and sedimentation, introduction of exotic species, and conversion of aquatic habitats that may diminish or disrupt the functions of EFH.

The SJR below Friant Dam, including the reach of the river that passes through the project site, has been designated as EFH for Pacific salmon species.

2.11 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. Such geographic and

topographic features are present on the project site in the form of the San Joaquin River corridor. A number of wildlife species are expected to make use of this corridor for regular and seasonal movements. For example, a number of migrant birds travel along the SJR corridor between breeding grounds in the Sierra Nevada and wintering grounds in the Central Valley. North-south migrant birds may use the river corridor as a resting and/or feeding point during migration. Consequently, the river corridor on site is considered a significant wildlife movement corridor.

2.12 NATURAL COMMUNITIES OF SPECIAL CONCERN

Natural communities of special concern are habitats that are of limited distribution, distinguished by significant biological diversity, home to special status plant and animal species, and are of importance in maintaining water quality or sustaining flows, etc. Examples of sensitive habitats include vernal pools, emergent marsh, various types of riparian forest, etc. (Sawyer, Keeler-Wolf, and Evens 2009). Sensitive habitats of the project site include riparian and aquatic habitat of the SJR when it is present.

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are “significant” requires considerations of both context and intensity (see 40 CFR 1508.27).

Context means that significance must be analyzed in terms of the affected environment in which a proposed action would occur (“action area”). For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis requires a comparison of the action area’s biological resources to the biological resources of the local area within which the action area is located. The analysis may, however, require a comparison of the action area’s biological resources with the biological resources of an entire region.

Intensity refers to the severity of impact. In considering the intensity of impact to biological resources, it is necessary to address the unique qualities of wetlands and ecologically critical areas that may be affected by the action, the degree to which the action will be controversial, the degree to which the effects of the action will be uncertain, the degree to which the action will establish a precedent for future actions that may result in significant effects, and the potential for the action to result in cumulatively significant effects.

The effects of an action on some biological resources are generally considered to be “significant.” Actions that adversely affect federally listed threatened and endangered species and Waters of the U.S. are two examples. Other examples include actions that impede the migratory movements of fish and wildlife, and actions that substantially reduce the areal extent of fish and wildlife habitat, especially if habitat loss occurs in areas identified by state and federal governments as ecologically sensitive or of great scenic value.

NEPA requires mitigation for the effects of an action on the environment. Suitable measures include the following:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

This report identifies likely project impacts, identifies those that may be considered “significant” per the provisions of NEPA, and recommends mitigation measures, if any, that would avoid significant impact to biological resources.

CEQA

Approval of general plans, area plans, and specific projects is subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project’s impacts. For example, a proposed development project may require the removal of some or all of a site’s existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest.”

Specific project impacts to biological resources may be considered “significant” if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make “mandatory findings of significance” if the project has the potential to:

“Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.”

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 General Plan Policies of Madera and Fresno Counties

The Madera County General Plan (1995) and the Fresno County General Plan (2000) provides the County direction in project planning and approval with respect to land use, transportation, public facilities and services, recreation, cultural resources, health and safety, noise, agriculture, and natural resources. The Plans are implemented via a number of goals and corresponding

policies. Natural resources goals relevant to the current project include protection and enhancement of water resources; protection of wetland and riparian areas; protection, restoration, and enhancement of fish and wildlife habitat to maintain populations at viable levels; preservation and protection of vegetation resources; and the preservation and enhancement of open space land. The natural resources sections of both general plans are presented in Appendix D.

3.2.2 Threatened and Endangered Species

As discussed, state and federal “endangered species” legislation has provided CDFW and USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the “take” of a listed species. “Take” is defined by the state of California as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responsible agencies under CEQA. Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.3 Designated Critical Habitat

The USFWS often designates areas of “critical habitat” when it lists species as threatened or endangered. Critical habitat is defined by section 3(5)(A) of the federal Endangered Species Act as “(i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.” The Act goes on to define “conservation” as “the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary.”

The designation of a specific area as critical habitat does not directly affect its ownership. Federal actions that result in destruction or adverse modification of critical habitat are, however, prohibited in the absence of prior consultation with the USFWS according to provisions of the act. Furthermore, recent appellate court cases require that federal actions affecting critical habitat promote the recovery of the listed species protected by the critical habitat designation.

The USFWS designates critical habitat for a species by identifying general areas likely to contain the species' "primary constituent elements," or physical or biological features of the landscape that the species needs to survive and reproduce. Although a unit of critical habitat for a particular species may be quite large, only those lands within the unit that contain the species' primary constituent elements are actually considered critical habitat by the USFWS.

3.2.4 Essential Fish Habitat

In 1996, the NMFS designated "essential fish habitat" (EFH) for approximately 1,000 fish species managed under the federal Magnuson-Stevens Fishery Conservation and Management Act. EFH is the habitat necessary for managed fish to complete their life cycles, thus contributing to a fishery that can be harvested sustainably. EFH is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. EFH applies to all life stages of managed fish. EFH for a particular species may span a variety of aquatic habitats to cover the range of environments in which that species spawns, breeds, feeds, and grows to maturity.

The Magnuson-Stevens Act requires NMFS to work with other Federal agencies to conserve and enhance EFH. As a result, whenever Federal agencies authorize, fund, or carry out actions that may adversely impact EFH, they must consult with NMFS regarding the impact of their activities on EFH. Specifically, the MSA requires: (1) federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; (2) NMFS to provide conservation recommendations for any federal or State action that could adversely affect EFH; and (3) federal agencies to provide a detailed response in writing to NMFS within 30 days of receiving EFH conservation recommendations if they are choosing to not implement NMFS conservation recommendations.

3.2.5 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800).

3.2.6 Birds of Prey

Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

3.2.7 Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of “take” by the CDFW.

3.2.8 Bats

Section 2000 and 4150 of the California Fish and Game Code states that it is unlawful to take or possess a number of species, including bats, without a license or permit as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as “an

intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.”

3.2.9 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered “waters of the United States” or “jurisdictional waters” subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As determined by the United States Supreme Court in its 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the U.S. Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water.

The USACE regulates the filling or grading of jurisdictional waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. All activities that involve

the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards.

The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these waters are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.3 ENVIRONMENTAL IMPACT/MITIGATION

As described in Section 1.1, the proposed project is the construction of a turnout on Poso Canal and trenching of approximately 452 feet of pipeline, a short section of which crosses the SJR. All work in the river bed will occur when the river is dry. The following analysis of impacts assumes that nearly all impacts will be temporary impacts. The only permanent impacts associated with the project will be approximately 16 square feet, from the proposed concrete canal turnout. Potentially significant project impacts/effects to biological resources and associated mitigations to reduce the magnitudes of these impacts/effects are discussed below.

“Less Than Significant”/“Not Likely to Adversely Affect” Project Impacts

3.3.1 Potential Project Impacts to Special Status Plant Species

Impact. Sixteen special status vascular plant species are known to occur in the general project vicinity (see Table 2). Habitats required for these special status plants are absent and/or the project site is outside the species’ known range. Therefore, the proposed project will have no effect or impact on regional populations of any special status plants per the provisions of CEQA and NEPA.

Mitigation. No special status plant species are expected to occur in areas to be impacted on the site. Mitigations are not warranted.

3.3.2 Potential Project Impacts to Special Status Animal Species Absent or Unlikely to Occur on Site

Impact. Thirty four special status animal species occur regionally (see Table 3). Of these 34 species, 18 species would not occur on the project site due to the absence of suitable habitat and/or the site’s being situated outside of their known range, and 6 species would be unlikely to occur on the project site due to the presence of very low quality habitat. These species include the conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, valley longhorn elderberry beetle, delta smelt, Central Valley steelhead, hardhead, Sacramento splittail, western spadefoot, western pond turtle, Blainville’s horned lizard, California tiger salamander, California red-legged frog, blunt-nosed leopard lizard, giant garter snake, bald eagle, American peregrine falcon, mountain plover, California spotted owl, short-eared owl, burrowing owl, American badger, Nelson’s antelope squirrel, and Fresno kangaroo rat. The proposed project would have no effect/impact on regional populations of these 24 species. However, should the site be colonized by California ground squirrels prior to construction, then it is remotely possible that burrowing owls could move onto the site, in which individual owls would be at risk of construction-related mortality. Section 3.3.10 addresses this impact and provides appropriate mitigation measures for reducing the impact to a “less than significant level” under CEQA and NEPA, and a “not likely to adversely affect” level under ESA.

Mitigation. Mitigation measures are not warranted.

3.3.3 Potential Project Impacts to Special Status Animal Species that May Forage on the Site, but would Breed Elsewhere

Impact. Three special status avian species may occasionally forage within the site, but would breed elsewhere. These species include the golden eagle, northern harrier, and yellow-headed blackbird. The site does not provide regionally important foraging habitat for any of these species. Project construction may, at most, temporarily disrupt a small area of available foraging habitat. The project would not result in direct mortality of individuals of these species because these birds are highly mobile and would only potentially use the site for foraging. Therefore, the project would have a “less than significant” impact on these species under CEQA and NEPA and would be “not likely to adversely affect” these species under ESA.

Mitigation. Mitigation measures are not warranted.

3.3.4 Potential Project Impacts to Chinook Salmon

Impact. As a result of SJRRP reintroduction efforts, both spring-run and fall-run Chinook salmon may occur in the reach of the SJR when it is flowing through the project site. However, these species would be absent from the project site during project construction, which will occur when this stretch of river is dry. Furthermore, the trenched area of the project site will result in less than a quarter of an acre of temporary impact to the dry river bed, which will be restored to pre-project contours. Additionally, mitigations to avoid adverse effects to water quality presented in Section 3.3.14 will assure indirect impacts to Chinook salmon from poor water quality will not occur. Therefore, the proposed project will have no effect or impact on spring-run and fall-run Chinook salmon per the provisions of CEQA and NEPA.

Mitigation. No mitigation is warranted.

3.3.5 Potential Project Impact to Designated Critical Habitat

Impact. No designated USFWS Critical Habitat for federally listed species occurs on the project site or surrounding lands. Therefore, the project will have no effect/impact on designated Critical Habitat.

Mitigation. Mitigation measures are not warranted.

3.3.6 Potential Project Impact to Essential Fish Habitat

Project construction will occur when the river channel is dry. The project is anticipated to result in less than a quarter of an acre of temporary disturbance to EFH. Additionally, pre-project contours will be restored and hydrologic conditions will not be permanently altered by the project. Chinook salmon spawning habitat is absent from the project site. For these reasons the proposed project will have no permanent adverse effect/impact on EFH per the provisions of CEQA and NEPA.

Nonetheless, Reclamation will consult with NMFS on the action's potential effects on EFH.

Mitigation. Mitigation measures are not warranted.

3.3.7 Potential Project Impact to Fish or Wildlife Movement Corridors

Impact. The project site includes a short segment of the San Joaquin River corridor, which is a regionally important movement corridor for fish and wildlife species. Construction activities are expected to be brief and occur only during daylight hours. Nearly all terrestrial wildlife species, aside from avian species, engage in primarily nocturnal movements, and would, therefore, be unlikely to experience much disruption to their night time movements through the river corridor. At most, construction activities may result in only a brief disruption of native wildlife movements in this small section of the corridor. There would be no permanent impacts to the SJR and wildlife would be expected to resume normal movement patterns when construction is complete. Since construction will occur when the river is dry, impacts to fish movements will be absent. Therefore, the project will have a "less than significant" impact/effect on fish or wildlife movement corridors per the provisions of CEQA and NEPA.

Mitigation. Mitigation measures are not warranted.

3.3.8 Project Impacts to Waters of the U.S.

Impact. The project is anticipated to result in less than a quarter of an acre of temporary disturbance to the SJR, a federally regulated water, and approximately 16 sq. ft. of permanent impact to the Poso Canal, a potential water of the U.S. After construction the river bed will be restored to its original contours. After the installation of the small concrete turnout structure the

Poso Canal will be restored to function in nearly the same manner as before construction. As a result, the project's impacts to waters of the U.S. will be "less than significant" under CEQA and NEPA. However, a Department of Army, Clean Water Act Permit (most likely a Nationwide Permit 12) will be required to lawfully construct all project components within OHW of the SJR and the Poso Canal. This nationwide permit requires preconstruction notification, compliance with general conditions of the permit, removal of temporary fills from jurisdictional areas, and preparation of a restoration plan and revegetation, as appropriate.

The USACE cannot issue a Clean Water Act permit until the RWQCB issues a Section 401 Water Quality Certification. As such, obtaining the certification from the RWQCB will also be required. Furthermore, CDFW requires notification and issuance of a Streambed Alteration Agreement prior to working within the San Joaquin River.

Mitigation. Mitigation measures are not warranted.

3.3.9 Consistency of Project with Local Ordinances Protecting Biological Resources

Impact. The proposed project is designed to be consistent with policies of the County of Madera General Plan (1995) and County of Fresno General Plan (2000). This project will not be in conflict with any local policies or ordinances protecting biological resources.

Mitigation. Mitigation measures are not warranted.

"Less Than Significant"/"Not Likely to Adversely Affect" Project Impacts After Mitigation

3.3.10 Potential Project Impacts to Burrowing Owl

Impact. Burrowing owls and burrows suitable for burrowing owls were not observed on the project site during the field survey. The project site offers only marginal foraging habitat for this species, and burrows of suitable dimensions for the burrowing owl were absent at the time of the field survey. Agricultural lands surrounding the site offer potentially suitable habitat for this species. The majority of project impacts will be temporary in nature. The small area of permanent impacts associated with Poso Canal turnout will be in ruderal roadside/canal habitats that would be marginal, at best, for the burrowing owl. Therefore, loss of habitat for the

burrowing owl would constitute a less than significant effect/impact of the project as defined by CEQA and NEPA.

Should California ground squirrels colonize the site before construction, it is remotely possible that one or more burrowing owls could move onto or immediately adjacent to the site, in which case they would be at risk of construction-related injury or mortality. These small raptors are protected under the Federal Migratory Bird Treaty Act and California Fish and Game Code. Mortality of individual owls would be a violation of state and federal law, and would constitute a significant impact of the project under CEQA and an adverse effect under NEPA.

Mitigation. Implementation of the following measures will reduce potential project impacts to the burrowing owl to a “less than significant” level under CEQA and NEPA.

- **Mitigation Measure 3.3.10a: Pre-construction Surveys.** A “take avoidance survey” as described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) will be conducted by a qualified biologist for burrowing owls within 30 days of the onset of project activities involving ground disturbance or heavy equipment use. The survey area will include all suitable habitat on and within 500 feet of project impact areas, where accessible.
- **Mitigation Measure 3.3.10b: Avoidance of Active Nests.** If pre-construction surveys and subsequent project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are located within or near project impact areas, a 250-foot construction setback will be established around active owl nests, or alternate avoidance measures implemented in consultation with CDFW. The buffer areas will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season, unless otherwise arranged with CDFW. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.
- **Mitigation Measure 3.3.10c: Passive Relocation of Resident Owls.** During the non-breeding season (September 1-January 31), resident owls occupying burrows in project impact areas may be passively relocated to alternative habitat in accordance with a relocation plan prepared by a qualified biologist and approved by CDFW. Passive relocation may include one or more of the following elements: 1) establishing a minimum 50 foot buffer around all active burrowing owl burrows, 2) removing all suitable burrows outside the 50 foot buffer and up to 160 feet outside of the impact areas as necessary, 3) installing one-way doors on all potential owl burrows within the 50 foot buffer, 4) leaving one-way doors in place for 48 hours to ensure owls have vacated the burrows, and 5) removing the doors and excavating the remaining burrows within the 50 foot buffer.

3.3.11 Construction Mortality of the San Joaquin Kit Fox

Potential Impacts. As previously discussed, the project site offers only marginal foraging habitat for the San Joaquin kit fox and provides unsuitable denning habitat. No burrows of suitable dimensions for the San Joaquin kit fox were observed on the project site at the time of the field survey. Furthermore documented kit fox occurrences are absent from the project sight and surrounding lands. However, San Joaquin kit fox may utilize the SJR channel as a dispersal corridor from time to time.

If a kit fox were passing through the project site at the time of construction, then they would be at risk of construction-related mortality. As discussed, this species is listed as both federally and state endangered. In the absence of incidental take authorization by the USFWS and CDFW, construction mortality of the San Joaquin kit fox would constitute a violation of the state and federal Endangered Species Acts. Construction mortality of the San Joaquin kit fox would also constitute a significant impact of the project as defined by CEQA and an adverse effect of the project as defined by NEPA.

Mitigation. Prior to construction, all minimization measures contained in the U.S. Fish and Wildlife Service 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* will be implemented (see Appendix E for a complete list of all minimization measures)

- **Mitigation Measure 3.3.11a (Pre-construction Surveys).** Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the start of construction. These surveys will be conducted in accordance with the USFWS *Standard Recommendations*. The primary objective is to identify kit fox habitat features (e.g. potential dens and refugia) on the project site and evaluate their use by kit foxes through use of remote monitoring techniques such as motion-triggered cameras and tracking medium. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS and CDFW shall be contacted immediately.
- **Mitigation Measure 3.3.11b (Avoidance).** Should an active kit fox den be detected within or immediately adjacent to the area of work, a minimum 50-foot disturbance-free buffer will be established around the den in consultation with the USFWS and CDFW, to be maintained until a qualified biologist has determined that the den is no

longer occupied. Known kit fox dens may not be destroyed until they have been vacant for a period of at least three days, as demonstrated by use of motion-triggered cameras or tracking medium, and then only after obtaining take authorization from the USFWS.

- ***Mitigation Measure 3.3.11c (Minimization).*** Construction activities shall be carried out in a manner that minimizes disturbance to kit foxes. Minimization measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.
- ***Mitigation Measure 3.3.11d (Employee Education Program).*** Prior to the start of construction, the applicant will retain a qualified biologist to conduct one tailgate meeting to train construction staff that will be involved with the project on the San Joaquin kit fox. This training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction. The training will include a hand out with all of the training information included in it. The project manager will use this handout to train any additional construction staff that were not in attendance at the first meeting, prior to starting work on the project.
- ***Mitigation Measure 3.3.11e (Mortality Reporting).*** The Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in case of the accidental death or injury of a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.

Implementation of these measures will reduce potentially significant project impacts to the San Joaquin kit fox to a “less than significant” level under CEQA and NEPA, a “not likely to adversely affect” level under ESA, and ensure compliance with state and federal laws protecting this species.

3.3.12 Potential Project Impact to Nesting Birds

Impact. The project site provides nesting habitat for numerous bird species protected under the federal Migratory Bird Treaty Act and related state laws. Special status bird species potentially nesting within the project site are the Swainson’s hawk, which is afforded additional protections under the California Endangered Species Act, the white-tailed kite, which is California Fully

Protected, and the loggerhead shrike and tricolored blackbird, which are California Species of Special Concern. However, onsite nesting habitat is marginal for the Swainson's hawk, white-tailed kite, and tricolored blackbird. In the event that special status or other migratory birds were to be nesting on or in close proximity of the project site at the time of construction, individuals would be at risk of construction-related injury or mortality. In addition to direct "take" of nesting birds, project activities could disturb birds nesting within and adjacent to work areas such that they would abandon their nests. Project activities that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds constitute a violation of state and federal laws and represent a potentially significant adverse environmental effect/impact of the project as defined by NEPA and CEQA.

Mitigation. In order to minimize construction disturbance to migratory bird nests, the applicant will implement one or more of the following measure(s) as necessary, prior to project construction:

- ***Mitigation Measure 3.3.12a: Avoidance.*** If feasible, project activities will occur outside of the typical avian nesting season, or between September 1 and January 31. If the project is constructed entirely outside of the nesting season, there will be no impacts to nesting birds, and no further mitigation is required.
- ***Mitigation Measure 3.3.12b: Pre-construction Surveys.*** If project activities must occur during the nesting season, a pre-construction survey shall be conducted by a qualified biologist for nesting birds within 30 days of the onset of construction. The survey will include the project site and surrounding lands within a radius of one half-mile for the Swainson's hawk and white-tailed kite, and a radius of 500 feet for all other avian species.
- ***Mitigation Measure 3.3.12c: Establish Buffers.*** Should any active nests be discovered, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Implementation of these measures will reduce potential project impacts to nesting migratory birds to a "less than significant" level under CEQA and NEPA, as well as ensure compliance with state and federal laws protecting these species.

3.3.13 Potential Project Impact to Natural Communities of Special Concern

Impact. As discussed in Section 2.11, the riparian habitat of the site is considered a natural community of special concern. The project will avoid impacts to all riparian trees, if feasible; however, there is some potential for effects/impacts to riparian habitat to occur.

Mitigation. The following measures will be implemented to mitigate any potential impacts to riparian and other sensitive habitats during construction of the project.

- **Mitigation Measure 3.3.13a. (Tree Survey).** Prior to project construction a qualified biologist will survey all trees with a diameter at breast height (DBH) greater than 4 inches within the project impact area. During the survey the biologist will note the location, DBH, and species of each tree. Upon project completion a qualified biologist will survey the site to determine if any surveyed trees were removed.
- **Mitigation Measure 3.3.13b. (Revegetation of Disturbed Areas).** After construction, all disturbed areas will be restored to approximate pre-project conditions. The herbaceous vegetation within the river bottom and quick growing riparian shrub species (i.e. California rose and sandbar willow) that dominate the river banks are anticipated to revegetate naturally from adjacent root masses.

The applicant will provide compensation for removal of riparian trees with a DBH of more than 4 inches. Replacement planting will be implemented at a ratio of 3:1 for trees with a DBH between 4-24 inches, and at a ratio of 10:1 for trees with a DBH greater than 24 inches. Species chosen for the plant palette will include native riparian trees such as valley oaks, Oregon ash and Fremont's cottonwoods. These trees will be planted as container plants and/or cuttings. If possible, cuttings will be gathered from lands fronting the San Joaquin River. All planting material will be installed in the late fall or early winter. All plantings will be monitored annually for a minimum of five years. A revegetation plan will be completed for the project which will detail the maintenance, monitoring, performance criteria and success rate for trees planted within the project site.

Implementation of these measures will reduce potential project impacts to riparian and sensitive habitats to a "less than significant" level under CEQA and NEPA.

3.3.14 Degradation of Water Quality in Downstream Waters

Impact. Trenching required by the proposed project could result in increased sediment loads entering the SJR. Project elements such as recontouring after construction, removing spoils, and reseedling with native species approved by a biologist will reduce impacts to downstream water

quality. However, project activities still pose a potential effect/impact to downstream water quality.

Mitigation. The following measures are designed to reduce soil erosion on the project site during construction and the concomitant deposition of sediment into the SJR and other downstream waters.

- ***Mitigation Measure 3.3.14a (Preparation and implementation of erosion control plan):*** Prior to the onset of construction, an erosion control plan will be prepared by a qualified engineer consistent with the requirements of a General Construction Permit (an NPDES permit issued by the Regional Water Quality Control Board for Projects in which one or more acres of land are graded). Typically, specified erosion control measures must be implemented prior to the onset of the rainy season. The site must then be monitored periodically throughout the rainy season to ensure that the erosion control measures are successfully preventing onsite erosion and the concomitant deposition of sediment into jurisdictional waters. Elements of this plan would address both the potential for soil erosion and non-point source pollution. At a minimum, elements of an erosion control plan typically include the following:
 - 1) Protection of exposed graded slopes and/or temporary sidecast soils from sheet, rill and gully erosion. Such protection could be in the form of erosion control fabric or sheeting, straw waddles, post-construction hydromulch containing the seed of native soil-binding plants, or straw mechanically embedded in exposed soils.
 - 2) Use of best management practices (BMPs) to control soil erosion and non-point source pollution.

Mitigation Measure 3.3.1.3b (Time construction to occur during the dry season): Where possible, project construction will be confined to the dry season, when the chance for significant rainfall and stormwater runoff is very low. Construction during the spring, summer, and fall will not eliminate the need to implement erosion control measures described in Mitigation Measure 3.3.14a, but will ensure that the potential for soil erosion has been minimized to the maximum extent feasible.

Compliance with these measures would reduce project impacts to water quality in downstream waters to a “less than significant” level under CEQA and NEPA.

4.0 LITERATURE REFERENCED

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D. G. Wilken, editors, 2012. *The Jepson Manual: Vascular Plants of California, second edition*. University of California Press, Berkeley.
- Bureau of Reclamation and California Department of Water Resources, 2011. *San Joaquin River Restoration Program Environmental Draft Impact Statement/Report (PEIS/EIR)*.
- California Department of Fish and Game. 2004. Fish and Game Code Sections 1600-1616. 6 pp.
- California Department of Fish and Game. 2007. San Joaquin River Fishery and Aquatic Resources Inventory, Cooperative Agreement 03FC203053, Final Report September 2003-2005. State of California The Resources Agency.
- California Department of Fish and Wildlife. 2015a. California Natural Diversity Database. Rarefind 5.0 Application. The Resources Agency, Sacramento, CA.
- California Department of Fish and Wildlife. 2015b. Special Animals (October 2015). California Natural Diversity Database.
- California Department of Fish and Wildlife. 2015c. Special Vascular Plants, Bryophytes, and Lichens List (October 2015). California Natural Diversity Database. 126 pp.
- California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Natural Resources Agency. 36 pp.
- California Native Plant Society (CNPS). 2015. Inventory of Rare and Endangered Plants of California (online edition, v8-01a). California Native Plant Society. Sacramento, CA.
- California Soil Resources Lab. 2008. SoilWeb (Streaming, seamless interface to USDA-NCSS SSURGO and STATSGO Soil Survey Products). University of California. Davis, CA.
- Live Oak Associates, Inc. 2014. *Demolition and Removal of Derelict Bridge Remains, Biological Evaluation*, Madera County, California.
- Moyle, Peter B. 2002. Inland Fishes of California, Revised and Expanded. University of California Press.
- Natural Resource Conservation Service. 1971. Soil Survey, Eastern Fresno Area. United States Department of Agriculture.
- Natural Resource Conservation Service. 1990. Soil Survey, Madera Area 1951 No. 11. United States Department of Agriculture.

Portz, D. E., S. Root, and C. Hueth. 2013. Central Valley steelhead monitoring plan for the San Joaquin River Restoration Area: 2013 monitoring results for National Marine Fisheries Service, Permit 16608. Bureau of Reclamation, Denver Technical Service Center, Denver, CO.

San Joaquin River Restoration Program. 2014. Available URL:
<http://www.restoresjr.net/index.html>

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society. 1,300 pp.

U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. By Environmental Laboratory, Department of the Army. Washington D.C. 143 pp.

USACE. 2012. National Wetland Plant List Final Draft Ratings. Cold Regions Research and Engineering Laboratory (CREEL).

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume I, amphibians and reptiles. Department of Fish and Game. Sacramento, CA. 272 pp.

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume II, birds. Department of Fish and Game. Sacramento, CA. 731 pp.

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume III, mammals. Department of Fish and Game. Sacramento, CA. 407 pp.

**APPENDIX A: VASCULAR PLANTS OF THE
PROJECT SITE**

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The plants species listed below were observed on the project site during surveys conducted by Live Oak Associates, Inc. on November 9, 2015. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
 FACW - Facultative Wetland
 FAC - Facultative
 FACU - Facultative Upland
 UPL - Upland

APIACEAE – Carrot Family

<i>Conium maculatum</i>	Poison Hemlock	FACW
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ASTERACEAE - Sunflower Family

<i>Ambrosia acanthicarpa</i>	Annual Bursage	UPL
<i>Artemisia douglasiana</i>	Mugwort	FAC
<i>Erigeron canadensis</i>	Canada Horseweed	FACU
<i>Heterotheca grandiflora</i>	Telegraph Weed	UPL
<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	FAC
<i>Silybum marianum</i>	Milk Thistle	UPL
<i>Stephanomeria exigua</i>	Small Wirelettuce	UPL
<i>Xanthium strumarium</i>	Rough Cocklebur	FAC

BORAGINACEAE – Borage Family

<i>Amsinckia sp.</i>	Fiddleneck	UPL
<i>Heliotropium curassavicum</i>	Heliotrope	FACU

BRASSICACEAE – Mustard Family

<i>Brassica nigra</i>	Black Mustard	UPL
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CHENOPODIACEAE – Goosefoot Family

<i>Atriplex serenana</i> var. <i>serenana</i>	Bractscale	FAC
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CYPERACEAE- Sedge Family

<i>Carex sp.</i>	Sedge	OBL
<i>Cyperus sp.</i>	Umbrella Sedge	FACW or OBL

JUNCACEAE – Rush Family

<i>Juncus sp.</i>	Rush	FACW
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LAMIACEAE – Mint Family

<i>Marrubium vulgare</i>	Common Horehound	UPL
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MALVACEAE – Mallow Family

<i>Malva sp.</i>	Cheeseweed	UPL
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OLEACEAE – Ash Family

<i>Fraxinus latifolia</i>	Oregon Ash	FACW
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POACEAE - Grass Family

<i>Bromus diandrus</i>	Ripgut	UPL
<i>Bromus hordeaceus</i>	Soft Chess	FACU
<i>Bromus madritensis rubens</i>	Red Brome	UPL
<i>Cynodon dactylon</i>	Bermuda Grass	FACU
<i>Distichlis spicata</i>	Salt Grass	FAC
<i>Leptochloa uninerva</i>	Mexican Sprangletop	UPL
<i>Polypogon monspeliensis</i>	Rabbitsfoot Grass	FACW

POLYGONACEAE – Smartweed Family*Rumex crispus*

Curly Dock

FAC

ROSACEAE – Rose Family*Rosa californica*

California Wild Rosa

FAC

Rubus ursinus

California Blackberry

FAC

RUBIACEAE – Madder Family*Cephalanthus occidentalis*

Button Willow

OBL

SALICACEAE – Willow Family*Salix exigua*

Sandbar Willow

FACW

Salix gooddingii

Goodding's Black Willow

FACW

SOLANACEAE - Nightshade Family*Datura wrightii*

Jimson Weed

UPL

URTICACEAE- Nettle Family*Urtica dioica* ssp. *holericea*

Stinging Nettle

FAC

VISCACEAE – Mistletoe Family*Phoradendron* sp.

Mistletoe

UPL

**APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY
OCCUR ON THE SITE**

APPENDIX B
TERRESTRIAL VERTEBRATE SPECIES THAT MAY OCCUR
ON THE SITE

The species listed below are those that may reasonably be expected to use or pass through the habitats of the site. The list was not intended to include birds that are vagrants or occasional transients. Its purpose is rather to include those species that may be expected to routinely and predictably use or pass through the project site during some or all of the year. An asterisk denotes a species observed on or immediately adjacent to the site during LOA's survey conducted on November 9, 2015.

CLASS: AMPHIBIA

ORDER: SALIENTIA (Frogs and Toads)

FAMILY: BUFONIDAE

Western Toad (*Bufo boreas*)

FAMILY: HYLIDAE (Treefrogs and Relatives)

Pacific Treefrog (*Pseudacris regilla*)

CLASS: REPTILIA

ORDER: SQUAMATA (Lizards and Snakes)

SUBORDER: SAURIA (Lizards)

FAMILY: PHRYNOSOMATIDAE

Western Fence Lizard (*Sceloporus occidentalis*)

Side Blotched Lizard (*Uta stansburiana*)

FAMILY: TEIIDAE (Whiptails and relatives)

Western Whiptail (*Cnemidophorus tigris*)

SUBORDER: SERPENTES (Snakes)

FAMILY: COLUBRIDAE (Colubrids)

Ringneck Snake (*Diadophis punctatus*)

Striped Racer (*Coluber lateralis*)

Gopher Snake (*Pituophis melanoleucus*)

Glossy snake (*Arizona elegans*)

Common Kingsnake (*Lampropeltis getulus*)

Common Garter Snake (*Thamnophis sirtalis*)

FAMILY: VIPERIDAE

Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES

ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)

FAMILY: ARDEIDAE (Herons and Egrets)

Great Egret (*Casmerodius albus*)

*Great Blue Heron (*Ardea herodias*)

Snowy Egret (*Egretta thula*)

Green Heron (*Butorides virescens*)

Black-Crowned Night Heron (*Nycticorax nycticorax*)

FAMILY: CATHARTIDAE (New World Vultures)

Turkey Vulture (*Cathartes aura*)

ORDER: ANSERIFORMES (Screamers, Ducks and Relatives)

FAMILY: ANATIDAE (Swans, Geese and Ducks)

Canada Goose (*Branta canadensis*)

Mallard (*Anas platyrhynchos*)

Cinnamon Teal (*Anas cyanoptera*)

Common Merganser (*Mergus merganser*)

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)

FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)

White Tailed Kite (*Elanus leucurus*)

Northern Harrier (*Circus cyaneus*)

Sharp-shinned Hawk (*Accipiter striatus*)

Cooper's Hawk (*Accipiter cooperi*)

Red-shouldered Hawk (*Buteo lineatus*)

Swainson's Hawk (*Buteo swainsoni*)

*Red-tailed Hawk (*Buteo jamaicensis*)

Ferruginous Hawk (*Buteo regalis*)

Rough-legged Hawk (*Buteo lagopus*)

*Golden Eagle (*Aquila chrysaetos*)

FAMILY: FALCONIDAE (Caracaras and Falcons)

American Kestrel (*Falco sparverius*)

Merlin (*Falco columbarius*)

Prairie Falcon (*Falco mexicanus*)

ORDER: GRUIFORMES (Cranes and Rails)

FAMILY: RALLIDAE (Rails)

American Coot (*Fulica americana*)

ORDER: CHARADRIIFORMES (Plovers, Sandpipers, Gulls, and Terns)

FAMILY: CHARADRIIDAE (Plovers)

*Killdeer (*Charadrius vociferus*)

FAMILY: RECURVIROSTRIDAE (Avocets and Stilts)

Black-Necked Stilt (*Himantopus mexicanus*)

American Avocet (*Recurvirostra americana*)

FAMILY: SCOLOPACIDAE (Sandpipers)

Greater Yellowlegs (*Tringa melanoleuca*)

Spotted Sandpiper (*Actitis macularia*)

Long-billed Dowitcher (*Limnodromus scolopaceus*)

Least Sandpiper (*Calidris bairdii*)

FAMILY: LARIDAE (Skuas, Gulls, Terns and Skimmers)

Ring-Billed Gull (*Larus delawarensis*)

California Gull (*Larus californicus*)

Herring Gull (*Larus argentatus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

Rock Pigeon (*Columba livia*)

*Mourning Dove (*Zenaida macroura*)

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)

Barn Owl (*Tyto alba*)

FAMILY: STRIGIDAE (Typical Owls)

Western Screech Owl (*Otus kennicottii*)

Great Horned Owl (*Bubo virginianus*)

Burrowing Owl (*Athene cunicularia*)

ORDER: CAPRIMULGIFORMES (Goatsuckers and relatives)

FAMILY: CAPRIMULGIDAE (Goatsuckers)

Lesser Nighthawk (*Chordeiles acutipennis*)

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Anna's Hummingbird (*Calypte anna*)

Black-chinned Hummingbird (*Archilochus alexandri*)

ORDER: PICIFORMES (Woodpeckers and Relatives)

FAMILY: PICIDAE (Woodpeckers and Wrynecks)

Red-Breasted Sapsucker (*Sphyrapicus ruber*)

Nuttall's Woodpecker (*Picoides nuttallii*)

Downy Woodpecker (*Picoides pubescens*)

*Northern Flicker (*Colaptes auratus*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

Western Wood-Pewee (*Contopus sordidulus*)

Pacific-Slope Flycatcher (*Empidonax difficilis*)

*Black Phoebe (*Sayornis nigricans*)

*Say's Phoebe (*Sayornis saya*)

Ash-Throated Flycatcher (*Myiarchus cinerascens*)

Western Kingbird (*Tyrannus verticalis*)

FAMILY: LANIIDAE (Shrikes)

*Loggerhead Shrike (*Lanius ludovicianus*)

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

*Western Scrub-Jay (*Aphelocoma californica*)

*American Crow (*Corvus brachyrhynchos*)

*Common Raven (*Corvus corax*)

FAMILY: ALAUDIDAE (Larks)

Horned Lark (*Eremophila alpestris*)

FAMILY: HIRUNDINIDAE (Swallows)

Violet-green Swallow (*Tachycineta thalassina*)

Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)

Barn Swallow (*Hirundo rustica*)

Cliff Swallow (*Petrochelidon pyrrhonota*)

FAMILY: AEGITHALIDAE (Bushtit)

*Bushtit (*Psaltiriparus minimus*)

FAMILY: TROGLODYTIDAE (Wrens)

Rock Wren (*Salpinctes obsoletus*)

Bewick's Wren (*Thryomanes bewickii*)

House Wren (*Troglodytes aedon*)

FAMILY: REGULIDAE (Kinglets)

*Ruby-Crowned Kinglet (*Regulus calendula*)

FAMILY: SYLVIIDAE (Old World Warblers and Gnatcatchers)

*Blue-Gray Gnatcatcher (*Polioptila caerulea*)

FAMILY: TURDIDAE (Thrushes)

Western Bluebird (*Sialia mexicana*)

Mountain Bluebird (*Sialia currucoides*)

Hermit Thrush (*Catharus guttatus*)

American Robin (*Turdus migratorius*)

FAMILY: MIMIDAE (Mockingbirds and Thrashers)

*Northern Mockingbird (*Mimus polyglottos*)

FAMILY: STURNIDAE (Starlings and Allies)

European Starling (*Sturnus vulgaris*)

FAMILY: MOTACILLIDAE (Wagtails and Pipits)

American Pipit (*Anthus rubescens*)

FAMILY: BOMBYCILLIDAE (Waxwings)

Cedar Waxwing (*Bombycilla cedrorum*)

FAMILY: PTILOGONATIDAE (Silky Flycatchers)

Phainopepla (*Phainopepla nitens*)

FAMILY: PARULIDAE (Wood Warblers and Relatives)

Orange-Crowned Warbler (*Vermivora celata*)

Yellow Warbler (*Dendroica petechia*)

*Yellow-Rumped Warbler (*Dendroica coronata*)

Common Yellowthroat (*Geothlypis trichas*)

Wilson's Warbler (*Wilsonia pusilla*)

FAMILY: EMBERIZIDAE (Emberizines)

Lark Sparrow (*Chondestes grammacus*)

*Savannah Sparrow (*Passerculus sandwichensis*)

Song Sparrow (*Melospiza melodia*)

Lincoln's Sparrow (*Melospiza lincolnii*)

White-Crowned Sparrow (*Zonotrichia leucophrys*)

Golden-Crowned Sparrow (*Zonotrichia atricapilla*)

Dark-Eyed Junco (*Junco hyemalis*)

FAMILY: CARDINALIDAE (Cardinals, Grosbeaks and Allies)

Black-Headed Grosbeak (*Pheucticus melanocephalus*)

Blue Grosbeak (*Passerina caerulea*)

Lazuli Bunting (*Passerina amoena*)

FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)

Red-Winged Blackbird (*Agelaius phoeniceus*)

Tricolored Blackbird (*Agelaius tricolor*)

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)

*Western Meadowlark (*Sturnella neglecta*)

Brewer's Blackbird (*Euphagus cyanocephalus*)

Great-Tailed Grackle (*Quiscalus mexicanus*)

Brown-Headed Cowbird (*Molothrus ater*)

Bullock's Oriole (*Icterus bullockii*)

FAMILY: FRINGILLIDAE (Finches)

House Finch (*Carpodacus mexicanus*)

Lesser Goldfinch (*Carduelis psaltria*)

American Goldfinch (*Carduelis tristis*)

FAMILY: PASSERIDAE (Old World Sparrows)

House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia Opossum (*Didelphis virginiana*)

ORDER: INSECTIVORA (Shrews and Moles)

FAMILY: TALPIDAE (Moles)

Broad-footed Mole (*Scapanus latimanus*)

ORDER: CHIROPTERA (Bats)

FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)

Yuma Myotis (*Myotis yumanensis*)

Long-eared Myotis, (*Myotis evotis*)

Fringed Myotis (*Myotis thysanodes*)

California Myotis (*Myotis californicus*)

Long-legged Myotis (*Myotis volans*)

Small-footed Myotis (*Myotis leibii*)

Hoary Bat (*Lasiurus cinereus*)

Big Brown Bat (*Eptesicus fuscus*)

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

FAMILY: LEPORIDAE (Rabbits and Hares)

*Audubon's Cottontail (*Sylvilagus audubonii*)

Black-Tailed Jackrabbit (*Lepus californicus*)

ORDER: RODENTIA (Squirrels, Rats, Mice, and Relatives)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

California Ground Squirrel (*Spermophilus beecheyi*)

FAMILY: GEOMYIDAE (Pocket Gophers)

*Botta's Pocket Gopher (*Thomomys bottae*)

FAMILY: HETEROMYIDAE

California Pocket Mouse (*Chaetodipus californicus*)

Heermann's Kangaroo Rat (*Dipodomys heermanni*)

FAMILY: MURIDAE (Mice, Rats and Voles)

Western Harvest Mouse (*Reithrodontomys megalotis*)

California Mouse (*Peromyscus californicus*)

Deer Mouse (*Peromyscus maniculatus*)

Brush Mouse (*Peromyscus boylii*)

Dusky-footed Woodrat (*Neotoma fuscipes*)

House Mouse (*Mus musculus*)

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and Relatives)

Coyote (*Canis latrans*)

Gray Fox (*Urocyon cinereoargenteus*)

San Joaquin Kit Fox (*Vulpes macrotis mutica*) (

FAMILY: PROCYONIDAE (Raccoons and Relatives)

Raccoon (*Procyon lotor*)

FAMILY: MEPHITIDAE

Striped Skunk (*Mephitis mephitis*)

FAMILY: FELIDAE

Feral Cat (*Felis catus*)

Bobcat (*Felis rufus*)

APPENDIX C: SELECTED PHOTOGRAPHS OF THE PROJECT SITE



Photo 1. SJR bed at pipeline crossing.



Photo 2. Riparian trees within pipeline alignment.



Photo 3. Poso Canal.



Photo 4. Project staging area.

APPENDIX D: FRESNO AND MADERA COUNTY GENERAL PLANS

**APPENDIX E: STANDARDIZED RECOMMENDATIONS FOR THE PROTECTION
OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND
DISTURBANCE**