4.2 BIOLOGICAL RESOURCES

4.2.1 Introduction

This section evaluates the potential effects on biological resources associated with development and operation of the Roberts' Ranch Specific Plan Project (proposed project). This section describes the biological resources present within the project site; identifies special-status plant and wildlife species known to occur or potentially occur within the project site; outlines applicable federal, state, and regional regulations pertaining to protection of plant and wildlife species; and identifies potential project-specific and cumulative impacts on biological resources and measures to minimize these impacts. This section also addresses potential impacts to biological resources associated with proposed off-site improvements.

A comment letter was received from the U.S. Army Corps of Engineers in response to the Notice of Preparation (NOP) requesting a wetland delineation be prepared for the project site to determine if any jurisdictional waters of the U.S. would be impacted by the project. An Aquatic Resources Delineation was prepared for the project site and is included in Appendix D. In addition, a copy of the NOP and comments received is included in Appendix A.

Resources referenced to prepare this section include the Aquatic Resources Delineation, prepared by Madrone Ecological Consulting (Madrone 2016a), a Biological Resources Assessment, prepared by Madrone Ecological Consulting (Madrone 2016b), the City of Vacaville General Plan (City of Vacaville 2015), the Solano County General Plan (Solano County 2008), and the Travis Air Force Base Land Use Compatibility Plan (Solano County 2015). Copies of the biological reports are included in Appendix D.

4.2.2 Environmental Setting

This section describes the existing conditions in the project site and also identifies the resources that could be affected by the proposed project.

Existing Site Conditions and Habitat

Solano County is located within the Bay Area/Delta bioregion of California. This bioregion is one of the most populated in California, encompassing the San Francisco Bay area and the Sacramento-San Joaquin River Delta. The project site is located within the western valley geography of the bioregion, just east of the Central Coast Mountain range that descends into the San Francisco Bay area.

The project site has historically been used for agriculture, which has resulted in the elimination of any natural communities that originally occurred at this location. Currently, the project site is used for irrigated row crops, as described below. The project site is surrounded by residential development to

the west and agricultural land to the north, east and south. The Union Pacific Railroad (UPRR) tracks are oriented northeast to southwest along the southeastern boundary of the project site.

Agricultural Lands

The majority of the project site is characterized by previously graded agricultural lands currently used for the commercial production of tomatoes (*Solanum lycopersicum*) (Madrone 2016b). Other than row crops, the site is largely denuded of vegetation except for ruderal areas along the periphery of the site. These ruderal areas support non-native, ruderal plant species such as black mustard (*Brassica nigra*), medusa-head (*Elymus caput-medusae*), soft chess (*Bromus hordeaceus*), wild radish (*Raphanus sativus*), English plantain (*Plantago lanceolate*), milk thistle (*Silybum marianum*), and prickly lettuce (*Lactuca serriola*). There are no trees present on the site.

Hydrology

Though the majority of the project site is located in the *Ulatis Creek Watershed* (HUC 1802016305), the southwest corner is located in the *Cache Slough Watershed* (HUC 1802016306). The entire project site is located in the Lower Sacramento Sub-Basin (HUC 18020163) (Madrone 2016a).

Several irrigation ditches crisscross the project site and convey irrigation water to crops on site. The site's largest water feature is the Frost Canal, which enters the west side of the site under Leisure Town Road and exits to the northeast. The Frost Canal is a tributary to the navigable Sacramento River by way of Ulatis Creek and Cache Slough, respectively. Additionally, several seasonal ditches are located within the agricultural fields and channel irrigation runoff to the system of maintained irrigation ditches. These features mostly lack significant vegetation; however, what vegetation was present consisted of nonnative tall flat-sedge (*Cyperus eragrostis*), smartweed (*Persicaria* spp.), and barnyard grass (*Echinochloa crus-galli*) (Madrone 2016a).

Topography and Soils

The project site is generally flat due to past levelling and grading. The general topography on site gently slopes down to the east to facilitate drainage for flood irrigation of row crops. The elevation of the project site ranges from 79 to 87 feet above mean sea level (amsl).

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2012), six soil mapping units listed and described below, occur within the project site (Figure 4.2-1). Each of these soil types are described in further detail, below (Madrone 2016a).

- Brentwood clay loam, 0%–2% slopes (BrA) – This soil is well-drained, associated with alluvial fans, and derived from sedimentary rock. The erosion hazard is slight and runoff is very slow. Included in this unit are small areas of Yolo silty clay loam and Rincon clay loam.

- Capay silty clay loam (Ca) - This soil is moderately well drained and created from sedimentary rocks and is located on basin rims. Included in this map unit are small areas of Yolo silty clay loam, Rincon clay loam, and Brentwood clay loam.
- Capay clay (Cc) – This unit is moderately well drained, associated with basin rims, and is formed in alluvium derived from sedimentary rocks. The erosion hazard is slight and surface runoff is very slow. Inclusions found within this unit include Clear Lake clay, Omni silty clay, and Pescadero clay loam.
- Rincon clay loam, 0%–2% slopes (RoA) - This soil is well-drained, associated with alluvial fans, and derived from sedimentary rock that is formed in alluvium. The erosion hazard is slight and runoff is slow. Included in this unit are small areas of Brentwood clay loam and Capay silty clay loam.
- San Ysidro sandy loam, 0%–2% slopes (SeA) – This soil is moderately well derived from sedimentary alluvium. It is usually associated with terraces, and common inclusions include San Ysidro sandy loam, thick surface and Antioch loam.
- San Ysidro sandy loam, thick surface, 0%–2% slope (SfA) - This unit is moderately well drained and also derived in alluvium from sedimentary rock. It is characterized as having slow runoff. Inclusions include Antioch loam and San Ysidro sandy loam.

Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large areas or patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small areas or patches of land that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that essentially function as ‘stepping stones’ for wildlife dispersal.

Wildlife corridors in the vicinity of the project site include the Pacific Flyway, a common route of bird migration that extends along the west coast of North America from Alaska to South America, and from the Eastern Pacific to the Great Basin. The project site is surrounded by active agricultural lands, residential development, paved roads, and the UPRR. Thus, the project site itself does not provide suitable components of a wildlife corridor.

Critical Habitat

Critical habitat for California tiger salamander, Delta green ground beetle, vernal pool tadpole shrimp, vernal pool fairy shrimp, Central Valley spring-run chinook salmon, Contra Costa goldfields, Delta Smelt, Conservancy fairy shrimp, soft Bird’s-beak, Suisun thistle, and Central Valley steelhead has been designated by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) within 10 miles of the project site (Figure 4.2-2;

USFWS 2016). Several vernal pool core recovery areas have been established north and south of the project area. However, none of these critical habitat units or core recovery areas are located within or directly adjacent to the project site. Suitable habitat for these various species, including essential habitat elements of critical habitat, does not occur within the project site.

Special-Status Plant and Wildlife Species

For the purpose of this environmental impact report (EIR), special-status plant and animal species are defined as those species that fall into one or more of the following categories:

- Officially listed or proposed for listing under the state and/or federal Endangered Species Acts.
- State or federal candidate for possible listing.
- Species meeting the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines.
- Protected under the Federal Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.
- Species considered by the CDFW to be a "Species of Special Concern."

The potential occurrence of special-status plant and animal species on the project site was initially evaluated by developing a list of special-status species that are known to or have the potential to occur in the project vicinity. This list was primarily derived from a review of the California Natural Diversity Database (CDFW 2016), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2016), and the USFWS lists of federal endangered and threatened species (USFWS 2016) for all or some combination of the following U.S. Geological Survey 7.5-minute quadrangles: Elmira, Mount Vaca, Allendale, Dixon, Fairfield North, Dozier, Birds Landing, Denverton, and Fairfield South (Madrone 2016b).

The potential for the occurrence of species identified in the literature and database searches was then evaluated based on the habitat requirements of each species relative to the observed existing conditions, and the results of previous habitat assessments and surveys for plants and animals conducted on February 12, 2016; April 12, 2016; and May 11, 2016 by Madrone Ecological Consulting, Inc. (Madrone 2016b). Other sources used included existing biological literature of the region identified by the CDFW or the USFWS. Only those species with potential to occur within the project site based on available habitat, species geographic or elevation range, or soils, are discussed further in this document and are shown in Table 4.2-1. For a full list of species identified during the literature and database review, please refer to Appendix D

Table 4.2-1
Species with the Potential to Occur within the Project Site

Species Name (Scientific Common)	Status (Federal/ State/Other)	Habitat Requirements	Potential to Occur
Plants			
California macrophylla Round-leaved filaree	None/None/1B.2	Clay soils in cismontane woodland and valley and foothill grassland, from 50 feet to 4,000 feet with vertic clay soils. Occasionally grows on serpentine soils.	**Low potential to occur**. Although clay soils are present on-site, the area has been farmed continuously since at least the 1970s.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	None/None/1B.1	Terraces, swales, floodplains, grasslands, and disturbed sites, from zero feet to 755 feet.	**Low potential to occur**. The site contains the associated habitat type, though the area has been farmed continuously since at least the 1970s.
Stuckenia filiformis Slender-leaved pondweed	None/None/2B.2	Marshes, swamps, and shallow clear water of lakes and drainage channels from 984 feet to 7,054 feet.	**Low potential to occur**. The irrigation ditches are seasonally maintained features and are not likely to provide suitable habitat for this species.
Invertebrates			
*Hydrochara ricksecker*i Ricksecker's water scavenger beetle	None/None/S2?	Ponds, lakes, streams, rivers, vernal pools, and other freshwater features.	**Low.** Marginally suitable habitat for this species is present in the irrigation ditches on-site.
Birds			
Asio flammeus Short-eared owl	None/SSC/None	Typically found in open areas with few trees such as grassland, prairies, dunes, meadows, and croplands	**High potential to occur**. Agricultural lands throughout the site represent suitable foraging habitat for this species.
Athene cunicularia Burrowing owl	BCC/SSC/None	Nests in abandoned ground squirrel burrows associated with open grassland habitats.	**Present**. This species was observed on-sire utilizing an active burrow.

Table 4.2-1
Species with the Potential to Occur within the Project Site

Species Name (Scientific Common)	Status (Federal/ State/Other)	Habitat Requirements	Potential to Occur
Buteo swainsoni Swainson's hawk	BCC/CT/None	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pastures, and grassland near large riparian corridors.	**Present**. Swainson's hawks were observed foraging the site; however, the site lacks trees large enough for nesting. No active nests were observed in the immediately surrounding areas.
Chadadrius montanus Mountain plover	BCC/SSC/None	Short grass plains, low rolling hills, freshly plowed agricultural fields, and newly sprouting grain fields. Often associated with short vegetation and bare ground.	**Moderate potential to occur**. Agricultural fields on-site represent suitable winter foraging habitat. The species is known locally to occasionally forage this type of habitat.
Circus cyaneus Northern harrier	None/SSC/None	Nests in emergent wetland/marsh, open grasslands, or savannah habitats. Forages in open areas such as marshes, agricultural fields, and grasslands.	**Present**. Northern harriers were observed foraging the site; however, no suitable nesting habitat or nests are present.
Elanus leucurus White-tailed kite	None/CFP/None	Open grasslands, fields, and meadows are used for foraging. Isolated trees in close proximity to foraging habitat are used for perching and nesting.	**Present**. White-tailed kites were observed foraging the sites; however, the site lacks trees large enough for nesting. No active nests were observed in the immediate surrounding areas.
Lanius ludovicianus Loggerhead shrike	BCC/SSC/None	Occurs in open areas with sparse trees, shrubs, and other perches.	**High potential to occur**. Agricultural lands throughout the project site provides suitable foraging habitat for this species.

Source: CDFW 2016, CNPS 2016, Madrone 2016b, USFWS 2016
Status Codes:
BCC – Federal Bird of Conservation Concern
SSC - CDFW Species of Concern
CT - CDFW Threatened

CFP - CDFW Fully Protected
CRPR - California Rare Plant Rank
CRPR 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
CRPR 3: Plants About Which More Information is Needed - A Review List
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)"

Special-Status Plants

Round-Leaved Filaree (*California macrophylla*)

Round-leaved filaree (*California macrophylla*) is categorized by CNPS as a rank 1B.2 species, meaning it is rare, threatened, or endangered in California and elsewhere. Round-leaved filaree has been documented in open sites such as woodland, grassland and scrub habitats with vertic clay soils, though it occasionally is found on serpentine soils. This species generally blooms from March through May at elevations ranging from 50 to over 4,000 feet amsl (CNPS 2016).

The CNDDB literature records an occurrence in 1886 of this species in very close proximity to the project site (CDFW 2016). The site supports clay soils with potential to provide suitable habitat; however, the site is highly disturbed due to continuous farming activities since at least the 1970s. This species was not observed within the project site during site surveys, which were conducted at a time when this species would be evident and identifiable (Madrone 2016b). Thus, there is low potential for occurrence for round-leaved filaree within the project site.

Condgon's Tarplant (*Centromadia parryi* ssp. *congdonii*)

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) is categorized by CNPS as a rank 1B.1 species, meaning it is rare, threatened, or endangered in California and elsewhere. Congdon's tarplant is associated with alkaline soils on terraces, swales, floodplains, grasslands, and disturbed sites. This species generally blooms from May through November at elevations ranging from zero to 755 feet amsl (CNPS 2016).

Congdon's tarplant is sometimes associated with the type of disturbed areas present within the project site. The closest CNDDB occurrence is 9 miles to the south (CDFW 2016). This species was not observed within the project site during site surveys, which were conducted at a time when this species would be evident and identifiable (Madrone 2016b). Therefore, there is a low potential for occurrence of this species at the project site due to the continuous agricultural history of the site.

Slender-Leaved Pondweed (*Stuckenia filiformis* ssp. *alpina*)

Slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*) is categorized by CNPS as a rank 2B.2 species, meaning it is rare, threatened, or endangered in California, but more common elsewhere. Slender-leaved pondweed is strongly associated with open waters in freshwater marshes, swamps, shallow lakes, ponds, and drainage channels. This species generally blooms from May through July at elevations ranging from 985 to over 7,000 feet amsl (CNPS 2016).

Some of the irrigation ditches provide suitable habitat for slender-leaved pondweed, but most are highly maintained irrigation features heavily used to support farming activities in the area. The nearest CNDDB occurrence is over 8 miles to the southwest (CDFW 2016). Although this species was discussed as having low potential to occur at the project site in the biological assessment performed by Madrone Ecological Services (Madrone 2016b), the project site is outside the elevation range at which this species generally occurs. Additionally, this species was not observed within the project site during the site surveys that were conducted when this species would be evident and identifiable (Madrone 2016b). This species is not expected to occur within the project site.

Special-Status Wildlife

Ricksecker's Water Scavenger Beetle (*Hydrochara rickseckeri*)

Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*) is an invertebrate species that has a State Ranking of S2?[1], meaning it is classified as imperiled in California because of rarity due to very restricted range, very few remaining population, steep declines, or other factors making it very vulnerable to extinction from the state. The ecology of this aquatic beetle is poorly understood, though other members of this family (Hydrophilidae) are scavengers with predaceous larva. The CNDDB describes the species as primarily present in vernal pools and seasonal wetlands, although it has also been observed in open waters such as lakes and reservoirs (Madrone 2016b).

The irrigation ditches within the project site provide what may be considered suitable habitat for this poorly understood species (Madrone 2016b). The closest CNDDB occurrence is approximately 3.5 miles to the south in a seasonal wetland that parallels a railroad right-of-way (CDFW 2016). However, there is low potential for this species to occur within the project site due to the highly maintained nature of these aquatic features.

[1] A question mark in conjunction with the ranking classification represents a rank qualifier, denoting an inexact or uncertain numeric rank. In this case, little is known about the range, distribution, and biology of this species.

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SOURCE: USDA; NAIP, 2012

FIGURE 4.2-1
Soil Map

Roberts' Ranch Specific Plan EIR

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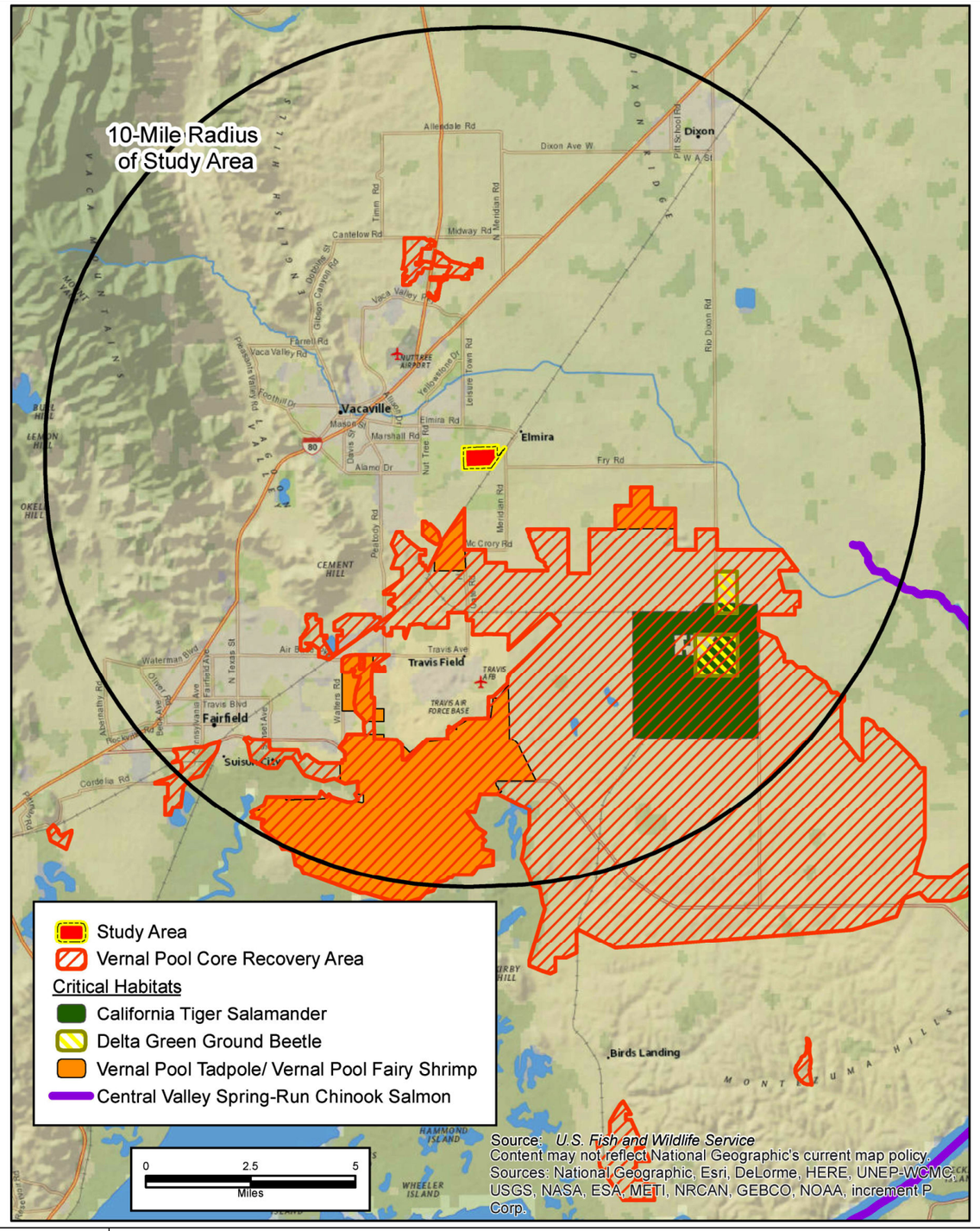

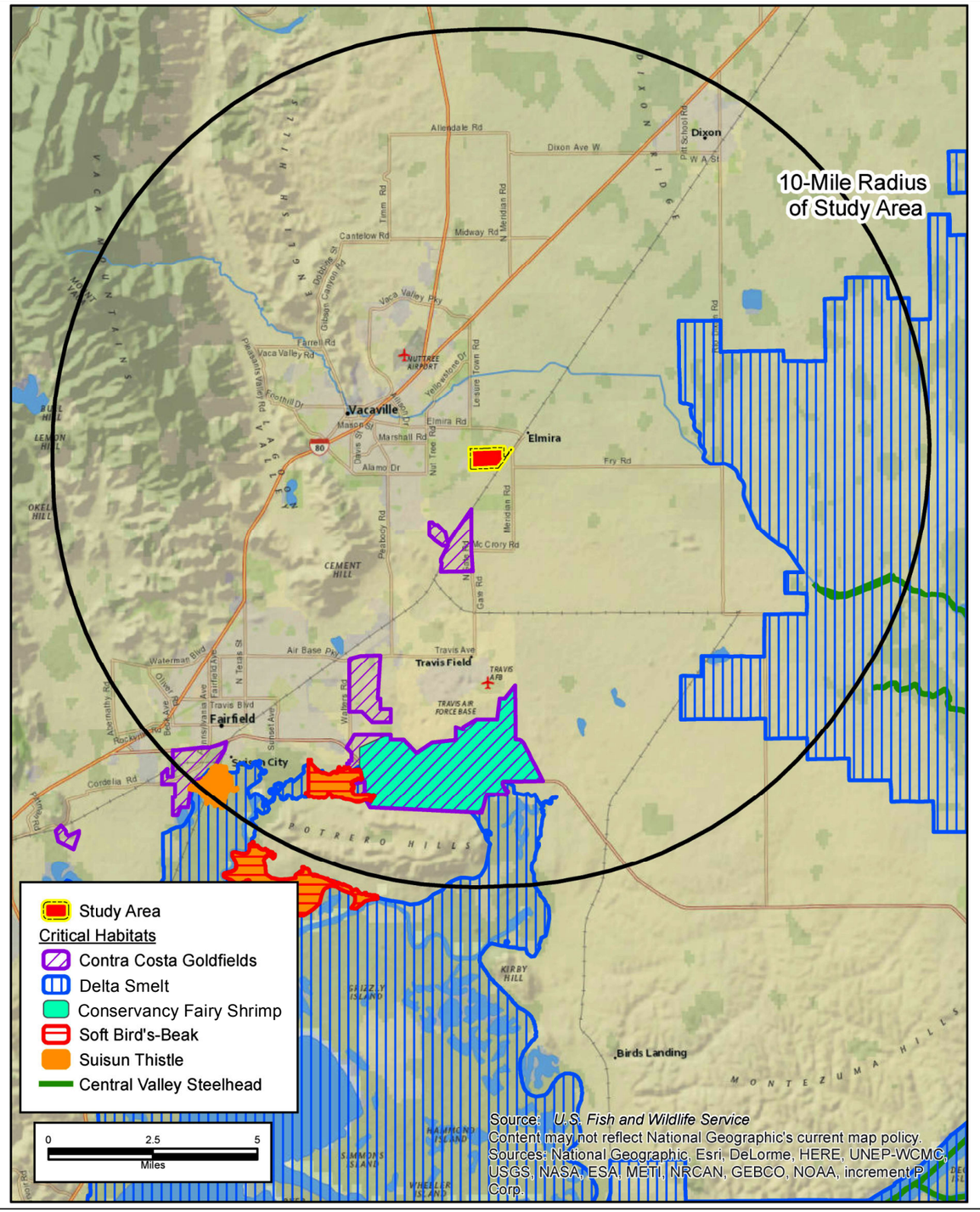

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FIGURE 4.2-2

Critical Habitat and Vernal Pool Core Recovery Areas

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Short-Eared owl (*Asio flammeus*)

Short-eared owl (*Asio flammeus*) is a raptor species designated as a species of special concern by the CDFW. This raptor requires sufficient vegetative cover for its ground nests and is strongly associated with open areas including grasslands, prairies, dunes, meadows, and agricultural lands where it forages for small mammals and birds (Madrone 2016b). In the project vicinity, this species is known only from one resident population located at the Grizzly Island Wildlife Area, located approximately 20 miles south of the project site (Shuford and Gardali 2008).

The agricultural lands within the project site provide suitable foraging habitat for short-eared owl. However, the ongoing agricultural practices preclude suitability of nesting habitat for this species within the project site. The closest CNDDB occurrence is over 20 miles south in coastal marsh and grassland habitats of the Grizzly Island Wildlife Area (CDFW 2016). This species was not observed during field surveys (Madrone 2016b). There is a moderate potential for this species to use the project site for foraging and no potential for this species to nest within the project site.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl (*Athene cunicularia*) is a raptor species designated as a species of special concern by the CDFW. These owls typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFW 2012). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFW 2012).

A burrowing owl was observed during field surveys occupying a burrow located in the bank of one of the irrigation ditches (Madrone 2016b). The location of the active burrow is shown in Figure 4.2-3. This species has been observed within the project site.

Swainson’s Hawk (*Buteo swainsoni*)

Swainson's hawk (*Buteo swainsoni*) is a raptor species listed as threatened by CDFW. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents (Shuford and Gardali 2008). The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter (Shuford and Gardali 2008).

Swainson’s hawks were observed using the project site for foraging during field surveys; however, no nests or suitably sized trees are located within the project site (Madrone 2016b). No Swainson’s hawk nests were observed within the immediate vicinity of the project site. The

CNDDB records two occurrence within 0.5 mile of the project site. The closest nest was documented in 2011, approximately 0.4 mile to the northeast in Elmira between A Street and Lewis Road (CDFW 2016). There is a high potential for this species to use the project site for foraging, but no potential for this species to use the project site for nesting.

Mountain Plover (*Charadrius montanus*)

The mountain plover (*Charadrius montanus*) is a bird species categorized by CDFW as a species of special concern. This ground nester is considered a shorebird, but it prefers to live in drier areas away from water. It breeds in the Great Basin and migrates to California in the winter where its life cycle is poorly understood. It forages in California grasslands, pastures, and farmlands for insects, which make up the majority of its diet.

Mountain plovers are known locally to forage in the type of agricultural lands present within the project site. There is a moderate rather than a high potential for occurrence due to declining populations and its status as a wintering species in California rather than a year-round resident (Madrone 2016b). The closest CNDDB occurrence is approximately 9 miles southeast of the project site (CDFW 2016). This species was not observed on site during field surveys (Madrone 2016b). There is moderate potential for this species to use the project site for foraging, but no potential for this species to use the project site for nesting.

Northern Harrier (*Circus cyaneus*)

The northern harrier (*Circus cyaneus*) is a raptor species considered to be a species of special concern by the CDFW. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California (Shuford and Gardali 2008). The northern harrier is a ground nesting species, and typically nests in emergent wetland/marsh, open grasslands, or savannah habitats. Foraging occurs within a variety of open habitats such as marshes, agricultural fields, and grasslands (Shuford and Gardali 2008).

A pair of northern harriers were observed using the project site for foraging during field surveys; however, no nests are located within the project site, which is currently planted in tomatoes. No northern harrier nests were observed within the immediate vicinity of the project site (Madrone 2016b). Due to the regular maintenance and farming practices and lack of wetland habitat, the project site does not provide suitable nesting substrates for this species. There is high potential for this species to use the project site for foraging and no potential for this species to use the project site for nesting.

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FIGURE 4.2-3

Biological and Wetland Resources

Roberts' Ranch Specific Plan EIR

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White-Tailed Kite (*Elanus leucurus*)

White-tailed kite (*Elanus leucurus*) is a raptor species that is a CDFW fully protected species. This species is a yearlong resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

White-tailed kites were observed using the project site for foraging during field surveys; however, no nests or suitably sized trees are located within the project site. No white-tailed kite nests were observed within the immediate vicinity of the project site (Madrone 2016b). There is a high potential for this species to use the project site for foraging and no potential for this species to use the project site for nesting.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike (*Lanius ludovicianus*) is a bird species that is a CDFW species of special concern. Loggerhead shrikes nest in small trees and shrubs in woodland and savannah vegetation communities, and forage in open habitats including agricultural lands throughout California (Shuford and Gardali 2008). They require tall perches such as shrubs, trees, or fences for hunting, territorial advertisement, and pair maintenance. The nesting season ranges from March through June. Loggerhead shrike is a year-round resident in much of California.

The agricultural lands within the project site provide suitable foraging habitat for loggerhead shrike; however, the project site does not provide suitable nesting habitat for this species. This species was not observed on site during field surveys (Madrone 2016b). There is a high potential for this species to use the project site for foraging and no potential for this species to use the project site for nesting.

4.2.3 Regulatory Setting

Federal Regulations

Federal Endangered Species Act

The federal Endangered Species Act (FESA) (16 U.S.C. 1533) gives joint authority to list a species as threatened or endangered to the Secretary of the Interior (represented by the USFWS) and the Secretary of Commerce (represented by the National Marine Fisheries Service (NMFS)). FESA prohibits the “take” of endangered or threatened fish, wildlife, or plant species or adverse modifications to critical habitat, in areas under federal jurisdiction. Under

the Act "take" is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The USFWS and NMFS have interpreted the definition of "harm" to include significant habitat modification that could result in the take of a species.

Either an incidental take permit under Section 10(a) or an incidental take statement under Section 7 is required if an activity would result in the take of a federally listed species. Section 7 applies when a project includes federal funding or approvals, which not apply to the proposed project. Section 7 requires the reviewing agency to determine whether any federally listed species, or species proposed for listing, may be present on the project site and if the project is likely to affect the species. Additionally, the reviewing agency must determine if a proposed project is likely to jeopardize the existence of a listed species or a proposed listed species, or result in destruction or adverse modification of proposed or designated critical habitat for such species. FESA requires the federal government to designate "critical habitat" for any listed species, which is defined as specific areas within the geographical area occupied by the species at the time of listing if they contain physical or biological features essential to the species conservation, and those features that may require special management considerations or protection. Additionally, it includes specific areas outside the geographical area occupied by the species if the regulatory agency determines that the area itself is essential for conservation.

USFWS and/or NMFS must authorize projects where a federally listed species is present and likely to be affected by an existing or proposed project. Generally, terrestrial and freshwater fish species are under the jurisdiction of USFWS, while marine and anadromous fish species are under the jurisdiction of NMFS. Project authorization may involve a letter of concurrence that the project is not likely to adversely affect a listed species, or a Biological Opinion that describes what measures must be undertaken to minimize the likelihood of an incidental take. Projects determined by USFWS and NMFS to jeopardize the continued existence of a species cannot be approved under a Biological Opinion. Take that is incidental to the lawful operation of a project is permitted under Section 10(a) through approval of a habitat conservation plan (HCP), where a federal agency is not authorizing, funding, or carrying out the project.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) regulates and prohibits taking, killing, possessing, harming, or trading in migratory birds. The Act addresses whole birds, parts of birds, and bird nests and eggs. In the United States, the USFWS enforces this international treaty for the conservation and management of bird species that migrate through one or more countries.

Clean Water Act

The objective of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of waters of the United States (as defined in the Code of Federal Regulations: 33 CFR 328.3[a]). Section 401 of the Act (33 U.S.C. 1341) prohibits the discharge of any pollutant into waters of the United States. Project applicants for a federal license or permit to conduct activities including, but not limited to, the creation or operation of facilities, which may result in discharge into waters of the United States, must obtain certification that the project would not violate applicable effluent limitations and water quality standards. Section 404 of the Act (33 U.S.C. 1344) requires a federal license or permit from the U.S. Army Corps of Engineers prior to the discharge of dredge or fill material into waters of the United States, unless activity is exempt from Section 404 permit requirements. Permit applicants must demonstrate that they have attempted to avoid or minimize impacts on the resource; however, if no further minimization of impacts is possible, the applicant is required to mitigate remaining impacts on all federally regulated waters of the United States. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards are responsible for the protection of water quality.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) and Section 2081 of the California Department of Fish and Game Code identifies measures to ensure state-listed species and their habitats are conserved, protected, restored, and enhanced. The Act requires permits from the CDFW for activities that could result in the take of a state-listed threatened or endangered species. “Take” is defined as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86). Section 2080 of the Fish and Game Code prohibits the take of state-listed plants and animals unless otherwise permitted under Sections 2080.1, 2081, and 2835. Section 20814(b) affords CDFW the authority to issue permits for incidental take for otherwise lawful activities. To authorize an incidental take, the impacts of the take must be minimized and fully mitigated. Issuance of incidental take permits may not jeopardize the continued existence of a state-listed species. For species listed as threatened or endangered under FESA, CDFW may rely on a federal incidental take statement or permit to authorize an incidental take under CESA.

The California Fish and Game Commission maintains a list of threatened and endangered species (Fish and Game Code Section 2070). The California Fish and Game Commission maintains two additional lists: a Candidate species list, which identifies species under review for addition to either the endangered or threatened species list, and a Species of Special Concern

list, which serves as a watch list based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value.

California Fully Protected Species and Species of Special Concern

The classification of "fully protected" was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. California Fish and Game Code sections (fish at Section 5515, amphibians and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with "fully protected" species state that these species may not be taken or possessed at any time, and no provisions in this code or any other law shall be construed to authorize permits for the take of fully protected species. Species of Special Concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing, or they historically occurred in low numbers and known threats to their persistence currently exist. This classification intends to elicit special consideration for these animals by the CDFW, land managers, consulting biologists, and others. Additionally, this classification intends to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them.

California Fish and Game Code Section 3503

Birds of prey are protected in California under the Fish and Game Code Section 3503.5 (1992). Under Section 3503.5, it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (diurnal birds of prey) or Strigiformes (owls) or to take, possess, or destroy any nest or egg of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The CDFW considers disturbance during breeding season that results in the incidental loss of fertile eggs or nestlings or otherwise leads to nest abandonment a "taking".

California Native Plant Protection Act

The California Native Plant Protection Act (California Fish and Game Code Sections 1900–1913) and the Natural Communities Conservation Planning Act provide guidance on the preservation of plant resources. Vascular plants that have no designated status or protection under state or federal endangered species legislation, but are listed as rare or endangered by the CNPS, are defined as follows:

1. California Rare Plant Rank (CRPR) 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
2. CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
3. CRPR 2A: Plants presumed extirpated in California, but common elsewhere

4. CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
5. CRPR: Plants about which more information is needed – a review list
6. CRPR 4: Plants of limited distribution – a watch list

Generally, plants with CRPR 1A, 1B, 2A or 2B, and 3 are considered to meet the criteria for endangered, threatened, or rare species as outlined by Section 15380 of the CEQA Guidelines. Additionally, plants listed as CRPR 1A, 1B, or 2 also meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (CESA) of the California Fish and Game Code.

California Fish and Game Code Sections 1600–1616

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would substantially alter the flow, bed, channel, or bank of streams and lakes. Such activities require a 1602 Lake and Streambed Alteration Agreement from CDFW. The California Code of Regulations defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" includes rivers, creeks, ephemeral streams, dry washes, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Removal of riparian vegetation also requires a Section 1602 Lake and Stream Alteration Agreement from CDFW.

State Water Resources Control Board

The SWRCB administers Section 401 of the Clean Water Act, which requires that an applicant for a Section 404 permit first obtain a certification, or waiver thereof, that the project will not violate applicable state water quality standards. The SWRCB delegates authority to either grant certification or waive the requirement for certification to nine regional boards, including, in Solano County the Central Valley Regional Water Quality Control Board. The SWRCB protects all waters of the state, but has special responsibility for isolated wetlands and headwaters. These water bodies have high resources value but are vulnerable to filling and may lack regulation by other programs. Projects that require a U.S. Army Corps of Engineers permit, or fall under other federal jurisdiction, and have the potential to impact waters of the state are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge of harmful substances to waters of the state, the water boards have the option to regulate such activities under the Porter-Cologne Act authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

California Environmental Quality Act

Although federal and state statutes protect threatened and endangered species, Section 15380(b) of the CEQA Guidelines provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after definitions in FESA and the section of the California Fish and Wildlife Code dealing with rare or endangered plants and animals. CEQA Guidelines Section 15380(b) requires public agencies to determine whether projects would result in significant effects on species not listed by either the USFWS or CDFW (i.e., candidate species). Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

Local Regulations

City of Vacaville General Plan

The City of Vacaville General Plan Conservation and Open Space Element provides guidance for new development and focuses on the protection of natural areas, including riparian corridors, which provide habitat and cover for wildlife and vegetation. The City provides specific protection for biological resources, as described in the following policies (City of Vacaville 2015).

Policy COS-P1.5 Require new development proposals to provide baseline assessments prepared by qualified biologists. The assessment shall contain sufficient detail to characterize the resources on, and adjacent to, the development site. The assessment shall also identify the presence of important and sensitive resources, such as wetlands, riparian habitats, and rare, threatened, or endangered species affected by the development.

Policy COS-P1.6 Require that new development minimize the disturbance of natural habitats and vegetation. Require revegetation of disturbed natural habitat areas with native or non-invasive naturalized species.

Policy COS-P1.7 Encourage new development to incorporate native vegetation into landscape plans.

Policy COS-P1.8 Prohibit the use of invasive, non-native species, as identified by the State or County Department of Agriculture or other authoritative sources, in landscaping on public property or in common areas in private developments.

Policy COS-P1.9 Require that new development include provisions to protect and preserve wetland habitats that meet one of the following conditions:

- The wetlands contribute to the habitat quality and value of reserve/preserve lands established or expected to be established in perpetuity for conservation purposes.
- The wetlands are contiguous to riparian or stream corridors, or other permanently protected lands.
- The wetlands are located within or contiguous to other high value natural areas.

Policy COS-P1.10 Where avoidance of wetlands is not practicable or does not contribute to long-term conservation of the resources, require new development to provide for off-site mitigation that results in no net loss of wetland acreage and functional value within the watersheds draining to the Delta or Suisun Marsh.

Policy COS-P1.12 Until the Solano Habitat Conservation Plan (HCP) is adopted, comply with all of the Avoidance, Minimization, and Mitigation Measures listed in the Draft Solano HCP (see Appendix A for a list of the Avoidance and Minimization Measures that are applicable to Vacaville). In addition, require that development projects provide copies of required permits, or verifiable statements that permits are not required, from the California Department of Fish and Wildlife (2081 Individual Take Permit) and US Fish and Wildlife Service (Section 7 Take Authorization) prior to receiving grading permits or other approvals that would permit land disturbing activities and conversion of habitats or impacts to protected species. In cases where environmental review indicates that such permits may not be required, the Community Development Director may establish time limits of not less than 45 days from the submission of an adequate request for concurrence response from an agency. If the agency has not responded, or requested a time extension of no more than 90 days to complete their assessment, within the established time frame, applicable grading permits or other authorizations may be provided, subject to other City requirements and review. However, the City's issuance of grading permits or other authorizations does not absolve the applicant's obligations to comply with all other State and federal laws and regulations.

City of Vacaville Municipal Code

The City of Vacaville's Tree Preservation Ordinance is included in Chapter 14.09.131 of the City's Municipal Code. The ordinance states that "[f]or the purposes of this chapter, tree means any live woody plant having one or more well defined perennial stems with an aggregate circumference of

31 inches or more, when measured at 4-1/2 feet above ground level." Per the Tree Ordinance, "[p]rior to cutting down, removing, or destroying one or more trees on any property in the City, the property owner or the owner's authorized representative shall submit an application for a tree removal permit." The project site is located within the planned City's Sphere of Influence and would be annexed by the City upon the finalization and approval of the Roberts' Ranch Specific Plan.

Travis Air Force Base Land Use Compatibility Plan

The Travis Air Force Base Airport Land Use Compatibility Plan (ALUCP) provides policies and guidance designed to ensure that future land uses surrounding the Air Force Base remain consistent and compatible with the airport facility safety and uses. The project site is within land use compatibility Zone D, which is an area subject to frequent aircraft overflight (ESA 2015). Residential and other development is consistent with guidelines presented for Zone D, with some restrictions for building height and wildlife attractants such as open water that may attract waterfowl. Further, the project site is within the "outer perimeter" area for bird strike hazard. New or expanded land use involving discretionary review that has the potential to attract the movement of wildlife and cause bird strikes are required to prepare a Wildlife Hazard Assessment, and the potential for new projects to attract wildlife must be reviewed as part of the environmental review process required by CEQA.

Draft Solano Multispecies Habitat Conservation Plan (Final Administrative Draft, 2012)

The Solano Multispecies Habitat Conservation Plan: Final Administrative Draft (Solano HCP) has been prepared to establish a framework for complying with state and federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure (Solano County Water Agency 2012). The purpose of the Solano HCP is to reduce conflicts between listed species and economic development, agriculture, and other land use activities to promote conservation of biological diversity and, to the maximum extent practicable, contribute to the recovery of plant and animal species addressed in the Solano HCP. The latest draft of the Solano HCP was prepared in 2012, and until it is adopted, the recommendations and requirements are preliminary (Solano County Water Agency 2012).

The project site is currently within irrigated agricultural lands and is also within Zone 1 – Urban Development of the Solano HCP. Zone 1 includes all ground or habitat-disturbing projects and activities needed to accommodate urban growth including the construction and maintenance of public and private facilities, consistent with local general plans and local, state, and federal laws. This category includes, but is not limited to, the construction, maintenance, and operation of new commercial, residential, institutional, and industrial uses and associated infrastructure and

facilities (i.e., roads, utilities, stormwater control measures, parks, golf courses) (Solano County Water Agency 2012).

4.2.4 Impacts

Methods of Analysis

CEQA requires that projects analyze the potential impacts on special-status plant and animal species, as well as on sensitive habitats, wildlife corridors, and waters of the United States. Impacts on wildlife species that are not considered special-status under CEQA are generally not considered significant unless impacts are associated with the species' migration routes or movements, or the species are considered locally important. In the area surrounding the project site, other common species (e.g., skunk, raccoon, and possum) would not be considered special-status species; however, impacts on their movements and migration routes would be considered significant under CEQA. Regardless of status, all nesting native bird species are protected from harm under the state Fish and Game Code and the federal MBTA.

The following sources were reviewed in the process of evaluating potential project impacts including the proposed Roberts' Ranch Specific Plan (City of Vacaville 2015 available on the City's website at http://www.cityovacaville.com/RobertsRanch); Aquatic Resources Delineation, prepared by Madrone Ecological Consulting (Madrone 2016a – Appendix D); Biological Resources Assessment, prepared by Madrone Ecological Consulting (Madrone 2016b – Appendix D); and relevant Federal, State, and local regulations and plans as they relate to sensitive biological resources.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the City's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Result in 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 (including the current Draft of the Solano HCP), policies, regulations, or by the CDFW or USFWS.
- Result in 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.
- Result in a substantial adverse effect on federally regulated wetlands or waters as defined by Section 404 of the Clean Water Act and/or State protected wetlands as

defined by the Porter-Cologne Water Quality Control Act through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any applicable land use plans, policies, regulations, or ordinances, of an agency with jurisdiction over the project, adopted for the purpose of protecting biological resources or avoiding and mitigating impacts to biological resources.

Direct impacts refer to the permanent loss of on-site habitat and the plant and wildlife species that it contains. All biological resources within the direct permanent impact area are considered 100% lost.

Indirect impacts refer to off-site and on-site "edge effects" that are short-term (i.e., not permanent) as a result of project construction or long-term (i.e., permanent) due to the design of the project and the effects it may have to adjacent resources. Examples of "edge effects" include dust, noise, and general human presence that may temporarily disrupt species and habitat vitality and construction-related soil erosion and runoff.

Impacts and Mitigation Measures

4.2-1: Implementation of the proposed project may result in substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. This would be a potentially significant impact.

Special-Status Plants

The project site provides marginally suitable habitat for special-status plants including round-leaved filaree, Congdon's tarplant, and pondweed, because the habitat on site is highly disturbed due to agricultural uses and these species were not observed during the site survey. The site surveys were conducted during a time when these special-status plants would be evident and identifiable (Madrone 2016b). Thus, it is not likely these plant species occur on the project site and any impacts to special-status plant species anticipated to occur as a result of the proposed project would be **less than significant**.

Special-Status Wildlife

Irrigation canals within the project site provide moderately suitable habitat for Ricksecker's water scavenger beetle. The remainder of the site provides suitable nesting and foraging habitat for

short-eared owl and burrowing owl, as well as suitable foraging habitat for Swainson's hawk, Northern harrier, white-tailed kite, loggerhead shrike, and mountain plover. Potential impacts to these species and their habitat are discussed below.

Ricksecker's Water Scavenger Beetle

The irrigation canals and Frost Canal provide moderately suitable habitat for this species; however, these aquatic habitats are managed for agricultural practices and were dry at the time of the site survey (Madrone 2016b). Because of this species rarity and the lack of reliable inundation in on-site aquatic features, it is highly unlikely this species is present on the project site. There would be **no impact** to Ricksecker's water scavenger beetle as a result of project activities.

Short-Eared Owl

The agricultural fields that comprise the project site provide potentially suitable foraging habitat for this species; however, agricultural activities would interfere with nesting activities and it is highly unlikely this species uses this site for nesting. Approximately 248 acres of agricultural land that currently provides foraging habitat for this species would be converted to other land uses, thereby reducing the available foraging habitat for this species. Approximately 13.5[2] acres of the project site would be left in undeveloped open space that may provide foraging opportunities for this species; however, the removal of the remaining approximately 234.5 acres of available foraging habitat constitutes a **potentially significant impact** to this species.

Burrowing Owl

An active burrowing owl burrow was observed within the project site during site surveys (Madrone 2016b). Construction activities such as grading and operation of heavy equipment, could result in the abandonment or failure of active burrows either through direct destruction of burrows or through indirect effects from noise and vibration associated with construction equipment. This is considered a **potentially significant impact**.

The project site is within an area designated by the Solano County Water Agency's draft HCP as an Irrigated Agriculture Conservation Area (Solano County Water Agency 2012). The 248-acre project site currently provides foraging habitat for this species and would be converted to other land uses, thereby reducing the available foraging habitat for burrowing owl. As noted previously, approximately 13.5 acres of the project site would be converted to open space that provides nesting and foraging opportunities for this species; however, the removal of the remaining approximately 234.5 acres of available nesting and foraging habitat constitutes a **potentially significant impact** to this species.

[2] This includes the agricultural buffer and areas of passive open space.

Swainson's Hawk

Although there are no trees within the project site that would provide suitable nesting habitat for Swainson's hawk, a nest has been documented approximately 0.5 mile northeast of the project site near the town of Elmira (CDFW 2016). Swainson's hawks could be significantly impacted by the loss of suitable foraging habitat. Additionally, noise, light, and other activities associated with construction could result in nest failure if active nests are present within 0.5 mile of the project site at the time of construction.

The proposed project would result in the conversion of approximately 248 acres of agricultural land to residential development. Approximately 13.5 acres of this would be left in open space that provides foraging habitat for raptors. However, the project, if approved, would result in the total removal of approximately 234.5 acres of the available foraging habitat for Swainson's hawk in the region. The removal of this foraging habitat is considered a **potentially significant impact**.

Northern Harrier, White-Tailed Kite, Loggerhead Shrike, and Mountain Plover

Although there is no suitable breeding habitat for northern harrier, white-tailed kite, loggerhead shrike, or mountain plover within the project site, the project's agricultural lands provide suitable foraging habitat for these species. The removal of approximately 234.5 acres of available foraging habitat is considered a **potentially significant impact**.

Mitigation Measures

The following mitigation measures would reduce the potential for impacts on special-status species by ensuring the species are identified and protected during project construction activities and any breeding, nesting or foraging habitat replaced and preserved in perpetuity to ensure the survival of the species. Compliance with these mitigation measures would reduce project impacts to less than significant.

Short-Eared Owl

BIO-1 Impacts from construction-related noise may occur to avian wildlife if construction occurs during the breeding season (i.e., February 1–August 31 for most bird species; and January 1–August 31 for raptors). Protection of general bird species shall be accomplished by either scheduling construction between July 15 and February 1 or if construction must occur during the nesting season (February 1–July 15), a one-time biological survey for nesting bird species shall be conducted. The biological survey shall be conducted by a qualified biologist to identify the presence of nesting birds no more than 72 hours prior to the commencement of work. If any active nests are detected, the area shall be

flagged and mapped on construction plans along with a minimum 25-foot buffer with up to a 300-foot maximum buffer for raptors, as determined by the qualified biologist. These areas shall be avoided until the nesting cycle is complete or it is determined that the nest has failed.

Burrowing Owl

BIO-2 Burrowing owls could be significantly impacted by both the loss of suitable nesting and foraging habitat, as well as direct destruction of burrows, eggs, nestlings, and nesting owls. Mitigation Measures BIO-2 through BIO-3 correspond to Avoidance and Minimization Measures BO 1 through BO 4 in the Solano HCP (Solano County Water Agency 2012) and recommendations detailed in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

a. Within 14 days prior to the anticipated start of construction, a qualified biologist approved by the CDFW shall conduct preconstruction surveys within the project site to identify burrowing owls or their nesting areas for burrowing owl. This survey shall follow survey protocols outlined in the most current draft of the Solano HCP and as developed by the Burrowing Owl Consortium (Solano County Water Agency 2012; CDFW 2012). If no active burrows or burrowing owls are observed, no further mitigation is required. If a lapse in construction of 15 days or longer occurs during the nesting season, additional preconstruction surveys shall be repeated before work may resume.

b. If burrowing owls or active burrows are identified within the project site during the preconstruction surveys, the following measures shall be implemented:

    1. During the non-breeding season for burrowing owls (September 1 through January 31), exclusion zones shall be established around any active burrows identified during the preconstruction survey. The exclusion zone shall be no less than 160 feet in radius centered on the active burrow. With approval from CDFW, burrowing owls shall be passively evicted and relocated from the burrows using one-way doors. The one-way doors shall be left in place for a minimum of 48 hours and shall be monitored daily to ensure proper function. Upon the end of the 48-hour period, the burrows shall be excavated with the use of hand tools and refilled to discourage reoccupation.

    2. During the breeding season (February 1 through August 31), a qualified biologist familiar with the biology and behavior of this species shall establish exclusion zones of at least 250 feet in radius centered on any active burrow identified during the preconstruction survey. No

construction activities shall occur within the exclusion zone as long as the burrow is active and young are present. Once the breeding season is over and young have fledged, passive relocation of active burrows may proceed as described in measure b.1, above.

3. The buffer widths may be reduced in consultation with CDFW and with the following measures:

   - A site specific plan shall be prepared that documents and described how the nesting or wintering owls would not be adversely affected by construction activities;
   - Monitoring shall occur by a qualified biologist approved by CDFW. All monitoring shall be conducted for a sufficient time, for a minimum of 10 consecutive days following initiation of construction and it is shown the owls do not exhibit adverse reactions to construction activities;
   - Burrows are not in danger of collapse due to equipment traffic; and
   - Monitoring is continued at least once a week through the nesting/wintering cycle at the site and no change in behavior by owls is observed; biological monitoring reports shall be submitted to CDFW.

BIO-3 Mitigation for the permanent loss of burrowing owl foraging habitat for urban development or other permanent facilities shall be provided at a 1:1 land/area ratio. The final acreage for mitigation calculations shall be determined based on final design of the open space areas within the project site. This measure may be accomplished in conjunction with Swainson's hawk Mitigation BIO-4, below, provided the following additional measures are implemented.

- At least 5 acres of mitigation area shall be permanently taken out of agricultural production, either on the project site or in another suitable location, to provide suitable nesting habitat and cover for burrowing owls.
- At least four artificial burrow complexes (three multi-entrance burrows per complex) shall be installed within the habitat set aside for burrowing owls.
- Vegetation within the owl habitat shall maintain an average effective vegetation height less than or equal to 6 inches from February 1 to April 15, when owls typically select mates and nest burrows. In addition, tree and shrub canopy cover shall be limited to the edges of the set aside area and shall not be within 200 feet of the artificial burrows.
- Burrowing owl habitat mitigation areas shall be subject to deed restrictions that would limit future urban development.

- An Open Space Maintenance Plan shall be prepared and implemented to insure open space lands within the project site and mitigation lands are maintained, to the extent feasible, to be compatible for use by burrowing owl.
- Adequate funding shall be provided to manage the owl mitigation area, including maintenance of the artificial burrows and grass height, in perpetuity.

Swainson's Hawk

BIO-4 This Mitigation Measure is consistent with Avoidance and Minimization Measures SH-1 through SH-5 in the Solano HCP (Solano County Water Agency 2012).

a. If construction occurs during the nesting season for Swainson's hawk (March 1 through August 31), a qualified biologist approved by the CDFW shall conduct preconstruction surveys no more than 15 days prior to construction to identify nesting Swainson's hawk within 0.25 mile of the project site. If a lapse in project-related construction activities of 15 days or longer occurs, additional preconstruction surveys shall be conducted prior to reinitiating work.

b. If an active Swainson's hawk nest is identified within 0.25 mile of the project site, an exclusion buffer shall be established in consultation with the biologist and CDFW. No construction work such as grading, earthmoving, or any operation of construction equipment shall occur within the buffer zone except as provided below in mitigation measure BIO-5 and in consultation with CDFW. Construction may commence normally in the buffer zone if the nest becomes inactive (e.g. the young have fully fledged), as determined by the qualified biologist.

BIO-5 The project applicant shall mitigate for the loss of Swainson's hawk irrigated foraging habitat by preserving a minimum of 1:1 land/area ratio of similar habitat. The final acreage for mitigation calculations shall be determined based on final design of the open space areas within the project site. The preservation of the mitigation area shall be accomplished through purchase of credits from a bank approved by the CDFW to provide such credits, such as the Elsie Gridley Mitigation Bank or the Burke Ranch Conservation Bank (CDFW 2016) or through preservation of irrigated agricultural lands protected in perpetuity by a conservation easement. Such an easement shall include provisions that provide for agricultural uses that are compatible with Swainson's hawk foraging needs. Agricultural foraging habitats shall consist of alfalfa, tomatoes, other annual vegetable row crops, and grain. The mitigation area shall not include crop types and land uses incompatible with Swainson's hawk foraging. The following additional restrictions and prohibited uses, at a minimum, shall also be noted as forbidden within the conservation easement:

- Commercial feedlots, which are defined as any open or enclosed area where domestic livestock are grouped together for intensive feeding purposes.
- Horticultural specialties, including sod, nursery stock, ornamental shrubs, ornamental trees, Christmas trees, or flowers.
- Commercial greenhouses or plant nurseries.
- Commercial aquaculture of aquatic plants, animals, and their byproducts.
- Planting orchards or vineyards for the production of fruits, nuts, or berries except in designated farmstead areas.
- Cultivation of perennial vegetable crops such as artichokes and asparagus, as well as annual crops such as cotton or rice.
- Construction, reconstruction, or placement of any building, billboard or sign, antennas, towers, and facilities for generation of electrical power, or any other structure or improvement of any kind, except as may be specifically permitted in site-specific management plan. Acreage occupied by any such existing facilities may not be counted toward mitigation requirements.

The City shall consult with CDFW prior to approving the site, conservation easement, and conservation easement holder.

Northern Harrier, White-Tailed Kite, Loggerhead Shrike, and Mountain Plover

BIO-6 Impacts from construction-related noise may occur to avian wildlife if construction occurs during the breeding season (i.e., February 1–August 31 for most bird species; and January 1–August 31 for raptors). Protection of general bird species shall be accomplished by either scheduling construction between July 15 and February 1, or if construction must occur during the nesting season (February 1–July 15). A one-time biological survey for nesting bird species shall be conducted by a qualified biologist in all suitable habitat for the presence of nesting birds 72 hours prior to the commencement of work. If any active nests are detected, the area shall be flagged and mapped on construction plans along with a minimum 25-foot buffer up to a 300-foot maximum for raptors, as determined by the qualified biologist. These areas shall be avoided until the nesting cycle is complete, or it is determined that the nest has failed.

4.2-2: Implementation of the proposed project could result in 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. There would be no impact.

Due to the highly disturbed nature of the project site, and the current agricultural usage, no riparian habitat or other sensitive natural communities occur within the project site. The agricultural ditches and canals within the project site are regularly maintained and vegetation is largely absent. Thus, there would be **no impact** to riparian habitat or other sensitive natural communities.

Mitigation Measures

None required.

4.2-3: Implementation of the proposed project may result in placement of fill into potential jurisdictional waters of the U.S and State. This would be a potentially significant impact.

A total of 1.726 acres of potential jurisdictional irrigation ditches have been mapped within the project site (Madrone 2016a). The project proposes converting Frost Canal to a pipe that would continue to convey irrigation water under the project site. Because Frost Canal is considered an irrigation ditch, construction activities associated with it, including the conversion of the ditch into a pipe, may be exempt from permitting under Section 404(f)(1) of the Clean Water Act. However, this does not exempt this water feature from potential permitting required by the Regional Water Quality Control Board or the California Department of Fish and Wildlife. Conversion of these aquatic features to a developed environment would constitute a **potentially significant impact** to potential waters of the State.

Mitigation Measures

The following mitigation measure would reduce potential impacts to less than significant by requiring the loss of aquatic habitat be replaced at a 1:1 ratio.

BIO-7 To mitigate for the loss of potentially jurisdictional waters of the United States and/or waters of the State, the project applicant shall create, preserve, or restore an equivalent amount of jurisdictional waters not exempt from Sections 404 or 401 of the Clean Water Act. Actual mitigation acreage requirements shall be adjusted in conjunction with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board. Mitigation may be accomplished by either of the following:

a. Creation of similar habitat either on- or off-site at an appropriate mitigation site; or

b. Purchase of the appropriate number of credits at an agency-approved off-site wetland mitigation bank. The Elsie Gridley Mitigation Bank services in Solano County has been approved by the USFWS to provide wetland mitigation credits (ACOE 2016).

4.2-4: Implementation of the proposed project may interfere 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. There would be a less-than-significant impact.

As described previously, the agricultural lands that comprise the project site, in conjunction with existing residential development to the east and north, reduce the site's suitability as a wildlife movement corridor. The on-site canals that bisect the project site do not provide suitable migratory habitat for fish species. The project site is within the Pacific Flyway; however, because there is no suitable aquatic habitat or foraging habitat for waterfowl within the project site, it is unlikely that migrating birds would use the site as a stopover. The availability of additional agricultural lands in the project vicinity and the proximity to the project site of the Sacramento-San Joaquin River Delta provide more suitable foraging and resting habitat for migratory birds. Therefore, the conversion of approximately 234.5 acres of agricultural lands would constitute a **less-than-significant impact** to the movement of resident or migratory fish or wildlife species.

Mitigation Measures

None required.

4.2-5: Implementation of the proposed project could conflict with applicable land use plans, policies, regulations, or ordinances, of an agency with jurisdiction over the project, including the Solano County Water Agency's draft HCP adopted for the purpose of protecting biological resources or avoiding and mitigating impacts to biological resources. This would be a significant impact.

The Roberts' Ranch Specific Plan has been designed to be consistent with the City's General Plan (City of Vacaville 2015). Although the Solano HCP is still in draft form and has not yet been finalized or adopted, the City's General Plan mandates that the measures covered in the most current draft of the Solano HCP shall be used (City of Vacaville 2015). Thus, the draft Solano HCP is treated in this document as an accepted plan for the purposes of analyzing and mitigating potential impacts. Conversion of approximately 234.5 acres of irrigated agricultural lands to a residential development would not be compatible with the draft Solano HCP goal for conservation of such lands for foraging and nesting habitat for covered species. Further, the project site is within areas designated as an Irrigated Agriculture Conservation Area for both Swainson's hawk and burrowing owl. Removal of this land would be considered a **significant impact.**

As described previously, the project site is within land use compatibility Zone D of the Travis Air Force Base Land Use Compatibility Plan (ESA 2015). No new water features are proposed as part of the project. There are no new attractants to birds that may potentially cause bird strike

hazard for planes associated with Travis Air Force Base. Additionally, no buildings or structures are proposed to be 200 feet tall or greater. Thus, the proposed project would be consistent with the Travis Air Force Base Land Use Consistency Plan and there would be **no impact**. Please see Section 4.4, Land Use and Planning for more information pertaining to computability with the Travis Air Force Base Land Use Consistency Plan.

Mitigation Measures

Compliance with Mitigation Measures BIO-4 and BIO-5 would ensure impacts to the loss of land designated Irrigated Agriculture Conservation Area would be reduced to less than significant.

BIO-8 Implement Mitigation Measures BIO-4 and BIO-5.

4.2.5 Cumulative Impacts

When considered independently, impacts from an individual project may not be significant; however, the combined effects of several projects may be significant when considered collectively. Cumulative impacts associated with the Roberts' Ranch Specific Plan have been analyzed a Vacaville-centered regional context with other past, current and reasonably foreseeable development projects. The City of Vacaville is currently managing several development projects within several miles of the proposed project. These include the Brighton Landing Specific Plan Project (City of Vacaville 2012), the Vanden Meadows Specific Plan Project (City of Vacaville 2013), and the Jepson Parkway Project (Caltrans 2011). Potential cumulative impacts to biological resources from cumulatively considered regional projects are discussed below.

4.2-6: The proposed project could contribute to cumulative impacts to special-status species in the region due to removal of foraging and breeding habitat. This would be a potentially significant impact.

The proposed project would result in the conversion of approximately 234.5 acres of low quality foraging habitat for Swainson's hawk, burrowing owl, and other raptors. In conjunction with other urban development projects in the City of Vacaville and surrounding municipalities, a large amount of historic foraging and nesting habitat for special-status raptors and birds has been removed from the region. The Solano HCP anticipated conversion of approximately 14,000 acres of current habitat over the next 30 years, including agricultural lands to urban uses and loss of wetlands. The Roberts' Ranch Specific Plan area is located within the area identified for future development. Additionally, the implementation of the proposed mitigation measures for this project and other development projects in the region would result in preservation or restoration of similar habitat in perpetuity. Thus, cumulative impacts would be **less than significant** with project mitigation incorporated.

Mitigation Measures

Compliance with Mitigation Measures BIO-4, BIO-5, and BIO-7 would ensure impacts to the loss of foraging and breeding habitat for special-status species would be reduced to less than significant.

BIO-9 Implement Mitigation Measures BIO-4, BIO-5, and BIO-7.

4.2.6 References

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