
DRAFT ENVIRONMENTAL ASSESSMENT

*2010 WATERSMART: WATER AND ENERGY EFFICIENCY GRANT FOR THE
FRESNO IRRIGATION DISTRICT BRIGGS LATERAL CANAL IMPROVEMENT
PROJECT*

Appendix A

Reconnaissance Level Biological Survey Report (pages 1-26)

October 2011

RECONNAISSANCE LEVEL BIOLOGICAL SURVEY REPORT

Prepared For:

Fresno Irrigation District

2907 S. Maple Avenue, Fresno, CA 93725-2228
Fresno County, California

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Prepared by:

Jason Thomas

Biologist

Gavin O'Leary

Biologist



Provost & Pritchard Engineering Group, Inc.

286 W. Cromwell Ave.

Fresno, CA 93711

Phone: (559) 449-2700

Fax No: (559) 449-2715

Website: www.ppeng.com

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1. INTRODUCTION

The proposed Project requiring the biological reconnaissance survey and subsequent report is for construction of improvements on canal facilities along the Briggs Canal alignment operated by Fresno Irrigation District (**FID**) and for two locations on the Malaga Canal alignment operated by Consolidated Irrigation District (**CID**).

The Project site is comprised of 4 locations between the Cities of Fresno and Fowler, East of Highway 99 in Fresno County, California.

The section of the Briggs Canal with approximately 1,400 linear feet of channel modifications (including concrete relining and one new turnout) is located immediately upstream of the Union Pacific Railroad (E. of Golden State Blvd.), adjacent to the Jefferson Pond and downstream of Cornell Pond. This section of the Project will be referred to here as the relining area (**Figure 2**). The construction of a parallel pipeline will be located along 600 feet of the Briggs alignment that is about 600 to 1,200 feet South of American Avenue along Fowler Avenue. This section of the Project will be referred to here as the Parallel Pipeline (**Figure 2**). The two remaining locations are upstream of the Briggs locations on the Malaga Canal pipeline along American Avenue and will both have electronically controlled gates replaced with newer controls. The first Malaga improvement location is 600 feet East of Armstrong and the second Malaga improvement locations is 1,800 feet of Armstrong.

The relining area and parallel pipeline Project sites are located in Section 5 and along the edge of Sections 4 and 3 in Township 15 South, Range 21 East from the Mount Diablo Meridian. The Malaga Improvement sites are located along the edge between Section 34, Township 14 South, Range 21 East and Section 3. Township 15 South, Range 21 East from the Mount Diablo Meridian. All of the Project sites are in the US Geological Survey 1:24,000 Malaga (357B) quad map.

Included in this report are details of a reconnaissance level biological survey, site description, evaluation of potential occurrence for special status species and habitats, findings of potential impacts to biological resources (wildlife, plants, or natural communities), and recommendations to avoid potential impacts of the Project.

2. REGULATORY OBJECTIVES

The objective of this investigation was to evaluate the potential impact of the Project to plants, animals, and natural communities that would be affected by the proposed Project. The California Department of Fish and Game (**CDFG**) and the United States Fish and Wildlife Service (**USFWS**) have listed many species as threatened, endangered, or as candidates for state or federal listing. Other species have been designated as “species of special concern” by the CDFG. The California Native Plant Society (**CNPS**) has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as “special-status species”. This report identifies and addresses potential Project related

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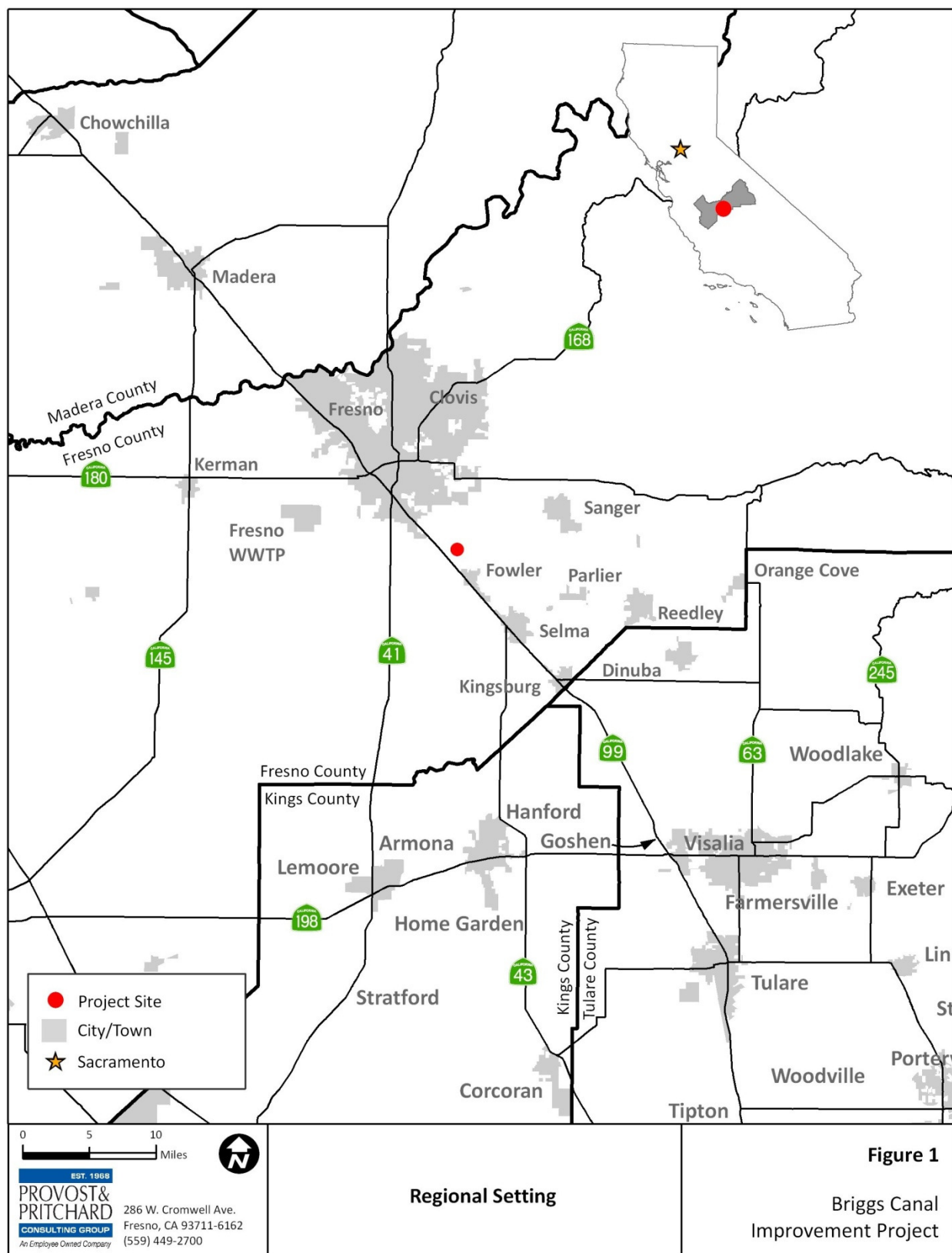
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effects on special-status animal and plant species that could potentially be present on the Project site. Special-status species may be listed under one or more of the following categories:

- Federal Endangered
- Federal Threatened
- Federal Candidate
- MBTA- protected under the auspices of the Migratory Bird Treaty Act
- State Endangered
- State Threatened
- State Rare
- State Species of Special Concern

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The ultimate goal of the Endangered Species Act (**ESA**) is the recovery (and subsequent conservation) of endangered and threatened species and the ecosystems on which they depend. A variety of methods and procedures are used to recover listed species, such as establishing protective measures to prevent extinction or further decline and implementing on-the-ground activities for managing and monitoring endangered and threatened species.

The objectives of the reconnaissance level biological survey for the Project were to:

- Describe existing biotic conditions,
- Evaluate the likelihood of sensitive plant and animal species,
- Identify potential impacts and cumulative impacts on sensitive species that could result from the implementation of the proposed Project, and
- Identify mitigation measures that would avoid impacts or reduce impacts to a level that would be less than significant

3. METHODOLOGY

A query of the California Natural Diversity Database (**CNDDB**), maintained by the California Department of Fish and Game, was conducted to provide information on species of concern in the Project and surrounding area. A species list was obtained for the Malaga (357B) USGS 7.5 minute quadrangle and eight surrounding quadrangles to provide information on special status species (**Figure 3**) that have the potential to occur in the vicinity of the Project (See **Appendix A** for the results of the CNDDB query). The database search also included queries from the United States Fish and Wildlife Service, and the California Native Plant Society. A review of the National Wetlands Inventory (**NWI**) maps for the Project area was also conducted (**Figure 4**). The wetlands identified by NWI near the Project include two freshwater ponds representing the Jefferson and Cornell Ponds (maintained by FID) adjacent to the relining area. Also there is another freshwater pond approximately 1,500 feet east of the parallel pipeline. The first Malaga Improvement site is approximately 1,000 feet west of a wetland classified as a lake that is a pond maintained by CID. The second Malaga Improvement site is only about 130 feet North of the same pond (**Figure 4**).

The following U.S. Geologic Survey quads were used in the species queries and included the site location quads and the surrounding ten quads: Fresno North (379D), Clovis (378C), Round Mountain (378D), Malaga (357B), Conejo (357C), Caruthers (358D), Fresno South (358A), Selma (357D), and Sanger (357A). Species and habitats identified in this search were evaluated for their potential to occur at the Project site and to be impacted by the Project. **Table 1** summarizes these findings.

Table 1 is a compilation of the various queries and includes the species scientific and common name, code for status designation, and probability of occurrence in the Project site vicinity for flora and fauna identified by the database search. Species with the potential to occur in the Project were included in this report.

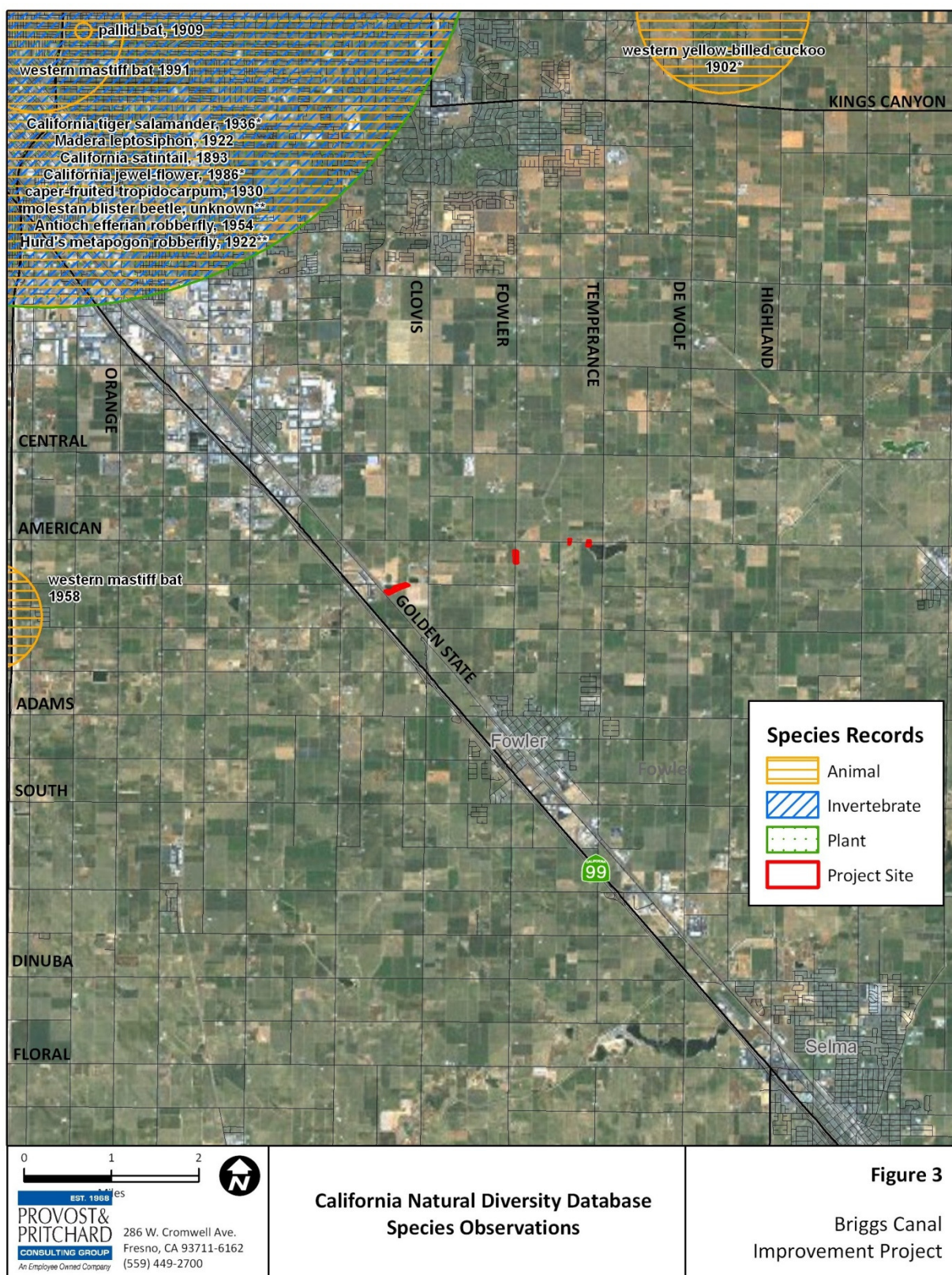
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The second part of the investigation was to conduct a reconnaissance level biological survey at the site location subject to the permit process. P&P biologists, Jason Thomas and Gavin O'Leary conducted a visual survey at the Project site and surrounding area on May 19, 2011 under clear conditions. The Project perimeter and both sides of the Briggs Canal and Malaga Canal alignments were traveled by car. Approximately 1,800 linear feet of the Briggs Canal bank were walked on foot. Survey findings are described in **Section 5**, and are also summarized on **Table 1** (species with potential to occur according to database search) and **Table 2** (actual species observations made on survey).

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Table 1: Potential Species On or Within the Project

Listed or special status species and natural communities with potential to occur on the site or within the site vicinity. Search results of USGS 7.5 minute quads containing Project site and eight surrounding quads: Fresno North (379D), Clovis (378C), Round Mountain (378D), Malaga (357B), Conejo (357C), Caruthers (358D), Fresno South (358A), Selma (357D), and Sanger (357A).

Scientific Name	Common Name	Regulatory Status			Habitat	Survey	Occurrence Evaluation
		Federal	State	CNPS		Observation	
PLANTS							
<i>Casteilleja campestris</i> ssp. <i>succulenta</i>	succulent owl's clover	<i>T</i>	<i>E</i>	<i>1B.2</i>	Vernal pools, valley and foothill grassland, moist places, often in acidic soils	A	Habitat Absent
<i>Caulanthus californicus</i>	California jewel-flower	<i>E</i>	<i>E</i>	<i>1B.1</i>	Chenopod scrub, valley and foothill grassland	A	<i>Out of Expected Geographic Range</i>
<i>Eryngium spinosepalum</i>	spiny-sepaled button celery			<i>1B.2</i>	<i>Valley and foothill grassland, vernal pools</i>	A	Habitat absent
<i>Imperata brevifolia</i>	California satintail			<i>2.1</i>	Coastal scrub, chaparral, riparian scrub, mesic sites	A	Habitat Absent
<i>Leptosiphon serrulatus</i>	Madera leptosiphon			<i>1B.2</i>	Cismontane woodland, lower montane coniferous forest	A	Habitat Absent
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	<i>T</i>	<i>E</i>	<i>1B.1</i>	<i>Vernal Pools</i>	A	Habitat Absent
<i>Psudeobahia peirsonii</i>	San Joaquin Adobe Sunburst	<i>T</i>	<i>E</i>	<i>1B.1</i>	<i>Cismontane woodland, valley and foothill grassland</i>	A	Habitat absent
<i>Sagittaria sanfordii</i>	Sanford's arrowhead			<i>1B.2</i>	Marshes and swamps	A	Regional Potential. See Section 5.5

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Scientific Name	Common Name	Regulatory Status			Habitat	Survey	Occurrence Evaluation
		Federal	State	CNPS		Observation	
<i>Schizymerium schevockii</i>	Shevock's copper moss			1B.2	Moss on metamorphic rocks containing heavy metals, mesic sites.	A	Habitat Absent
<i>Tropidocarpum capparideum</i>	caper-fruited tropidocarpum			1B.1	Valley and foothill grassland chenopod scrub	A	Habitat Absent
<i>Tuctoria greenei</i>	Green's tuctoria	E	R	1B.1	Dry bottoms of vernal pools in open grassland	A	Habitat absent
INVERTEBRATE							
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	T,X			Ephemeral freshwater habitats such as vernal pools or swales	A	Habitat Absent
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	T			Riparian forests, elderberry shrubs/trees	A	Habitat Absent
<i>Efferia antiochi</i>	Antioch efferian robberfly				Little information on species. Known from sand dunes at Antioch, Fresno and Scout Island, San Joaquin River	A	Habitat Absent
<i>Lytta molesta</i>	Molestan blister beetle				Little habitat information. Possibly related to dried vernal pools.	A	Habitat Absent
<i>Metapogon hurdi</i>	Hurd's metapogon robberfly				Little habitat information. Known from sand dunes at Antioch and in Fresno	A	Habitat Absent
AMPHIBIANS							
<i>Ambystoma californiense</i>	California tiger salamander, central population	T,X	C		Found in annual grassland habitat and grassy understory of valley-foothill hardwood habitats	A	Out of Expected Geographic Range

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Scientific Name	Common Name	Regulatory Status			Habitat	Survey	Occurrence Evaluation
		Federal	State	CNPS		Observation	
<i>Rana draytonii</i>	California red-legged frog	T			Lowlands & Foothills in or near permanent water with dense shrubby or emergent riparian vegetation	A	Out of Expected Geographic Range
<i>Spea hammondi</i>	western spadefoot		SC		Primarily in grasslands, but also found in orchard and vineyard habitat	A	Regional Potential. See Section 5.4
REPTILES							
<i>Gambelia sila</i>	blunt-nosed leopard lizard	E	E		Sparsely vegetated alkali and desert scrub habitats	A	Habitat Absent
<i>Thamnophis gigas</i>	giant garter snake	T	T		Marshes, sloughs and creeks	A	Out of Expected Geographic Range
BIRDS							
<i>Agelaius tricolor</i>	tricolored blackbird				Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules in stands large enough to support at least 50 nesting pairs	A	Habitat Absent
<i>Athene cunicularia</i>	burrowing owl		SC		Open, dry annual or perennial grasslands, deserts & scrublands w/ low-growing vegetation. Underground nester using mammal burrows (ground squirrel)	A	Regional Potential. See Section 5.3
<i>Buteo swainsoni</i>	Swainson's hawk		T		Breeds in stands with few trees in riparian areas and oak savannah. Forages in adjacent grasslands or suitable grain, alfalfa, or livestock pasture.	A	Regional Potential. See Section 5.2

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Scientific Name	Common Name	Regulatory Status			Habitat	Survey	Occurrence Evaluation
		Federal	State	CNPS		Observation	
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	C	E		Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	A	Habitat Absent
MAMMALS							
<i>Antrozous pallidus</i>	pallid bat		SC		Deserts, grasslands, shrublands, woodlands. Most common in open, dry habitats with rocky areas for roosting and protection from heat.	A	Habitat Absent
<i>Dipodomys nitratooides exilis</i>	Fresno kangaroo rat	E	E		Alkali sink-open grassland habitats in Western Fresno County, bare alkaline clay soil. Burrows in slightly elevated ground above floodwater.	A	Habitat Absent
<i>Eumops perotis californicus</i>	western mastiff bat		SC		Open semi-arid to arid habitats. Roosts in crevices in cliffs, high buildings, trees and tunnels.	A	No Potential Roosting Areas Observed
<i>Lasiurus cinereus</i>	hoary bat		SC		Generally roosts in dense foliage of medium to large trees.	A	Habitat absent
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse		SC		Alkali scrub and saltbush habitats in saline sand or clay soils . Burrows in slightly elevated mounds at shrub bases, road or canal embankments.	A	Habitat Absent

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Scientific Name	Common Name	Regulatory Status			Habitat	Survey	Occurrence Evaluation
		Federal	State	CNPS		Observation	
<i>Taxidea taxus</i>	American badger		SC		Open, Uncultivated ground with burrowing rodents in open shrub, forest and herbaceous habitats.	A	Out of Expected Geographic Range
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	T		Annual grasslands, grassy open habitats dominated by scattered brush and shrubs, sometimes forage in agricultural areas	A	Out of Expected Geographic Range See Section 5.1
FISH							
<i>Hypomesus transpacificus</i>	delta smelt	T	T		California Delta aquatic habitat	A	Out of Expected Geographic Range
NATURAL COMMUNITY							
Northern Claypan Vernal Pool			CN		Old neutral to alkaline silicone-cemented hardpan soils, intergrades with marsh	A	Habitat Absent

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Federal Status (Federal)

*E - Listed Endangered
T - Listed Threatened
P - Proposed for listing
C - Candidate for listing
X - Critical Habitat designated for this species
PX - Proposed Critical Habitat*

State Status (State)

*E - Listed Endangered
T - Listed Threatened
R - Listed Rare
C - Candidate for listing
D - Delisted, previously listed
SC – CDFG Species of Concern
CN – Recorded in CNDDDB for
conservation purposes*

California Native Plant Society List (CNPS)

*1A - Plant presumed extinct in CA
B - Plants rare, threatened, or endangered in CA and elsewhere
2 - Plants rare, threatened, or endangered in CA but more common elsewhere
3 - Plants which more information is needed
4 - Plants of limited distribution*

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Reconnaissance Biological Survey Observation (Survey Observation)

P – Present

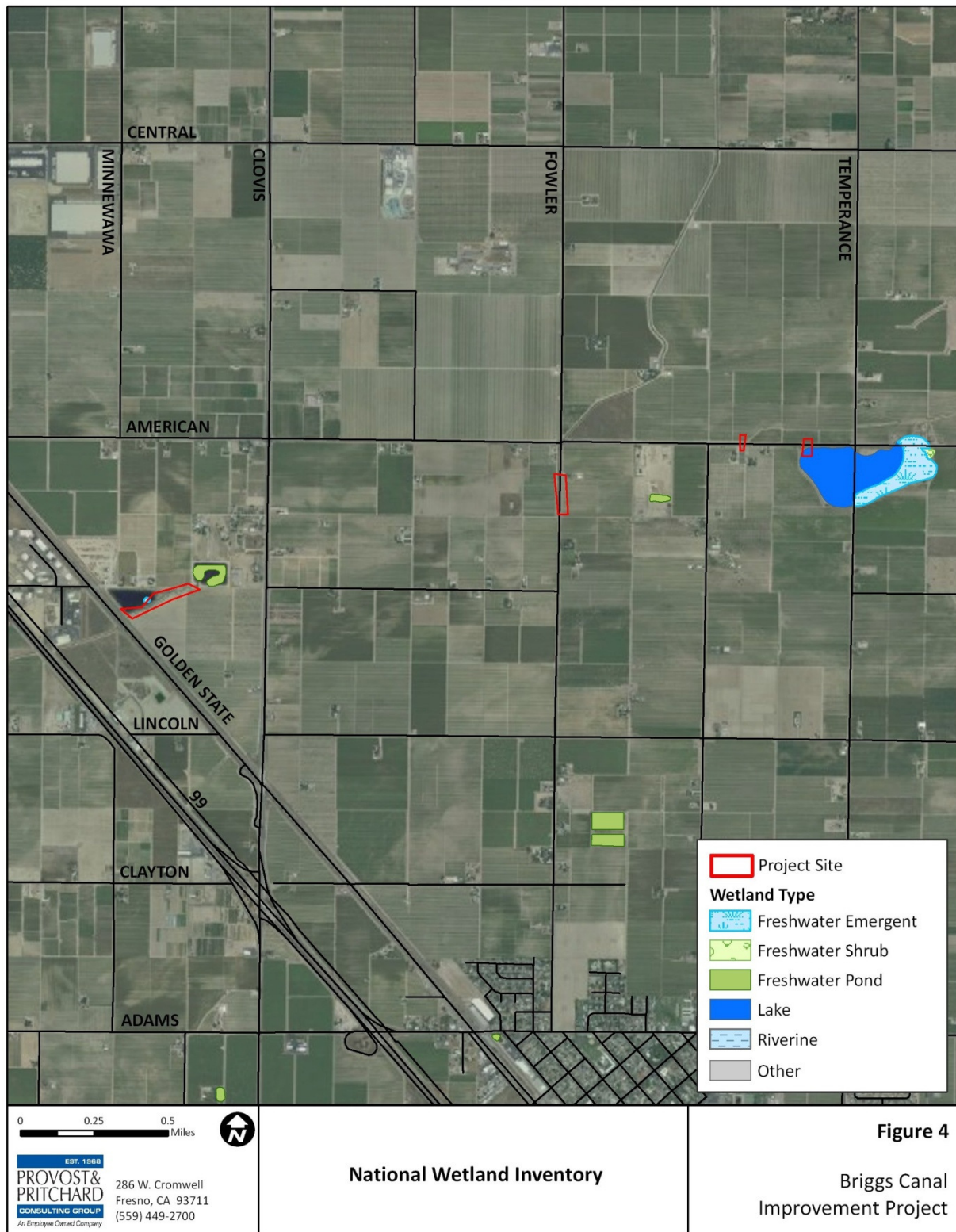
A – Absent

Occurrence Evaluation

Observed at Project Site –	Species or natural community were observed at the Project site during the reconnaissance biological survey
Regional Potential –	Species or natural community have been previously recorded near or at the Project location
Habitat Potential –	Species have not been previously recorded near or at the Project site, but habitat potentially associated the species was observed at the Project site during the reconnaissance biological survey. This may include habitat for potential foraging, nests, or burrows.
Habitat Absent –	Habitat to potentially support species was not observed during the reconnaissance biological survey, and it is not likely that it exists at the Project site.
Out of Expected Geographic Range –	The Project site is out of the expected geographic range of the species or natural community, not likely to occur.

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4. SITE DESCRIPTION AND EXISTING BIOLOGICAL CONDITIONS

The project is located between the community of Malaga and the City of Fowler in Fresno County (**Figures 1, 2**). The Project sites are located near a mix of recharge ponds, vineyards, orchards, other agricultural use parcels and some rural residential sites. The Project sites are on maintained canal and pipeline right of way alignments that have regular weed control. The sites have dry sandy loam soil with a ruderal community of annual grasses and herbs scattered along the maintenance roads that are largely covered by bare soil. The proposed Project will reline one section of canal, install a parallel underground pipeline along another section and replace gate controls in two distribution structures (known as 'boxes' or 'stand pipes'). The section of the Briggs Canal that is being relined may have other improvements such as slight changes in alignment or addition of a turnout.

Active vineyards occur around all of the project sites except the relining area. One of the Malaga Improvement sites and the relining area are adjacent to recharge ponds. All of the project sites are bordered by paved county roads except for the relining area site which is bordered by a dirt canal embankment/maintenance road. Several agricultural trucks passed by on this dirt road during the reconnaissance survey. There is also an active freight railroad line on the west side of the relining area. Rural residential sites are found nearby but not adjacent to any of the sites (See **Figure 5** Land Use Map). There are citrus orchards and row crops adjacent to the relining area. The Briggs Canal (see Photo 10, **Appendix B**) has flowed through the relining area and parallel pipeline sites for over 100 years.

The land surrounding the project sites consist of historically cultivated agricultural land. Plant species found on site and nearby include horseweed (*Conyza* sp.), lambsquarters (*Chenopodium album*), cheeseweed (*Malva parviflora*), doveweed (*Eremaocarpus setigerus*), ripgut brome (*Bromus rigidus*), tumble pigweed (*Amaranthus* sp.) prickly lettuce (*Lactuca serriola*), telegraph weed (*Heterotheca grandiflora*), and western marsh cudweed (*Gnaphalium palustre*). The only trees nearby were a small cottonwood north of the relining area in an ag field and a small willow in the Cornell Pond northwest of the relining area.

Avian wildlife observed frequently at the proposed Project site included American crow (*Corvus brachyrhynchos*), Pigeon/Rock Dove (*Columbia livia*), and house finch (*Carpodacus mexicanus*). Two 'redtails' (*Buteo jamaicensis*) were spotted flying over the ag fields across Golden State Boulevard to the west of the relining area (Briggs Canal). Ornamental trees on neighboring properties were viewed with binoculars for evidence of nests but none were observed.

The irrigation canals and pipeline right-of-ways are cleaned regularly and do not exhibit significant vegetation. However some small annual weeds are found along and occasionally inside the canals. Culverts were below the water line and didn't appear to hold any habitat suitability for swallow nests.

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Jefferson Pond immediately north of the relining area on the Briggs Canal had a large number of bullfrog larvae (tadpoles) and adults. Two largemouth bass approximately 12-14 inches long were noticed swimming within 10 feet of the shore in Jefferson Pond.

A California ground squirrel (*Spermophilus beecheyi*) was seen on the adjacent pond site. Three side-blotched lizards (*Uta stansburiana*) were sunning near small burrows in the canal right-of-way.

A complete list of wildlife and plants observed during the survey are in **Table 2**.

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Table 2 – Flora & Fauna Species Observed During the Field Survey

Scientific Name	Common Name
Flora	
<i>Conyza sp.</i>	horseweed
<i>Vitis vinifera</i>	common grape vine (domesticated)
<i>Chenopodium album</i>	lambsquarters
<i>Bromus rigidus</i>	ripgut brome
<i>Agrostis viridis</i>	cheeseweed
<i>Amaranthus sp.</i>	tumble pigweed
<i>Scirpus sp.</i>	hardstem bulrush
<i>Lactuca serriola</i>	prickly lettuce
<i>Echinochloa crus-galli</i>	barnyard grass
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Gnaphalium palustre</i>	western marsh cudweed
<i>Lupinus bicolor</i>	annual lupine
<i>Capsella bursa-pastoris</i>	Shepherd's purse
<i>Datura stramonium</i>	Jimson weed*
<i>Salix sp.</i>	willow
<i>Populus sp.</i>	cottonwood
<i>Polypogon monspeliensis</i>	rabbitfoot polypogon
<i>Geranium sp.</i>	cranesbill
<i>Mimulus guttatus</i>	common monkeyflower
<i>Plantago lanceolata</i>	Narrow leaved plantain
<i>Eremaocarpus setigerus</i>	doveweed/turkey mullein
<i>Citrus sp.</i>	orange (domesticated)
<i>Allium sp.</i>	onion (domesticated)
<i>Rumex crispus</i>	curly dock
<i>Raphanus raphanistrum</i>	wild radish
<i>Lupinus microcarpus</i>	miniature lupine
<i>Cynodon dactylon</i>	bermudagrass
<i>Brassica niger</i>	black mustard
Fauna	
<i>Corvus brachyrhynchos</i>	American crow
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird
<i>Carpodacus mexicanus</i>	house finch
<i>Aphelocoma californica</i>	western scrub-jay
<i>Columba livia</i>	rock dove
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Mimus polyglottus</i>	northern mockingbird
<i>Hirundo rustico</i>	barn swallow
<i>Uta stansburiana</i>	side-blotched lizard
<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Buteo jamaicensis</i>	red tailed hawk
<i>Rana catesbiana</i>	bullfrog
<i>Odonata</i>	blue damselfly
<i>Micropterus salmoides</i>	largemouth bass
<i>Gryllidae</i>	cricket

5. SURVEY FINDINGS

In the following section, several key protected wildlife species with regional relevance to the Project site are discussed.

San Joaquin kit fox (*Vulpes macrotis mutica*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), were not observed during the survey but have been documented 5.5 to 6.5 miles northeast of the Project site (according to RareFind 3, a portion of the California Natural Diversity Database (CNDDDB) maintained by the California Department of Fish and Game). Valley elderberry longhorn beetle are habitat specialists and the riparian-associated elderberry plants they require were not found on site. The project site did not have buildings or dense trees that would provide bat roosting habitat. One species of plant, Sanford's arrowhead (*Sagittaria sanfordii*), could

potentially grow in the canal flow channel and has been recorded within 15 miles of the project area but was not found onsite. Additionally two regionally important species that are potentially active in the Project area have been recorded within 15 miles of the project site in CNDDDB. Those two species, western spadefoot (*Spea hammondi*) and burrowing owl (*Buteo swainsoni*), along with other sensitive species are discussed below.

5.1. SAN JOAQUIN KIT FOX

The San Joaquin kit fox is listed as a federal endangered and California threatened species. San Joaquin kit fox adults stand about 12 inches tall and have an average total length of 30-32 inches. They can be distinguished by a black-tipped tail, long conspicuous ears, and lack of a black stripe on the top of the tail when compared to a grey fox (*Urocyon cinereoargenteus*). San Joaquin kit foxes are primarily active at night. They inhabit various human impacted habitats, including grasslands and scrublands with active oil fields, agricultural fields (row crops, orchards, irrigated pasture, vineyards), and grazed annual grasslands. Native vegetation communities of the San Joaquin Valley are also utilized by San Joaquin kit foxes. Dens characteristic of the San Joaquin kit fox vary, but are generally described as having 2-18 openings which are taller than they are wide and approximately 8-10 inches in diameter.

No San Joaquin kit foxes or San Joaquin kit fox dens were observed at the Project site or surrounding property during the reconnaissance biological survey. No burrows large enough to house kit fox dens were observed. It is likely that frequent disturbance from cultivation have been prohibitive to burrow creation on the Project site in the past. The CNDDDB contains one record from “the 1980’s” for kit fox in Sanger (approximately 5.6 miles northeast of the Project (**Figure 2**). The date and location are vague for that record. The core range of the kit fox occurs about 46 miles to the Southwest and 21 miles to the south of the Project. Kit fox may use regional canal levees or agricultural roads for migration. Development of the proposed recharge basin would not likely affect the ability of kit fox to continue their potential habits in the region other than barring them from foot travel through the wetted area of the basin during seasonal water recharge events. Travel over the levee areas and typically dry floor would still be possible and foraging for prey would be possible during the dry season. It is not likely that San Joaquin kit fox would be impacted by the Project.

5.2. SWAINSON’S HAWK

The Swainson’s hawk is listed as a California Threatened species. Swainson’s hawks migrate into the Central Valley in the spring, breed during the summer, and then migrate south in the fall. The Swainson’s hawk is 19-22 inches in length and typically has a dark breast band and dark flight feathers with a lighter wing lining when viewed from below. They typically breed in riparian areas and oak savannah, in stands with few trees. They use tall trees for nesting and build nests at a height of approximately 40 feet. Swainson’s hawks forage in adjacent grasslands or suitable grain, alfalfa, or livestock pasture for prey. There is one regional occurrence record for Swainson’s

hawk approximately 11 miles south of the Project site. Swainsons' hawk could potentially use the area around the Project site for foraging but the Project site is not associated with the type of riparian habitat preferred as a nesting area for the Swainson's hawk. Construction of a basin will bring some disturbance. However, the basin when dry will not interfere with potential foraging for prey.

5.3. BURROWING OWL

Burrowing owls (*Athene cunicularia*) can establish burrows near residential or farming operations. They are dependent on availability of both open areas (such as grazing land) to hunt prey, and burrows. Due to this burrow dependency burrowing owls are closely associated with populations of California ground squirrels (*Spermophilus beecheyi*) which excavate appropriately sized burrows. A few ground squirrel burrows were noticed near the Project site on the western edge of Jefferson Pond. The nearest recorded occurrence (CNDDDB) of Burrowing owl is approximately 12 miles southeast of the Project site. No evidence of burrowing owls were observed at the Project site. It is not likely that the proposed Project will impact burrowing owls.

5.4. WESTERN SPADEFOOT (TOAD)

Western spadefoot toad (*Spea hammondi*) requires rain pools/vernal pools or other water features free of predators (such as bullfrogs and fish) for breeding. The Project site does not have conditions amenable to vernal pool formation as it has sandy, well-drained soils, lots of adult and larval bullfrogs and largemouth bass. None of the vernal pool associated vegetation communities were observed at the Project site during the reconnaissance level biological survey. No evidence of vernal pool habitats was observed.

The canal on-site and the nearby ponds contain water for at least part of the year. However, they contain species (listed above) that could prey on toads or their eggs. Spadefoot toad can occur in a number of habitats including grassland, woodland and chaparral with open areas and sandy soils. Habitat loss due to conversion of land to agriculture is a major factor in decline of this species. They are very sensitive to low frequency noise and vibration. The regularly managed vineyard and orchard on the Project site would not provide suitable habitat for the spadefoot. If they were to burrow into the land on a vineyard in for their dormant period the activity of tractors on the land would cause them to break dormancy early which can be potentially fatal. While it is possible that spadefoot toad could occur in the area there does not appear to be requisite breeding habitat in the vicinity and the agricultural land onsite has not been a suitable dormant period habitat. It is unlikely that spadefoot toad would be impacted by the Project.

5.1. SANFORD'S ARROWHEAD

Sanford's arrowhead or valley arrowhead (*Sagittaria sanfordii*) is an uncommon plant found in the North Coast and Central Valley regions of California. Arrowheads are in the water plantain family and the Sanford's arrowhead has leaves of variable shape, and

not necessarily in an arrowhead configuration like other species within the genus. A cluster of pistils in the center of the female flower creates a button shape reminiscent of a dogwood flower but the flower is no bigger than 1.5 inches wide. It has been previously observed growing in canals in Fresno according to a few CNDDDB records from the 1950s and 1980s. The stem and root are typically located below the waterline and the leaves and flower project above the water line. It has a CNPS (California Native Plant Society) listing of 1B.2 indicating it is fairly endangered or rare but it is not currently listed by the state or federal government as an endangered or threatened species. Because the water lines in irrigation canals are so variable it is difficult to predict whether conditions would be suitable for this species on a particular site. Sanford's arrowhead was not observed during the survey. Efforts to locate this species on previously known sites in the Fresno area in 2005 were unsuccessful. It is unlikely that Sanford's arrowhead would be impacted by the project.

6. IMPACT ASSESSMENT AND MITIGATION MEASURES

6.1. IMPACT ASSESSMENT

The Project would improve structures within easements that have been long established and regularly maintained as irrigation facilities. Ground disturbance will occur on the project site to reline a canal and trench a pipeline parallel to a canal. It is not likely that the Project, would impact Federal or State protected species or natural communities.

6.2. MEASURES TO MINIMIZE ANY POTENTIAL IMPACTS TO WILDLIFE, INCLUDING SAN JOAQUIN KIT FOX AND NESTING BIRDS

- Vehicles should use slow speeds (<15 miles per hour), especially at night, when driving through or around the Project site to minimize potential for striking or disturbing animals. San Joaquin kit fox and other animals are vulnerable to collisions with autos.
- Open pipes and culverts should be inspected before being moved or altered to prevent wildlife from being injured or trapped.
- If special status species are encountered during an inspection, they should be left alone to passively exit the area unless otherwise authorized by CDFG or USFWS.
- Any migratory birds and their nests should be not be disturbed as outlined in the Migratory Bird Treaty Act of 1918(MBTA). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in Section 50 of the Code of Federal Regulations(CFR) Part 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21).

- If building or tree removal must take place during the bird nesting season (February-August) due to construction schedule constraints, pre-disturbance surveys for bird nesting activity should be conducted by a qualified biologist no more than 15 days before tree and building removal. If active nests are located within the construction site, nests should be buffered an appropriate distance as specified by a qualified biologist. Within that buffer no disturbance should occur until after nesting season for the observed species is concluded. Pre-disturbance surveys for bird nesting activity should include the trees on-site, burrows and open buildings (house/garage and shed).
- If construction activities must take place during the flowering season (July-September) for Sanford's arrowhead, a pre-disturbance survey for presence should be conducted by a qualified biologist no more than 15 days before construction.

7. CONCLUSION

Implementation of the Project is not likely to result in impacts on species or natural communities with special status or listed under state or federal legal protection. Measures to minimize impact on site with regard to timing of work and the nesting season for birds and flowering season for Sanford's arrowhead will mitigate any potential impact on nesting activity on site to less than significant.

8. REFERENCES

The California Burrowing Owl Consortium (CBOC). 1993. Burrowing owl survey protocol and mitigation guidelines. Tech. Rep. Burrowing Owl Consortium. Alviso, CA.

California Department of Fish and Game. 2005. Annual Report of the Status of California State Listed Threatened and Endangered Plants and Animals 2000-2004. The Resources Agency. State of California.

California Department of Fish and Game, Biogeographic Data Branch. RareFind 3 California Natural Diversity Database. Version 3.1.0. Commercial Version Dated May 1, 2010.

California Department of Fish and Game, Biogeographic Data Branch. California Wildlife Habitat Relationships, California's Wildlife. 2009. Accessed online. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.asp>

California Department of Fish and Game. Staff Report on Burrowing Owl Mitigation, 1995. Sacramento, CA.

California Native Plant Society. 2009. Inventory of Rare and Endangered Plants. v7-10b 6/01/10. Checkbox and Preset Search, Nine Quad Search. Accessed online June 1, 2010. <http://www.cnps.org>

BRIGGS IMPROVEMENTS

Reconnaissance Level Biological Survey Report

Endangered Species Recovery Program. 2006. Map showing approximate range and occurrence records of the San Joaquin kit fox (*Vulpes macrotis mutica*). <http://esrp.csustan.edu/gis/maps/sjkfrange.png>

Fischer, Bill. 1998. Grower's Weed Identification Handbook. Publication #4030. Oakland, CA: University of California, Division of Agriculture and Natural Resources.

Hansen, Robert B. 1993. Biological resources survey resource conservation element update, Kings County General Plan. Kings County Planning Department. Hanford, CA.

Hickman, James C. et al. 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley and Los Angeles, CA.

Peterson, Roger T. 1990. Peterson Field Guides: Western Birds. Third Edition. Houghton Mifflin. Boston, MA.

Thompson, Thomas H., 1891. Official Historical Atlas Map of Fresno County. Office of the Board of Supervisors of Fresno County California.

United States Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR.

United States Fish and Wildlife Service. 2009. Species Lists by U.S. Geological Survey 7 ½ Minute Quads. Department of the Interior. Accessed online October 28, 2009. Database updated: January 29, 2009. http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm

United States Fish and Wildlife Service, 2010. California Jewelflower, Endangered Species Division, Sacramento Fish & Wildlife Office Species Account. http://www.fws.gov/sacramento/es/plant_spp_accts/california_jewelflower.htm