3.8 Biological Resources

This section describes the existing biological resources, including special-status species and sensitive habitat known to occur and/or have the potential to occur on the 36-acre proposed project site (study area). In addition, the section includes a summary of the regulations and programs that provide protective measures to special-status species, an analysis of impacts to biological resources that could result from project implementation, and a discussion of mitigation measures necessary to reduce impacts to a less than significant level, where feasible.

Note to the reader: As of January 1, 2013, the agency formerly known as the California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW). For purposes of this discussion, the agency names and abbreviations are interchangeable.

3.8.1 EXISTING SETTING

Several steps were taken to characterize the environmental setting in the project vicinity. Project-related documentation, including the biological resources reports prepared by Mosaic Associates LLC (2013 and 2014; **Appendix K**), was reviewed to collect site-specific data regarding habitat suitability for special-status species, as well as the identification of potentially jurisdictional waters. Additional information was obtained from a variety of outside data sources and can be found in the reference list at the end of the section. Preliminary database searches were performed to identify special-status species with the potential to occur in the area.

Database searches were performed on the following websites:

- US Fish and Wildlife Service's (USFWS) Sacramento Office Species Lists (2013a)
- USFWS's Critical Habitat Portal (2013b)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (2013a)
- California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (2013)

A search of the USFWS Sacramento Office's database was performed for the Antioch North, Denverton, Birds Landing, Rio Vista, Jersey Island, Brentwood, Antioch South, Clayton, and Honker Bay, California, US Geological Survey (USGS) 7.5-minute quadrangles to identify special-species within their jurisdiction that may be affected by project components. A query of the USFWS Critical Habitat Portal identified no critical habitat within the study area. A query of the CNDDB provided a list of known occurrences for special-status species within a 1- and 5-mile radius of the study area. The CNPS database was queried to identify special-status plant species with the potential to occur in the Antioch North, California, USGS 7.5-minute quadrangle. Raw data from the database queries is provided in **Appendix K**. Please see **Table 3.8-1** for a summary of the database search results and conclusions regarding the potential for special-status species to be impacted by project-related activities.

BIOLOGICAL COMMUNITIES

The study area comprises four biological communities: urban, ruderal grassland, Kirker Creek, and drainage ditch. These biological community types are depicted in **Figure 3.8-1** and are described below. The community descriptions are primarily derived the CDFW's (2013a) *A Guide to Wildlife Habitats of California* and the site biological resources report (Mosaic Associates 2013; **Appendix K**).

Urban

Urban land comprises approximately 23.11 acres of the study area and includes a recently demolished power plant operated by GWF Power Systems, an old detention basin, the operating facility of the Mt. Diablo Recycling Facility, a vacant area used for stockpiling ground aggregate, and several access roads connecting the features of the site.

The site of the former GWF power plant is directly south of the current Mt. Diablo Recycling Facility. The northern, eastern, and western boundaries of the GWF site are planted with nonnative eucalyptus trees and two Fremont cottonwood (*Populus fremontii*) trees. These trees represent potential nesting sites for various migratory birds and raptors. Other than the trees, weedy annual vegetation grows in fragments between the hardscape and along the edges of disturbance. Common plant species include milk thistle (*Lactuca serriola)*, butcher grass (*Conyza canadensis)*, ripgut brome (*Bromus diandrus*), common mallow (*Malva neglecta*), yellow star-thistle (*Centaurea solstitialis*), and telegraph weed (*Heterotheca grandiflora)*. Developed areas generally have a low habitat value for wildlife because of the high degree of disturbance, although a number of species adapted for disturbed conditions can utilize these areas.

Ruderal Grassland

The study area contains approximately 12 acres of ruderal annual grassland, which includes 5 acres currently covered with gravel that was previously permitted under the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) for temporary impacts. The project site was historically used as a landfill and has been subject to extensive disturbance. Piles of debris are found throughout the site. The predominant substrate is a loose mixture of rock and nonnative sandy soils.

The ruderal grasslands in the study area comprise sparse nonnative vegetation dominated by a mixture of annual grasses and weeds including black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), stinkweed (*Dittrichia graveolens*), pepperweed (*Lepidium latifolium*), wild radish (*Raphanus sativus*), soft chess (*Bromus hordeaceus*), yellow star-thistle, and rat-tail fescue (*Vulpia myuros*). Small mammal burrows are widely distributed and abundant throughout the ruderal areas. Small mammals observed in past surveys include black-tailed jackrabbit (*Lepus californicus*), cottontail rabbit (*Sylvilagus bachmani*), and California ground squirrel (*Spermophilus beecheyi*).

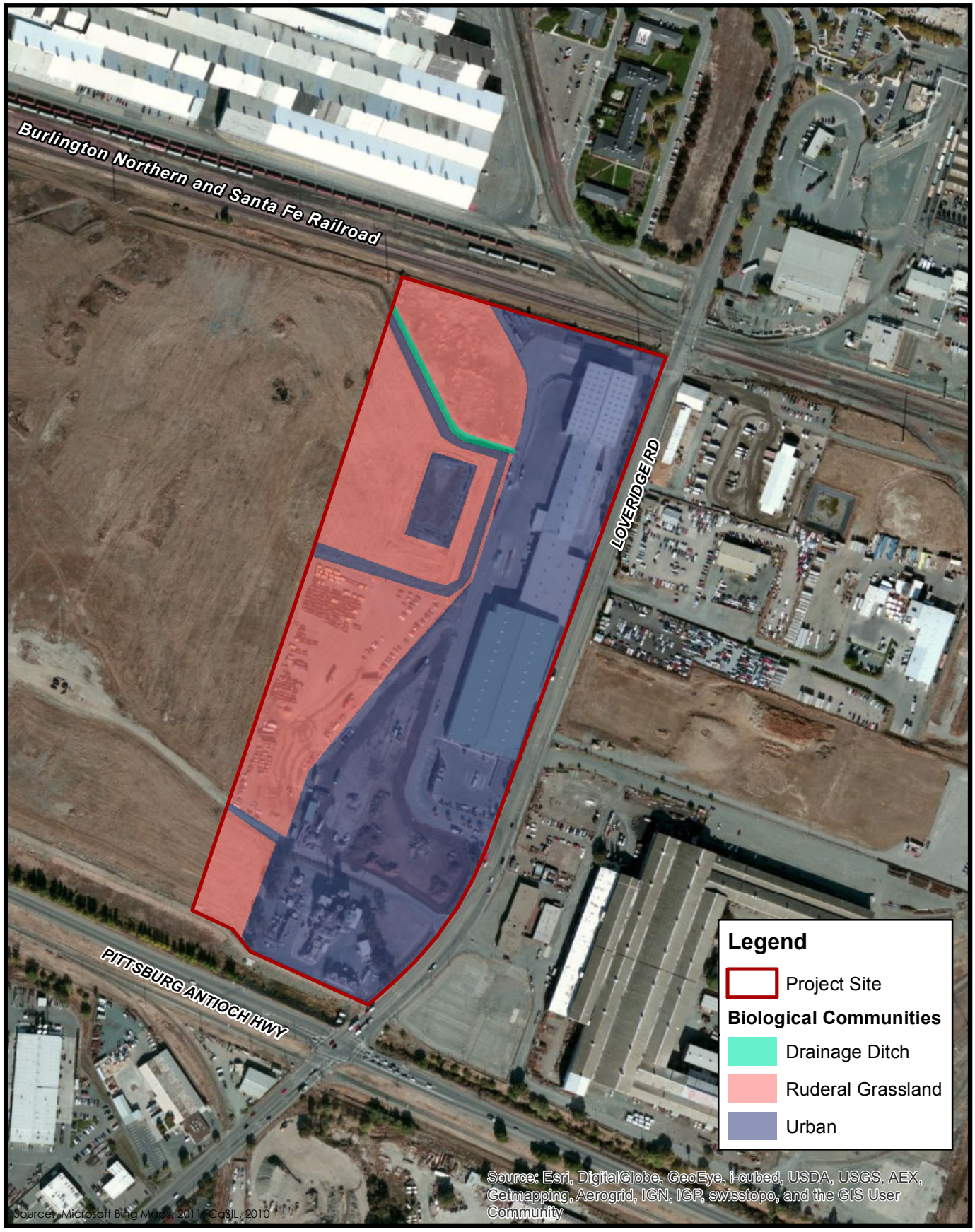


Figure 3.8-1
Biological Communities with the Project Site

Kirker Creek

A portion of Kirker Creek runs along the southern boundary of the study area, directly to the south of the former site of the GWF power plant. Kirker Creek is an ephemeral creek that is normally dry April through November; however, irrigation and urban runoff can keep some areas of the creek wet throughout the year. A roadway is located north of the creek, and the banks of the creek are lined with riprap. No construction is proposed in or near Kirker Creek.

A mixture of native and exotic vegetation grows in Kirker Creek. Wild oat (*Avena fatua*) telegraph weed, prickly Russian thistle (*Salsola tragus*), and common mallow are the dominant species growing in and around the creek. Castor bean shrubs (*Ricinus communis*) grow in the gaps of the riprapped bank. The wetter areas of the streambed are thickly vegetated with wild oat, umbrella sedge (*Cyperus eragrostis)*, curly dock (*Rumex crispus*), dallisgrass (*Paspalum dilatatum),* rough cocklebur (*Xanthium strumerium*), pepperweed, and American sloughgrass (*Bechmannia syzgachne*).

Riparian trees and shrubs west and east of the study area provide habitat for a variety of wildlife species; however, the limited and ruderal nature of the vegetation established along the creek limits its habitat value.

Drainage Ditch

A man-made drainage ditch is located near the northern boundary of the study area and is surrounded by ruderal grassland. The earthen drainage ditch carries stormwater runoff from the recycling facility. There are approximately 650 linear feet of the ditch in the study area. Runoff enters the ditch from a culvert at the west edge of the recycling facility and flows west until the ditch empties into a seasonal freshwater marsh approximately 0.25 mile west of the study area. The ditch is sparsely vegetated with black mustard, ripgut brome, wild oat, Italian thistle, fiddle dock (*Rumex pulcher)*, rabbitsfoot grass (*Polypogon monspeliensis*), umbrella sedge, and pepperweed.

TRC Solutions prepared a delineation of waters of the United States for the Columbia Solar project in December 2012 for the western portion of the study area, including the section of the man-made ditch on-site. The jurisdictional determination by the US Army Corps of Engineers (USACE) concluded that there were no wetlands or other waters present in the area surveyed that were subject to the USACE authority under Section 404 of the federal Clean Water Act (**Appendix K**). As part of the project, the drainage ditch will be replaced with a 36-inch underground storm drain line.

SPECIAL-STATUS SPECIES

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of relatively limited distribution and generally require specialized habitat conditions. Special-status species are defined as:

1) Listed, proposed, or candidate for listing under the California or federal Endangered Species Acts

2) Protected under other regulations (e.g., local policies, Migratory Bird Treaty Act)

3) CDFW Species of Special Concern and California Fully Protected Species

4) Listed as species of concern (List 1A, 1B, or 2 plants) by the CNPS

5) Species that receive consideration during environmental review under the California Environmental Quality Act (CEQA)

Figure 3.8-2 depicts the locations of special-status species recorded within a 1-mile radius of the study area. The habitat preferences for each special-status species were carefully reviewed and considered in the context of the study area limits. Species defined as having no potential for occurrence are not expected to occur based on the known elevation or distribution range of the species or the lack of suitable habitat.

Special-Status Plant Species

Based on database search results, no special-status plant species have the potential to occur in the study area. In addition, the history of past disturbance and extensive surrounding development precludes the potential presence of special-status plants.

Special-Status Wildlife Species

Based on database search results and past occurrences, four special-status wildlife species have the potential to occur in the study area. Each species considered in the impact analysis is described below based on data obtained from the CDFW's (2013c) California Wildlife Habitat Relationships System Life History Accounts and Range Maps as well as other published data sources, as cited.

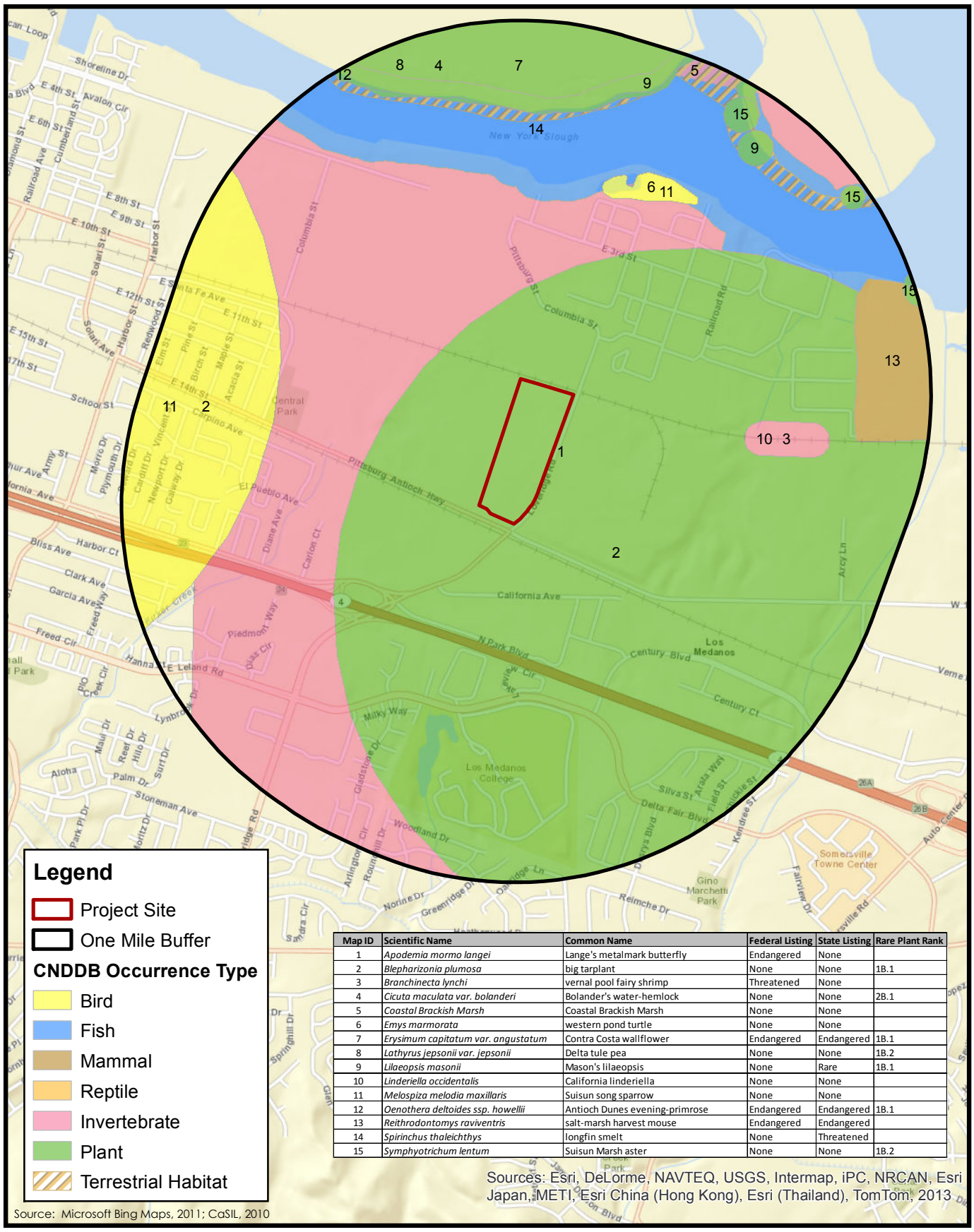
Burrowing Owl (*Athene cunicularia*)

Burrowing owls are a California species of special concern. Burrowing owls are typically year-round residents of open, dry grassland and desert habitats at elevations up to 5,300 feet. They can also be found in grass, forb, and open shrub stages of ponderosa pine and pinyon-juniper habitats. This species typically uses small mammal burrows for roosting and nesting cover, but they may dig their own burrow in friable soil. Man-made structures, such as pipes and culverts, are used for cover when burrows are scarce.

Numerous small mammal burrows have been observed in the ruderal areas of the study area. These areas provide suitable foraging, roosting, and breeding habitat for burrowing owls. No individuals or sign were observed during previous site surveys; however, one burrowing owl was observed approximately 1,000 feet west of the study area during a planning survey for the Columbia Solar project on October 30, 2012 (TRC Solutions 2013). In addition, the presence of potentially suitable habitat and the presence of five CNDDB occurrences within 5 miles of the study area result in the potential for this species to be impacted by project-related activities.

Golden Eagle (*Aquila chrysaetos*)

Golden eagles are a California fully protected species found throughout the state ranging from sea level to 11,500 feet. Golden eagles are mostly permanent residents, but some will migrate throughout California. This species is typically found in mountain areas, rolling hills, deserts, and sage-juniper flats. Golden eagles require open terrain for hunting and large trees or cliffs for nesting. Golden eagles have been documented nesting in oaks, pines, eucalyptus, and western sycamore (Hunt et al. 1998).



Map ID	Scientific Name	Common Name	Federal Listing	State Listing	Rare Plant Rank
1	*Apodemia mormo langei*	Lange's metalmark butterfly	Endangered	None	
2	*Blepharizonia plumosa*	big tarplant	None	None	1B.1
3	*Branchinecta lynchi*	vernal pool fairy shrimp	Threatened	None	
4	*Cicuta maculata var. bolanderi*	Bolander's water-hemlock	None	None	2B.1
5	*Coastal Brackish Marsh*	Coastal Brackish Marsh	None	None	
6	*Emys marmorata*	western pond turtle	None	None	
7	*Erysimum capitatum var. angustatum*	Contra Costa wallflower	Endangered	Endangered	1B.1
8	*Lathyrus jepsonii var. jepsonii*	Delta tule pea	None	None	1B.2
9	*Lilaeopsis masonii*	Mason's lilaeopsis	None	Rare	1B.1
10	*Linderiella occidentalis*	California linderiella	None	None	
11	*Melospiza melodia maxillaris*	Suisun song sparrow	None	None	
12	*Oenothera deltoides ssp. howellii*	Antioch Dunes evening-primrose	Endangered	Endangered	1B.1
13	*Reithrodontomys raviventris*	salt-marsh harvest mouse	Endangered	Endangered	
14	*Spirinchus thaleichthys*	longfin smelt	None	Threatened	
15	*Symphyotrichum lentum*	Suisun Marsh aster	None	None	1B.2

Figure 3.8-2
Recorded Occurrences of Special-Status Species within One-Mile of the Project Site

PMC

The ruderal grassland on-site represents potential foraging habitat for golden eagles, and the large eucalyptus trees on the perimeter of the GWF site may be potential, if marginal, nesting habitat for the species. The database queries conducted during the literature review did not reveal the potential for this species to occur within the study area. However, two golden eagles (one adult, one immature) were observed by TRC biologists during October 2012 surveys for the Columbia Solar project, approximately 850 feet west of the study area (TRC Solutions 2013). The adult was reported to have been observed perching on the fence along the southern boundary of the study area, while the immature eagle was reported to have circled the trees south of the site. No courtship or nesting behaviors were reported by the TRC biologists.

Swainson's Hawk (*Buteo swansonii*)

Swainson's hawks are listed by the State of California as threatened. This species is typically a complete migrant in that they breed in North America and winter in South America. Swainson's hawks typically arrive at their breeding grounds in early to mid-April and begin their southern migration in early September. The majority of breeding Swainson's hawks occur in two disjunct populations in California, the Great Basin, and the Central Valley, although they can be found in desert, shrubsteppe, grassland, and agricultural habitats across the state. This species is not an obligate riparian species; the correlation with riparian habitat is variable and dependent on the availability and distribution of suitable nest sites in proximity to high-value foraging habitat (Woodbridge 1998). Swainson's hawks have been documented nesting in cottonwoods, oaks, eucalyptus, and black walnut (Schlorff and Bloom 1984). Foraging habitats are generally low-growing row or field crops, dryland and irrigated pastures, and open habitats with short vegetation and small mammals. Agricultural areas are often preferred over natural grassland habitats because of the increased presence of prey in these artificially constructed areas.

The database queries conducted during the literature review did not reveal the potential for this species to occur in the vicinity of the study area. However, one Swainson's hawk was reported to have been observed by biologists on April 26, 2010, approximately 1 mile northwest of the study area. This occurrence was reported in the July 8, 2010, East Contra Costa County HCP/NCCP Planning Survey Report for Site L-A Material Stockpile project (TRC Solutions 2013). The ruderal grasslands in the study area provide low quality foraging habitat for Swainson's hawk, and the large trees on-site could serve as potential nest sites.

White-Tailed Kite (*Elanus leucurus*)

White-tailed kites are a California fully protected species. This species is a year-round resident of coastal and valley lowlands. They are typically found near agricultural areas in herbaceous and open stages of most habitat types. White-tailed kites forage in grasslands, meadows, farmlands, and emergent wetlands, and they use stands of deciduous trees with dense canopies as cover for roosting and nesting.

Ruderal grassland areas in the study area provides foraging habitat for white-tailed kite, while trees on-site provide potential nesting sites. The presence of suitable habitat and the presence of a CNDDB occurrence within 5 miles of the study area result in the potential for this species to be impacted by project-related activities.

TABLE 3.8-1
SPECIES SUMMARY

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Plants							
Amsinckia grandiflora	large-flowered fiddleneck	FE	SE	1B.1	Cismontane woodland, and valley and foothill grassland. Elev: 902–1,804 feet. Blooms: April–May (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Anomobryum julaceum	slender silver moss	—	—	2.2	Damp rock and soil on outcrops in broadleafed upland forest, lower montane coniferous forest, and North Coast coniferous forest. Usually on roadcuts. Elev: 328–3,281 feet (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet. Suitable habitat is not present.
Arctostaphylos auriculata	Mt. Diablo manzanita	—	—	1B.3	Cismontane woodland and sandstone soils in chaparral. Elev: 443–2,133 feet. Blooms: Jan–March (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet. Suitable habitat is not present.
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	—	—	1B.2	Rocky chaparral. Elev: 1,640–3,609 feet. Blooms: Jan–Apr (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet. Suitable habitat is not present.
Astragalus tener var. *tener*	alkali milk-vetch	—	—	1B.2	Alkaline areas in playas, vernal pools, and adobe clay valley and foothill grasslands. Elev: 3–197 feet. Blooms: Mar–June (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Atriplex cordulata var. *cordulata*	heartscale	—	—	1B.2	Saline or alkaline areas in chenopod scrub, meadows, seeps, and valley and foothill grassland. Elev: 0–1,837 feet. Blooms: Apr–Oct (CNPS 2013).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Atriplex depressa	brittlescale	—	—	1B.2	Alkaline and clay areas in chenopod scrub, meadows, seeps, playas, vernal pools, and valley and foothill grasslands. Elev: 3–1,050 feet. Blooms: Apr–Oct (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Atriplex joaquinana	San Joaquin spearscale	—	—	1B.2	Alkaline chenopod scrub, meadows, seeps, playas, and valley and foothill grasslands. Elev: 3–2,740 feet. Blooms: Apr–Oct (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Blepharizonia plumosa	big tarplant	—	—	1B.1	Usually clay in valley and foothill grasslands. Elev: 98–1,657 feet. Blooms: July–Oct (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
California macrophylla	round-leaved filaree	—	—	1B.1	Clay soils in cismontane woodland and valley and foothill grasslands. Elev: 49–3,937 feet. Blooms: March–May (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Calochortus pulchellus	Mt. Diablo fairy-lantern	—	—	1B.2	Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elev: 98–2,756 feet. Blooms: Apr–June (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Chloropyron molle ssp. *molle*	soft bird's-beak	FE	SR	1B.2	Coastal salt marshes and swamps. Elev: 0–10 feet. Blooms: July–Nov (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Cirsium hydrophilum var. *hydrophilum*	Suisun thistle	FE	—	1B.1	Salt marshes and swamps. Elev: 0–10 feet. Blooms: June–Sept (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	—	—	2.1	Coastal, fresh or brackish marshes and swamps. Elev: 0–656 feet. Blooms: July–Sept (CNPS 2013).	A	**No effec**t. Suitable habitat not present.
Cryptantha hooveri	Hoover's cryptantha	—	—	1A	Inland dunes and sandy valley and foothill grasslands. Elev: 30–492 feet. Blooms: Apr–May (CNPS 2013).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Downingia pusilla	dwarf downingia	—	—	2.2	Vernal pools and mesic valley and foothill grasslands. Elev: 3–1,460 feet. Blooms: Mar–May (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Eriogonum nudum var. *psychicola*	Antioch Dunes buckwheat	—	—	1B.1	Inland dunes. Elev: 0–66 feet. Blooms: July–Oct (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Eriogonum truncatum	Mt. Diablo buckwheat	—	—	1B.1	Sandy areas in chaparral, coastal scrub, and valley and foothill grasslands. Elev: 10–1,148 feet. Blooms: Apr–Dec (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Erysimum capitatum var. *angustatum*	Contra Costa wallflower	FE	SE	1B.1	Inland dunes. Elev: 10–66 feet. Blooms: Mar–July (CNPS 2013).	A	**No effect**. Suitable habitat not present.
	Critical habitat, Contra Costa wallflower	X	—	—		P	**No effect**. Critical habitat not present.
Eschscholzia rhombipetala	diamond-petaled California poppy	—	—	1B.1	Alkaline and clay valley and foothill grasslands. Elev: 0–3,199 feet. Blooms: Mar–Apr (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Fritillaria liliaceae	fragrant fritillary	—	—	1B.2	Often on serpentinite soils in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Elev: 10–1,345 feet. Blooms: Feb–Apr (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Helianthella castanea	Diablo helianthella	—	—	1B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland, broadleafed upland forest, and valley and foothill grasslands. Elev: 197–4,265 feet. Blooms: Mar–June (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Hesperolinon breweri	Brewer's western flax	—	—	1B.2	Usually serpentinite, in chaparral, cismontane woodland, and valley and foothill grasslands. Elev: 98–2,953 feet. Blooms: May–July (CNPS 2013).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Isocoma arguta	Carquinez goldenbush	—	—	1B.1	Alkaline valley and foothill grassland. Elev: 3–66 feet. Blooms: Aug–Dec (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Lasthenia conjugens	Contra Costa goldenfields	FE	—	1B.1	Mesic areas in vernal pools, cismontane woodland, alkaline playas, and valley and foothill grasslands. Elev: 0–1,542 feet. Blooms: Mar–June (CNPS 2013).	A	**No effect**. Suitable habitat not present.
	Critical habitat, Contra Costa goldfields	X	-	-		A	**No effect**. Critical habitat not present.
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	—	—	1B.2	Freshwater and brackish marshes and swamps. Elev: 0–13 feet. Blooms: May–Sept (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Lilaeopsis masonii	Mason's lilaeopsis	—	SR	1B.1	Riparian scrub, and brackish or freshwater marshes and swamps. Elev: 0–33 feet. Blooms: Apr–Nov (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Limosella australis	Delta mudwort	—	—	2.1	Usually mud banks in riparian scrub, and freshwater or brackish marshes and swamps. Elev: 0–10 feet. Blooms: May–Aug (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Madia radiata	showy golden madia	—	—	2.1	Cismontane woodland, and valley and foothill grasslands. Elev: 82–3,986 feet. Blooms: Mar–May (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Malacothamnus hallii	Hall's bush-mallow	—	—	1B.2	Chaparral and coastal scrub. Elev: 33–2,493 feet. Blooms: May–Oct (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Navarretia nigelliformis ssp. *radians*	shining navarretia	—	—	1B.2	Sometimes clay in cismontane woodland, vernal pools, and valley and foothill grassland. Elev: 249–3,281 feet. Blooms: Apr–July (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet.
Neostapfia colusana	Colusa grass	FT	SE	1B.1	Large, adobe vernal pools. Elev: 16–656 feet. Blooms: May–Aug (CNPS 2013).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Oenothera deltoides ssp. *howellii*	Antioch Dunes evening-primrose	FE	SE	1B.1	Inland dunes. Elev: 0–98 feet. Blooms: Mar–Sep (CNPS 2013).	A	**No effect**. Suitable habitat not present.
	Critical habitat, Antioch Dunes evening-primrose	X	—	—		A	**No effect**. Critical habitat not present.
Plagiobothrys hystriculus	bearded popcorn-flower	—	—	1B.1	Often in vernal swales in vernal pool margins and mesic valley and foothill grasslands. Elev: 0–899 feet. Blooms: Apr–May (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Senecio aphanactis	chaparral ragwort	—	—	2.2	Sometimes alkaline in chaparral, cismontane woodland, and coastal scrub. Elev: 49–2,625 feet. Blooms: Jan–Apr (CNPS 2013).	A	**No effect**. Study area elevation range is 20–40 feet. Suitable habitat not present.
Sidalcea keckii	Keck's checker-mallow	FE	—	1B.1	Serpentinite and clay soils in cismontane woodland and valley and foothill grasslands. Elev: 246–2,133 feet. Blooms: Apr–June (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Symphyotrichum lentum	Suisun Marsh aster	—	—	1B.2	Brackish and freshwater marshes and swamps. Elev: 0–10 feet. Blooms: May–Nov (CNPS 2013).	A	**No effect**. Suitable habitat not present.
Invertebrates							
Apodemia mormo langei	Lange's metalmark butterfly	FE	—		Endemic to the Antioch Dunes (USFWS 2008)	A	**No effect**. Suitable habitat not present and outside species range.
Branchinecta conservatio	Conservancy fairy shrimp	FE	—		Various types of vernal pools (USFWS 2005).	A	**No effect**. Suitable habitat not present.
	Critical habitat, conservancy fairy shrimp	X	—			A	**No effect**. Critical habitat not present.
Branchinecta longiantenna	longhorn fairy shrimp	FE	—		Various types of vernal pools (USFWS 2005).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Branchinecta lynchi	vernal pool fairy shrimp	FT	—		Found only in vernal pools and vernal pool-like habitats. Distributed throughout the Central Valley, including Sacramento County (USFWS 2005).	A	**No effect**. Suitable habitat not present.
	Critical Habitat, vernal pool fairy shrimp	X	—			A	**No effect**. Critical habitat not present.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	—		Dependent on host plant, elderberry (*Sambucus* spp.), which generally grows in riparian woodlands and upland habitats of the Central Valley. Current beetle distribution in Central Valley ranges from Shasta County to Fresno County (USFWS 1999).	A	**No effect**. Suitable habitat not present.
Elaphrus viridis	delta green ground beetle	FT	—		Grassland interspersed with vernal pools. Only documented in the greater Jepson Prairie in south-central Solano County (USFWS 2005).	A	**No effect**. Suitable habitat not present.
Lepidurus packardi	vernal pool tadpole shrimp	FE	—		Wide variety of ephemeral wetland habitats (vernal pools). Distributed throughout Central Valley and San Francisco Bay Area (USFWS 2005).	A	**No effect**. Suitable habitat not present.
	Critical habitat, vernal pool tadpole shrimp	X	—			A	**No effect**. Critical habitat not present.
Fish							
Acispenser medirostris	green sturgeon	FT	—		Oceanic waters, bays, and estuaries during non-spawning season. Spawning habitat = deep pools in large, turbulent, freshwater mainstems (NMFS 2005).	A	**No effect**. Although the adjacent Suisun Bay contains suitable habitat for these species, the project site does not contain any aquatic or riparian habitat and will not result in adverse impacts to the Suisun Bay.
Archoplites interruptus	Sacramento perch	—	SSC		Historically, Central Valley sloughs, slow-moving rivers, and lakes with beds of rooted emergent aquatic vegetation. Current distribution = artificially stocked farm ponds and reservoirs (USFWS 1995).	A	

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Hypomesus transpacificus	delta smelt	FT	SE		Brackish water below 25°C non-spawning season. Spawning habitat = shallow, fresh or slightly brackish backwater sloughs with good water quality and substrate (USFWS 1995).	A	
	Critical habitat, delta smelt	X	—			A	
Oncorhynchus mykiss	Central Valley steelhead	FT	—		Spawning habitat = gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning = estuarine, marine waters (Busby et al. 1996).	A	**No effect**. Although the adjacent Suisun Bay contains suitable habitat for these species, the project site does not contain any aquatic or riparian habitat and will not result in adverse impacts to the Suisun Bay.
	Critical habitat, Central Valley steelhead	X	—			A	
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	FT	ST		Currently found in the Sacramento-San Joaquin River Delta, the Sacramento River and its tributaries, including American, Yuba, and Feather rivers, and Mill, Deer, and Butte Creeks (NMFS 2009).	A	
	Critical habitat, Central Valley spring-run chinook salmon	X	—			A	
	winter-run chinook salmon, Sacramento River	FE	SE		Spawning habitat = fast moving, freshwater streams and rivers. Juvenile habitat = brackish estuaries. Non-spawning = marine waters (Myers et al. 1998).	A	**No effect**. Although the adjacent Suisun Bay contains suitable habitat for these species, the project site does not contain any aquatic or riparian habitat and will not result in adverse impacts to the Suisun Bay.
	Critical habitat, winter-run chinook salmon	X	-			A	
Spirinchus thaleichthys	longfin smelt	—	ST		Found close to shore, in bays and estuaries, and ascend coastal streams to spawn (Page and Burr 1991).	A	

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Amphibians							
Ambystoma californiense	California tiger salamander, central population	FT	ST		Occurs in grasslands of the Central Valley and oak savannah communities in the Central valley, the Sierra Nevada and Coast ranges, and the San Francisco Bay Area. Needs seasonal or semi-permanent wetlands to reproduce, and terrestrial habitat with active ground squirrel or gopher burrows (Bolster 2010).	A	**No effect**. Suitable habitat not present.
	Critical habitat, California tiger salamander, central population	X	—			A	
Rana draytonii	California red-legged frog	FT	SSC		Occurs in various aquatic, riparian, and upland habitats. Needs aquatic habitats to breed, whether they be natural or artificial, such as stock ponds. In summer, they move to habitat that provides cover (USFWS 2002a).	A	**No effect**. Suitable habitat not present.
	Critical habitat, California red-legged frog	X	—			A	
Reptiles							
Anniella pulchra pulchra	silvery legless lizard	—	SSC		Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodland, desert scrub, sandy washes, and stream terraces (Nafis 2013).	A	**No effect**. Suitable habitat not present.
Emys marmorata	western pond turtle	—	SSC		Found in a wide variety of habitats throughout California, but associated with permanent ponds, lakes, streams, irrigation ditches, and permanent pools along intermittent streams (CDFW 2013c).	A	**No effect**. Suitable habitat not present.
Masticophis lateralis euryxanthus	Alameda whipsnake (=striped racer)	FT	ST		Associated with chaparral and shrubland communities, but will range into adjacent grassland and woodlands (USFWS 2002b).	A	**No effect**. Suitable habitat not present.
	Critical Habitat, Alameda whipsnake	X	—			A	**No effect**. Critical habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Thamnophis gigas	giant garter snake	FT	ST		Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands (USFWS 2012).	A	**No effect**. Suitable habitat not present.
Birds							
Athene cunicularia	burrowing owl	—	SSC		Open, flat expanses with short, sparse vegetation and few shrubs, level to gentle topography, and well-drained soils. Requires underground burrows or cavities for nesting and roosting. Can use rock cavities, debris piles, pipes, and culverts if burrows unavailable. Habitats include grassland, shrub steppe, desert, agricultural land, vacant lots, and pastures (CDFW 2012).	P	**May affect**. Suitable habitat present.
Elanus leucurus	white-tailed kite	—	FP		Occurs in herbaceous and open stages of valley lowland habitats, usually near agricultural land. Forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (CDFW 2013c).	P	**May affect**. Suitable habitat present.
Geothlypis tricha sinuosa	saltmarsh common yellowthroat	—	SSC		Breeds and winters in wet meadow, fresh emergent wetland, and saline emergent wetland habitats. Also breeds in valley foothill riparian, occasionally in desert riparian, annual grassland, and perennial grassland habitats (CDFW 2013c).	A	**No effect**. Suitable habitat not present.
Laterallus jamaicensis coturniculus	California black rail	—	ST/FP		Yearlong resident of saline, brackish, and fresh emergent wetlands (CDFW 2013c).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Melospiza melodia	song sparrow ("Modesto" population)	—	SSC		Breeds and winters in riparian, fresh or saline emergent wetland, and wet meadows. Breeds in riparian thickets of willows, other shrubs, vines, tall herbs, and fresh or saline emergent vegetation (CDFW 2013c).	A	**No effect**. Suitable habitat not present.
Melospiza melodia maxillaris	Suisun song sparrow	—	SSC		Confined to tidal salt and brackish marshes fringing Carquinez Strait and Suisun Bay east to Antioch, at the confluence of the San Joaquin and Sacramento rivers (Shuford and Gardali 2008).	A	**No effect.** Although the adjacent Suisun Bay contains suitable habitat for these species, the project site does not contain any aquatic or riparian habitat and will not result in adverse impacts to the Suisun Bay.
Rallus longirostris obsoletus	California clapper rail	FE	SE		Requires intricate network of sloughs with small natural berms along tidal channels with relatively tall vegetation (USFWS 2010a).	A	
Sternula antillarum browni	California least tern	FE	SE		Nests and roosts in colonies on open beaches, forage near shore ocean waters and in shallow estuaries and lagoons (USFWS 2006).	A	
Mammals							
Lasiurus blossevillii	western red bat	—	SSC		Roosting habitat includes forests and woodlands, often in edge habitats adjacent to streams, fields, or urban areas (CDFW 2013c).	A	**No effect**. Suitable habitat not present.
Reithrodontomys raviventris	salt marsh harvest mouse	FE	SE		Salt marshes with dense stands of pickleweed; adjacent to upland, salt-tolerant vegetation (USFWS 2010a).	A	**No effect**. Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	General Habitat Characteristics	Habitat Present/ Absent	Rationale
Vulpes macrotis mutica	San Joaquin kit fox	FE	ST		Occurs in desert-like habitats characterized by sparse or absent shrub cover, sparse ground cover, and short vegetative structure. Areas having open, level, sandy ground (USFWS 2010b).	A	**No effect**. Suitable habitat not present and surrounded by urban barriers.

Key	
Federal & State Status	**CNPS Rare Plant Rank**
(FE) Federal Endangered	*Rareness Ranks*
(FT) Federal Threatened	(1A) Presumed Extinct in California
(FC) Federal Candidate	(1B) Rare, Threatened, or Endangered in California and Elsewhere
(FD) Federally Delisted	(2B) Rare, Threatened, or Endangered in California, But More Common Elsewhere
(SE) State Endangered	*Threat Ranks*
(ST) State Threatened	(0.1) Seriously threatened in California
(SSC) State Species of Special Concern	(0.2) Fairly threatened in California
(FP) Fully Protected	(0.3) Not very threatened in California

Wildlife Movement Corridors

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented undisturbed areas. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, preserve a species' distribution potential, and retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource. The study area and surrounding lands have largely been converted to urban land uses. The intensity of this cover type significantly disrupts the movement of wildlife through the area.

3.8.2 REGULATORY FRAMEWORK

This section identifies environmental review and consultation requirements, as well as permits and approvals that must be obtained from local, state, and federal agencies before implementation of the project.

FEDERAL

Endangered Species Act

The Endangered Species Act of 1973 (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code (USC) Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222, of the Code of Federal Regulations (50 CFR Section 222), further defines "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering."

ESA Section 7(a)(1) requires federal agencies to utilize their authority to further the conservation of listed species. ESA Section 7(a)(2) requires consultation with the USFWS or the National Marine Fisheries Service (NMFS) if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may affect endangered or threatened species, or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat and that lack a federal nexus, a Section 10(a)(1)(b) incidental take permit can be obtained from the USFWS and/or the NMFS.

Clean Water Act

The basis of the Clean Water Act (CWA) was established in 1948; however, it was referred to as the Federal Water Pollution Control Act. The act was reorganized and expanded in 1972 (33 USC Section 1251), and at this time the Clean Water Act became the commonly used name. The basis of the CWA is the regulation of pollutant discharges into waters of the United States, as well as the establishment of surface water quality standards.

Section 404

CWA Section 404 (33 USC Section 1344) established the program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Under this regulation, certain activities proposed within waters of the United States require that a permit be obtained

prior to initiation. These activities include, but are not limited to, placement of fill for the purposes of development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and bridges), and mining operations.

The primary objective of this program is to ensure that the discharge of dredged or fill material is not permitted if a practicable alternative to the proposed activities exists that results in less impact to waters of the United States, or the proposed activity would result in significant adverse impacts to waters of the United States. To comply with these objectives, a permittee must document the measures taken to avoid and minimize impacts to waters of the United States and provide compensatory mitigation for any unavoidable impacts.

The US Environmental Protection Agency (USEPA) and the USFWS are assigned roles and responsibilities in the administration of this program; however, the US Army Corps of Engineers (USACE) is the lead agency in the administration of day-to-day activities, including issuance of permits. The agencies will typically assert jurisdiction over the following waters (1) traditional navigable waters (TNW); (2) wetlands adjacent to TNWs; and (3) relatively permanent waters (RPW) that are non-navigable tributaries to TNWs and have relatively permanent flow or seasonally continuous flow (typically three months), as well as (4) wetlands that directly abut RPWs. Case-by-case investigations are usually conducted by the agencies to ascertain their jurisdiction over waters that are non-navigable tributaries and do not contain relatively permanent or seasonal flow, wetlands adjacent to the aforementioned features, and wetlands adjacent to but not directly abutting RPWs. Jurisdiction is not generally asserted over swales or erosional features (e.g., gullies or small washes characterized by low-volume/short-duration flow events) or ditches constructed wholly within and draining only uplands that do not have relatively permanent flows.

The extent of jurisdiction within waters of the United States which lack adjacent wetlands is determined by the ordinary high water mark (OHWM). The OHWM is defined in 33 CFR Section 328.3(e) as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Wetlands are further defined under 33 CFR Section 328.3 and 40 CFR Section 230.3 as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" and typically include "swamps, marshes, bogs, and similar areas." The *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) sets forth a standardized methodology for delineating the extent of wetlands under federal jurisdiction.

The 1987 Manual outlines three parameters that all wetlands, under normal circumstances, must contain positive indicators for to be considered jurisdictional. These parameters include (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils (USACE 1987). In 2006, the USACE issued a series of Regional Supplements to address regional differences that are important to the functioning and identification of wetlands. The supplements present "wetland indicators, delineation guidance, and other information" that is specific to the region. The USACE requires that wetland delineations, submitted after June 5, 2007, be conducted in accordance with both the 1987 Manual and the applicable supplement.

Section 401

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit and/or license for any activity that may result in discharges to waters of the United States,

unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. CWA Section 401 provides states or tribes with the ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the federal permit/license to be issued and remain consistent with any conditions set forth in the CWA Section 401 certification. Denial of the certification prohibits the issuance of the federal license or permit, and a waiver allows the permit/license to be issued without state or tribal comment. Decisions made by states or tribes are based on the proposed project's compliance with USEPA water quality standards as well as with applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any other appropriate requirements of state or tribal law. In California, the State Water Resources Control Board is the primary regulatory authority for CWA Section 401 requirements (additional details below).

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). The majority of birds found in the project vicinity would be protected under the MBTA.

Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC Sections 668–668c). Under the act, it is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead, or any part, nest or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

Fish and Wildlife Coordination Act of 1958 (16 USC 661 et seq.)

The Fish and Wildlife Coordination Act requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal agency must consult with the USFWS, the state agency responsible for fish and wildlife management, and the National Marine Fisheries Service. Section 662(b) of the act requires the lead federal agency to consider the recommendations of the USFWS and other agencies. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

Executive Order 11990 Protection of Wetlands (42 FR 26961, 25 May 1977)

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support for new construction located in wetlands unless (1) no practicable alternative exists, and (2) all practical measures have been taken to minimize harm to wetlands.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code (FGC) Section 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of "species of special concern," which serve as species "watch lists."

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State listed species are fully protected under the mandates of CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from the CDFW would be in the form of an incidental take permit.

California Fish and Game Code

Streambed Alteration Agreement (FGC Sections 1600–1607)

State and local public agencies are subject to FGC Section 1602, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as waters of the state by the CDFW. Under FGC Section 1602, a discretionary Streambed Alteration Agreement must be issued by the CDFW to the project proponent prior to the initiation of construction activities on lands under CDFW jurisdiction. As a general rule, this requirement applies to any work undertaken in the 100-year floodplain of a stream or river containing fish or wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (FGC Sections 1900–1913) prohibits the taking, possessing, or sale in the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFW). An exception in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFW and give that state agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC Section 1913). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur in the area of disturbance associated with construction of the proposed project.

Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

"Fully Protected" Species

California statutes afford fully protected status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. FGC Section 3505 makes it unlawful to take "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." FGC Section 3511 protects from take the following fully protected birds: (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican (*Pelecanus occidentalis*); (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle (*Aquila chrysaetos*); (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*).

FGC Section 4700 identifies the following fully protected mammals that cannot be taken: (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (c) Northern elephant seal (*Mirounga angustirostris*); (d) Guadalupe fur seal (*Arctocephalus townsendi*); (e) ring-tailed cat (genus *Bassariscus*); (f) Pacific right whale (*Eubalaena sieboldi*); (g) salt-marsh harvest mouse (*Reithrodontomys raviventris*); (h) southern sea otter (*Enhydra lutris nereis*); and (i) wolverine (*Gulo gulo*).

FGC Section 5050 protects from take the following fully protected reptiles and amphibians: (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

FGC Section 5515 also identifies the following fully protected fish that cannot lawfully be taken even with an incidental take permit: (a) Colorado River squawfish (*Ptychocheilus lucius*); (b) thicktail chub (*Gila crassicauda*); (c) Mohave chub (*Gila mohavensis*); (d) Lost River sucker (*Catostomus luxatus*); (e) Modoc sucker (*Catostomus microps*); (f) shortnose sucker (*Chasmistes brevirostris*); (g) humpback sucker (*Xyrauchen texanus*); (h) Owens River pupfish (*Cyprinoden radiosus*); (i) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and (j) rough sculpin (*Cottus asperrimus*).

California Wetlands and Other Waters Policies

The California Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met: the project is water-dependent; no other feasible alternative is available; the public trust is not adversely affected; and adequate compensation is proposed as part of the project.

Porter-Cologne Water Quality Control Act

Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15) is the primary state regulation addressing water quality. The requirements of the act are implemented by the State Water Resources Control Board (SWRCB) at the state level and by the Regional Water Quality Control Board (RWQCB) at the local level. The RWQCB carries out planning, permitting, and enforcement activities related to

water quality in California. The act provides for waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act, Section 401 Water Quality Certification

CWA Section 401 (33 USC Section 1341) requires that any applicant for a federal license or permit which may result in a pollutant discharge to waters of the United States obtain a certification that the discharge will comply with USEPA water quality standards. The state or tribal agency responsible for issuance of the Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in state/tribal laws. In California, the SWRCB is the primary regulatory authority for CWA Section 401 requirements.

The San Francisco Bay Regional Water Quality Control Board) is responsible for enforcing water quality criteria and protecting water resources in the project area. In addition, the San Francisco Bay RWQCB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements (WDR) or commonly by issuing conditional waivers to waste discharge requirements. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by the USACE. A request for water quality certification (including waste discharge requirements) by the San Francisco Bay RWQCB and an application for a General Permit for Storm Water Discharges Associated with Construction Activities are prepared and submitted following completion of the CEQA environmental document and submittal of the wetland delineation to the USACE.

Delegated Permit Authority

California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program including stormwater permits for all areas except tribal lands. Issuance of CWA Section 404 dredge and fill permits remains the responsibility of the USACE; however, the State actively uses its CWA Section 401 certification authority to ensure CWA Section 404 permits are in compliance with state water quality standards.

State Definition of Covered Waters

Under California state law, waters of the State means "any surface water or groundwater, including saline waters, within the boundaries of the state." Therefore, water quality laws apply to both surface water and groundwater. After the US Supreme Court decision in *Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, the Office of Chief Counsel of the SWRCB released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other waters of the state are subject to state regulation, and this includes isolated wetlands. In general, the SWRCB regulates discharges to isolated waters in much the same way as they do for waters of the United States, using Porter-Cologne Water Quality Control Act rather than Clean Water Act authority.

NONGOVERNMENTAL AGENCY

California Native Plant Society

The California Native Plant Society (CNPS) is a nongovernmental agency that classifies native plant species according to current population distribution and threat level in regard to extinction. The data is utilized by the CNPS to create/maintain a list of native California plants that have low

numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2013). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

The following identifies the definitions of the CNPS listings:

List 1A: Plants believed to be extinct

List 1B: Plants that are rare, threatened, or endangered in California and elsewhere

List 2: Plants that are rare, threatened, or endangered in California, but are more numerous elsewhere

All of the plant species on List 1 and 2 meet the requirements of the Native Plant Protection Act Section 1901, Chapter 10, or FGC Section 2062 and Section 2067 and are eligible for state listing. Plants appearing on List 1 or 2 are considered to meet the criteria of CEQA Section 15380, and effects on these species are considered "significant." Classifications for plants on List 3 (plants about which we need more information) and/or List 4 (plants of limited distribution), as defined by the CNPS, are not currently protected under state or federal law. Therefore, no detailed descriptions or impact analysis was performed on species with these classifications.

LOCAL

City of Pittsburg General Plan

The City of Pittsburg General Plan was adopted in 2001. The General Plan includes policies that relate to biological resources and habitat, including protection of hillsides, creekways, and wetlands. The proposed project was analyzed for compliance with these policies. While this DEIR considers the project's consistency with the General Plan pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15125(d), the appropriate reviewing authority will ultimately make the determination of the project's consistency with the General Plan.

East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan

The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) serves as a comprehensive, multi-jurisdictional habitat conservation plan, pursuant to Section (a)(1)(B) of the federal Endangered Species Act, as well as a natural communities conservation plan under the California Natural Community Conservation Planning Act of 2001. The plan encompasses Brentwood, Clayton, Oakley, and Pittsburg, Contra Costa County, the Contra Costa Water District, and the East Bay Regional Park District. The overall biological goal of the HCP/NCCP is to conserve covered species and their habitats, as well as to maintain biological diversity and ecological processes while allowing for future economic growth in a rapidly urbanizing region.

Federal and state wildlife agencies approved permits required to implement the HCP/NCCP between July 24, 2007, and August 6, 2007. The City of Pittsburg adopted the HCP/NCCP later that year. The plan's primary intent is to provide for the conservation of a range of plants and animals and in return, provide take coverage and mitigation for projects throughout eastern Contra Costa County to avoid the cost and delays of mitigating biological impacts on a project-by-project basis. It would allow the incidental take (for development purposes) of species and their habitat from development. The City is a permittee to the HCP/NCCP, and any new proposed project is required to comply with applicable provisions of the plan.

3.8.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the application of the State CEQA Guidelines Appendix G thresholds of significance. A project is considered to have significant impacts if implementation of the project will:

1) 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 CDFW or USFWS.

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

3) 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 wetlands, etc.), through direct removal, filling, hydrological interruption, or other means.

4) 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.

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

7) Reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.

CEQA Guidelines Section 15380 further provides that a plant or wildlife species may be treated as "rare or endangered" even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

METHODOLOGY

The impact assessment below discusses impacts from implementation of project activities. The impact assessment was based on the project description (Section 2.0), information described in the environmental setting, and the standards of significance described above. The impact analysis is organized by the significance criteria noted above: special-status plant and wildlife species, sensitive vegetation communities, federally protected wetlands, wildlife movement corridors, compliance with local plans and policies, and compliance with existing habitat conservation plans. Each impact category includes a description of the specific potential impacts as well as avoidance, minimization, and mitigation measures that can reduce potentially significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Special-Status Species (Standards of Significance 1 and 7)

Impact 3.8.1 Implementation of project-related activities could result in substantial adverse effects, either directly or through habitat modifications, to special-status species, which would be considered a **potentially significant** impact.

The project area may provide suitable breeding and foraging habitat for burrowing owl, white-tailed kite, Swainson's hawk, and golden eagle, as well as nesting and/or foraging habitat for other migratory birds and raptors not identified in **Table 3.8-1**. Burrowing owl, golden eagle, and Swainson's hawk are all covered by the East Contra Costa County HCP/NCCP.

Portions of the study area not covered by hardscape provide suitable year-round roosting, nesting, and foraging habitat for burrowing owls. The presence of suitable habitat and documented occurrences in proximity to the study area result in the determination that implementation of project-related activities could result in significant impacts to this species, should it become established in areas proposed for disturbance. In order to reduce potential impacts to a less than significant level, mitigation measure **MM 3.8.1a** is required.

There is potentially suitable nesting and foraging habitat for Swainson's hawks, golden eagles, and white-tailed kites within and adjacent to the study area. The presence of suitable habitat and documented occurrences within 5 miles of the study area result in the determination that implementation of project-related activities could result in significant impacts to these species, should they be present on or adjacent to areas proposed for disturbance. In order to reduce potential impacts to a less than significant level, mitigation measures **MM 3.8.1b, MM3.8.1c,** and **MM 3.8.1d** are required.

All native breeding birds (except game birds during the hunting season), regardless of their listing status, are protected under the MBTA. Vegetation clearing during the nesting season could result in direct impacts to nesting birds should they be present. Furthermore, noise and other human activity could result in nest abandonment if nesting birds are within 200 feet (500 feet for raptors) of a work site. Due to the presence of suitable habitat for these species, implementation of project-related activities could result in significant impacts should species be present in areas proposed for disturbance. In order to reduce potential impacts to a less than significant level, mitigation measures **MM 3.8.1d** and **MM 3.8.1e** are required.

Mitigation Measures

MM 3.8.1a **Burrowing Owl.** Prior to any ground disturbance, a qualified biologist shall conduct a preconstruction survey for burrowing owls on and adjacent to the project site. Surveys shall be conducted in accordance with the CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report), published March 7, 2012. Surveys shall take place no more than 30 days prior to construction and will establish the presence or absence of burrowing owl and/or habitat features and evaluate habitat use by owls. During the surveys, all burrows and burrowing owls will be identified and mapped.

If burrowing owls are found during the breeding season (February 1–August 31), the project applicant shall avoid all nest sites for the remainder of the breeding season or while the nest site is occupied by adults or young. Avoidance measures will include establishment of a 250-foot no disturbance

buffer zone surrounding the nest burrow. If site-specific conditions or the nature of the covered activity indicate that a smaller buffer could be used, the HCP/NCCP Implementing Entity will coordinate with the CDFW and the USFWS to determine the appropriate buffer size. Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the non-breeding season (September 1–January 31), the project applicant shall avoid the owls and the burrows they are using through establishment of a 160-foot protective buffer zone surrounding the active burrow.

If avoidance is not possible, passive relocation of occupied burrows shall be implemented outside the breeding season. Owls should be excluded from burrows by installing one-way doors in burrow entrances. These doors should be in place for no less than 48 hours prior to excavation, and the project area shall be monitored daily by a qualified biologist for one week to confirm that the owl has abandoned the burrow.

Timing/Implementation: *Prior to and during construction activities*

Enforcement/Monitoring: *City of Pittsburg Planning Department*

MM 3.8.1b **Swainson's Hawk.** Prior to any ground disturbance that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than one month prior to construction to determine if occupied Swainson's hawk nests are present within 1,000 feet of the project site.

If occupied nests are documented, project-related activities within 1,000 feet of an occupied nest site shall be prohibited to prevent nest abandonment. Project-related activities can proceed normally if a qualified biologist determines that young have fledged prior to September 15. If site-specific conditions or the nature of the covered activity indicate that a smaller buffer could be used, the HCP/NCCP Implementing Entity will coordinate with the CDFW and the USFWS to determine the appropriate buffer size. Furthermore, if the active nest site is shielded from view and noise from the project site by other development, topography, or other features (including off-site features), the project applicant can apply to the HCP/NCCP Implementing Entity for a waiver of this avoidance measure. Waivers must also be approved by the USFWS and the CDFW. While the nest is occupied, project-related activities outside the 1,000-foot buffer can take place.

Timing/Implementation: *Prior to and during construction activities*

Enforcement/Monitoring: *City of Pittsburg Planning Department*

MM 3.8.1c **Golden Eagle.** Prior to any ground disturbance that occurs during the nesting season (January 1–August 31), a qualified biologist shall conduct a preconstruction survey not more than one month prior to construction to determine whether active golden eagle nests are present within 0.5 mile of the project site. If active nests are present within 0.5 mile of the project site, project-related activities within 0.5 mile of the nest are prohibited to prevent

nest abandonment. If site-specific conditions or the nature of the covered activity indicate that a smaller buffer could be used, the HCP/NCCP Implementing Entity will coordinate with the CDFW and the USFWS to determine the appropriate buffer size. Project-related disturbance may proceed once a qualified biological monitor determines that the nest has failed or that the young birds have fledged.

Timing/Implementation: *Prior to and during construction activities*

Enforcement/Monitoring: *City of Pittsburg Planning Department*

MM 3.8.1d **Non-Covered Raptor Surveys.** If clearing and/or construction activities will occur during the raptor nesting season (January 15–August 15), preconstruction surveys to identify active raptor nests shall be conducted by a qualified biologist within 30 days of construction initiation. Focused surveys must be performed by a qualified biologist for the purpose of determining presence/absence of active nest sites within the proposed impact area and a 500-foot buffer (if feasible).

If active nest sites are identified within 500 feet of project activities, the project applicant shall impose a limited operating period (LOP) for all active nest sites prior to commencement of any project construction activities to avoid construction-related disturbances to nesting raptors. An LOP constitutes a period during which project-related activities (i.e., vegetation removal, earth moving, and construction) will not occur and will be imposed within 250 feet of any active nest sites until the nest is deemed inactive by a qualified biologist. Activities permitted within and the size (i.e., 250 feet) of LOPs may be adjusted through consultation with the CDFW and/or the East Contra Costa County HCP/NCCP Implementing Entity.

Timing/Implementation: *Prior to and during construction activities*

Enforcement/Monitoring: *City of Pittsburg Planning Department*

MM 3.8.1e **Nesting Bird Surveys.** If clearing and/or construction activities will occur during the migratory bird nesting season (February 15–August 15), preconstruction surveys to identify active migratory bird nests shall be conducted by a qualified biologist within 30 days of construction initiation. Focused surveys must be performed by a qualified biologist for the purpose of determining presence/absence of active nest sites within the proposed impact area, including a 200-foot buffer.

If active nest sites are identified within 200 feet of project activities, the project applicant shall impose a limited operating period (LOP) for all active nest sites prior to commencement of any project construction activities to avoid construction-related disturbances to migratory bird nesting activities. An LOP constitutes a period during which project-related activities (i.e., vegetation removal, earth moving, and construction) will not occur and will be imposed within 100 feet of any active nest sites until the nest is deemed inactive by a qualified biologist. Activities permitted within and the size (i.e., 100 feet) of LOPs may be adjusted through consultation with the CDFW and/or the East Contra Costa County HCP/NCCP Implementing Entity.

Timing/Implementation: *Prior to and during construction activities*

Enforcement/Monitoring: *City of Pittsburg Planning Department*

The special-status bird species identified above were determined to have the potential to be substantially adversely affected by project-related activities, either directly or through habitat modifications. Impacts to these species would be considered a potentially significant impact. However, mitigation measures **MM 3.8.1a** through **MM 3.8.1e** require surveys to ensure no birds are present or provide for measures to reduce the potential disturbance to nesting or fledgling birds to ensure impacts are reduced to a **less than significant** level.

Impacts to Riparian Habitat or Sensitive Natural Communities (Standard of Significance 2)

Impact 3.8.2 Implementation of project-related activities may result in substantial adverse effects, either directly or through habitat modifications, to riparian habitat or sensitive natural communities. This would be considered a **less than significant impact**.

Sensitive natural communities include those that are of special concern to resource agencies and those that are protected under CEQA, Section 1600 of the FGC, and Section 404 of the CWA. Potentially sensitive natural communities in the project vicinity include riparian and aquatic habitat associated with Kirker Creek. There would be no construction in the creek and there are no anticipated impacts to Kirker Creek as a result of the proposed project.

As discussed above, based on the delineation for the western portion of the study area including the section of the man-made ditch, the USACE concluded that there were no wetlands or other waters present in the area surveyed that were subject to the USACE authority under Section 404 of the federal Clean Water Act. Whether it is considered waters of the state subject to jurisdiction of CDFW is unclear. If the ditch is subject to Section 1600 of the FGC and/or the Porter-Cologne Act, the project applicant would be required to obtain a permit prior to fill of or construction in the ditch. However, the ditch is an ephemeral feature with little in-channel vegetation and habitat values associated with the ditch are virtually indistinguishable from the surrounding grassland. Therefore, the project would not result in substantial adverse effects, either directly or through habitat modifications, to riparian habitat or sensitive natural communities. This would be considered a **less than significant impact**.

Mitigation Measures

None required .

Impacts to Federally Protected Wetlands (Standard of Significance 3)

Impact 3.8.3 Implementation of project-related activities would not result in substantial adverse effects to federally protected wetlands. There would be **no impact**.

Implementation of project-related activities would not result in the disturbance, degradation, and/or removal of federally protected wetlands. The man-made drainage ditch near the northern boundary of the study area will be relocated. A delineation of the entire ditch was conducted for the Columbia Solar project in December 2012. The USACE determined that the ditch was an isolated feature and therefore not considered jurisdictional (City of Pittsburg 2013). Therefore, removal of the ditch will not be considered an impact to federally protected waters.

Further, there would be no construction in Kirker Creek. Therefore, no impacts to Kirker Creek are anticipated as a result of project activities, resulting in **no impact.**

Mitigation Measures

None required.

Impacts to Wildlife Movement (Standard of Significance 4)

Impact 3.8.4 Implementation of project-related activities would not result in substantial adverse effects to wildlife movement. There would be **no impact**.

The CDFW Biogeographic Information & Observation System Habitat Connectivity Viewer (2013d) was reviewed to determine whether the project site is located within an Essential Connectivity Area. The project does not occur within an Essential Connectivity Area, and the study area is surrounded on all sides by urban land use that already restricts wildlife movement. Implementation of project-related activities is not expected to result in impacts to the movement of native resident or migratory fish or wildlife species or established migratory corridors. As a result, **no impact** to the movements of any native resident or migratory wildlife corridors or the use of native wildlife nursery sites will occur as a result of the proposed project.

Mitigation Measures

None required.

Conflict with Local Policies or Ordinances or Conservation Plans (Standards of Significance 5 and 6)

Impact 3.8.5 The proposed project would not conflict with any policies, ordinances, or plans, including the East Contra Costa County HCP/NCCP. This would be considered a **less than significant** impact with implementation of measures identified for the project.

The proposed project does not include removal of any trees within the public right-of-way, so it would not conflict with Pittsburg Municipal Code Chapter 12.32 (Street Tree Ordinance), which regulates the removal and preservation of trees on public rights-of-way within the city. Nor would the project conflict with any of the policies described in the Contra Costa County General Plan or the City of Pittsburg General Plan.

The study area is located in the East Contra Costa County HCP/NCCP planning area; therefore, the project is subject to review for consistency with HCP/NCCP requirements, including Chapter 6.3, Surveys for Covered Activities, and Chapter 9.3.1, Mitigation Fees.

One component of the HCP/NCCP is mitigation fee zones, which are land areas that occur within the plan area and require a fee for development activities to occur. The proposed project is located in a HCP/NCCP development fee zone. A standard condition for the proposed project includes the payment of these fees to comply with the overlying habitat conservation plan. The project applicant would be required to submit fees to the City in accordance with the requirements of the East Contra Costa County HCP/NCCP. Another component of the HCP/NCCP is that projects are required to conduct species-specific surveys and monitoring. Mitigation measures **MM 3.8.1a** through **MM 3.8.1e** satisfy the survey requirements for this component. Without species-specific surveys and monitoring, this would be a potentially significant impact.

Mitigation Measures

Implement mitigation measures **MM 3.8.1a** through **MM 3.8.1e**.

With implementation of mitigation measures and adherence to the standard conditions and requirements, any impacts will be **less than significant** and ensure the project will not conflict with the East Contra Costa County HCP/NCCP.

3.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The surrounding area of Contra Costa County as a whole must be considered for the purpose of evaluating land use conversion issues associated with biological resources on a cumulative level. In particular, this cumulative setting condition includes proposed and approved projects, existing land use conditions, and planned development under the General Plan, existing land use conditions, and planned and proposed land uses in the region.

Continued development in the region could directly and indirectly affect biological resources. The development of natural areas could cause loss of wildlife habitats or plant communities. The proposed project could contribute incrementally to the cumulative loss of wildlife habitat values, special-status species and their potential habitat, and wetland resources in the county and in the region.

The cumulative impact analysis below focuses on the proposed project's contribution to the loss of special-status species and to sensitive and critical habitat.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Biological Resource Impacts

Impact 3.8.6 The proposed project, in combination with other reasonably foreseeable projects, could result in mortality and loss of habitat for special-status species and sensitive habitat. However, the East Contra Costa County HCP/NCCP addresses and mitigates regional biological resource impacts. Implementation of the HCP/NCCP and project mitigation would make this a **less than cumulatively considerable** impact.

Future development in the surrounding area would contribute to cumulative impacts on special-status species and sensitive and critical habitats. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting, and reduced access to habitat and movement corridors) could result in direct mortality, habitat loss, and deterioration of habitat suitability. Therefore, cumulative impacts on special-status species and sensitive habitat are considered significant. Implementation of the proposed project may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development in the surrounding area could result in mortality and loss of habitat for special-status species and sensitive habitat. Therefore, the project's contribution to that impact would be considerable.

The vegetation communities/habitats in the study area represent only a small portion of the communities/habitats available for special-status species in the project vicinity. In addition, the proposed project would not result in a drastic change to land use in the project vicinity. The study area is surrounded on all sides by extensive development and would not contribute to further fragmentation of the landscape.

The East Contra Costa County HCP/NCCP encompasses 174,018 acres and includes all unincorporated county land east of Concord. In addition, most of the cities in the region participate in the HCP/NCCP. The plan's goal is to conserve covered species and their habitats, as well as to maintain biological diversity and ecological processes while allowing for future economic growth in a rapidly urbanizing region.

Mitigation Measures

Implement mitigation measures **MM 3.8.1a** through **MM 3.8.1e**.

Implementation of mitigation measures **MM 3.8.1a** through **MM 3.8.1e,** along with adherence to the standard conditions and requirements of the East Contra Costa County HCP/NCCP described previously, would mitigate the project's contribution to impacts to special-status species and sensitive habitats, thereby reducing the proposed project's contribution to cumulative impact to **less than cumulatively considerable**.

REFERENCES

Bolster, B. C. 2010. *A Status Review of the California Tiger Salamander* (Ambystoma californiense). Sacramento: CDFG.

Busby, P. J., T. C. Wainwright, G. J. Bryant, L. J. Lierheimer, R. S. Waples, F. W. Waknitz, and I. V. Lagomarsino. 1996. *Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California.* NOAA Technical Memorandum NMFS-NWFSC-27. Seattle, WA.

CDFW (California Department of Fish and Wildlife). 2012. *Staff Report on Burrowing Owl Mitigation*.

———. 2013a. California Natural Diversity Database – October 1, 2013, update. Sacramento: CDFW Biogeographic Data Branch.

———. 2013b. *A Guide to Wildlife Habitats of California* (online edition). Sacramento: CDFW Biogeographic Data Branch. Accessed October 17, 2013. http://www.dfg.ca.gov/biogeodata/cwhr/wildlife_habitats.asp.

———. 2013c. California Wildlife Habitat Relationships System Life History Accounts and Range Maps (online edition). Sacramento: CDFW Biogeographic Data Branch. Accessed October 17, 2013. http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx.

———. 2013d. Biogeographic Information & Observation System Habitat Connectivity Viewer. Sacramento: CDFW Biogeographic Data Branch. Accessed October 17, 2013. http://bios.dfg.ca.gov/.

City of Pittsburg. 2013. *Initial Study, Columbia Solar Energy Project*.

CNPS (California Native Plant Society). 2013. Inventory of Rare and Endangered Plants of California (online edition, v8-01a). Sacramento: CNPS. Accessed October 17, 2013.

Hunt, W. G., R. E. Jackman, T. L. Brown, D. E. Driscoll, and L. Culp. 1998. *A population study of golden eagles in the Altamont Pass Wind Resource Area: population trend analysis 1997.* Report to National Renewable Energy.

Mosaic Associates, LLC. 2013. *Biological Resources Report, Mt. Diablo Resources Recovery Park, 1300 Loveridge, Pittsburg CA*.

———. 2014. *Biological Resources Report, Mt. Diablo Resources Recovery Park, 1300 Loveridge, Pittsburg CA*.

Myers, J. M, R. G. Kope, G. J. Bryant, D. Teel, L. J. Lierheimer, T. C. Wainwright, W. S. Grant, F. W. Waknitz, K. Neely, S. T. Lindley, and R. S. Waples. 1998. *Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California.* NOAA Technical Memorandum NMFS-NWFSC-35.

Nafis, Gary. 2013. *A Guide to the Reptiles and Amphibians of California.* Accessed October 18, 2013. http://www.californiaherps.com.

NMFS (National Marine Fisheries Service). 2005. *Green Sturgeon* (Acispenser medirostris) *Status Review Update*. Santa Cruz, CA: NMFS Southwest Fish Science Center.

Page, L. M., and B. M. Burr, 1991. *A Field Guide to Freshwater Fishes of North America North of Mexico*. Boston: Houghton Mifflin.

Schlorff, Ronald W., and Peter H. Bloom. 1984. *Importance of riparian systems to nesting Swainson's hawks in the Central Valley of California.* In Warner, Richard E.; Hendrix, Kathleen M., eds. California riparian systems: Ecology, conservation, and productive management. Proceedings of a conference; September 17–19, 1981; Davis, CA. Berkeley: University of California Press.

Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California.* Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and CDFG, Sacramento, CA.

TRC Solutions, Inc. 2007. *Jurisdictional Determination Form Instructional Guidebook*. USACE and US Environmental Protection Agency.

———. 2013. *Application Form and Planning Survey Report to Comply with and Receive Permit Coverage under the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan.* November 27, 2013, revised February 11, 2013.

USACE (US Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1*. Vicksburg, MS: USACE Waterways Experiment Station.

USFWS (US Fish and Wildlife Service). 1995. *Sacramento-San Joaquin Delta Native Fishes Recovery Plan.* Portland, OR: USFWS.

———. 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Sacramento: USFWS.

———. 2002a. *Recovery Plan for California Red-Legged Frog* (Rana aurora draytonii). Portland, OR: USFWS.

———. 2002b. *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California.* Portland, OR: USFWS.

———. 2005*. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Portland, OR: USFWS.

———. 2006. *California Least Tern 5-Year Review.* Carlsbad, CA: USFWS.

———. 2008. *Lange's Metalmark 5-Year Review.* Sacramento: USFWS.

———. 2010a. *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California*. Sacramento: USFWS.

———. 2010b. *San Joaquin Kit Fox 5-Year Review.* Sacramento: USFWS.

———. 2012*. Giant Garter Snake* (Thamnophis gigas) *5-Year Review: Summary and Evaluation.* Sacramento: USFWS.

———. 2013a. Sacramento Fish & Wildlife Office Species List (online edition). Sacramento: USFWS. Accessed October 17, 2013. http://www.fws.gov/sacramento/es_species/Lists/es_species_lists-form.cfm.

———. 2013b. Critical Habitat Portal (online edition). Accessed October 17, 2013.

Woodbridge, B. 1998. "Swainson's Hawk (*Buteo swainsoni*)." In *The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California*. California Partners in Flight.