4.4 BIOLOGICAL RESOURCES

This section describes the potential effects of the project on biological resources. This section also addresses biological resources known or with potential to occur in the project vicinity, including common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. The analysis includes a description of the existing environmental conditions, the methods used for assessment, the potential direct and indirect impacts of project implementation not included in the 2005 Subsequent Environmental Impact Report (SEIR) for the Hay Road Landfill Project (Solano County 2005), and mitigation measures recommended to address impacts determined to be significant or potentially significant. The data and documents reviewed in preparation of this analysis included:

- 2005 SEIR for the Hay Road Landfill Project (Solano County 2005);
- Burrowing Owl Habitat Assessment (ESA 2016a);
- California Tiger Salamander Habitat Assessment (ESA 2016b);
- Branchiopod Survey Report (ESA 2016c);
- Special-status Plant Survey Report (ESA 2016d);
- Organics Transload Facility Habitat Assessment (ESA 2017a);
- Hydro Flow Analysis (ESA 2017b);
- Contra Costa Goldfields Survey Report (ESA 2017c);
- Delta Green Ground Beetle Survey Report and Supplemental Habitat Assessment Report (Entomological Consulting Services, Ltd. 2016, 2018);
- reconnaissance-level survey of the project site conducted on August 7, 2017;
- records search and GIS query of the California Natural Diversity Database (CNDDB) within 5 miles of the project site (2018);
- California Native Plant Society (CNPS), Rare Plant Program database search of the Allendale, Dixon, Saxon, Elmira, Dozier, Liberty Island, Denverton, Birds Landing, and Rio Vista U.S. Geological Service 7.5-minute quadrangles (CNPS 2018);
- eBird online database of bird observations (eBird 2017); and
- aerial photographs of the project site and surrounding area.

Comments received on the NOP regarding biological resources that could be adversely affected by the project included comments from California Department of Fish & Wildlife (CDFW). Comments from CDFW generally pertain to regulatory requirements under their jurisdiction (i.e., California Endangered Species Act and Lake and Streambed Alteration Agreements) and a request that the SEIR include measures to ensure complete take avoidance of California tiger salamander, Swainson's hawk, burrowing owl, and tricolored blackbird. The NOP and written comments received regarding the NOP are included in Appendix A of this Draft SEIR.

4.4.1 Regulatory Setting

FEDERAL PLANS, POLICIES, AND REGULATIONS

Federal Endangered Species Act

Section 9 of the federal Endangered Species Act (ESA) prohibits "take" of federally listed threatened and endangered species. The ESA defines "take" as any action that would harass, harm, pursue, hunt, shoot, wound, kill, injure, trap, capture, or collect any listed species. "Harm" includes significant habitat modification that could result in injury or

death to a species. Federal projects, federally funded projects, or projects requiring a federal permit must comply with the ESA through consultation with USFWS or the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-Fisheries), or both. If a proposed non-federal project may result in take of a listed species, and there is no nexus with any federal agency (e.g., no federal funding or other authority), an Incidental Take Permit under Section 10(a)(1)(B) of the ESA is required; a Habitat Conservation Plan (HCP) must accompany the permit application.

Clean Water Act Section 404

Areas meeting the regulatory definition of *waters of the United States* are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). These waters may include all waters "used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (e.g., intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, and natural ponds), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States" (33 Code of Federal Regulations [CFR], Part 328, Section 328.3). The USACE, under provisions of Section 404 of the Clean Water Act (1972) (CWA) and Section 10 of the Rivers and Harbors Act (1899), has jurisdiction over waters of the United States. Waters thus regulated are termed "jurisdictional waters." Impacts to jurisdictional waters, including wetlands (a special category of water of the United States), require a permit from the USACE and typically require mitigation. Impacts to wetlands often require compensation in-kind to ensure no net loss of extent and function of wetlands.

Bald Eagle and Golden Eagle Protection Act

The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. Under the Act, it is a violation to "…take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof…" *Take* is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb.

STATE PLANS, POLICIES, AND REGULATIONS

California Endangered Species Act

Section 2080 of the California Endangered Species Act (CESA) prohibits "take" of state-listed threatened and endangered species. The CESA defines take as any action or attempt to hunt, pursue, catch, capture, or kill any listed species. If a proposed project may result in "take" of a listed species, a permit pursuant to Section 2080 of CESA is required from the California Department of Fish and Wildlife (CDFW). Take of state-listed species is authorized through Section 2081 through a permit process. Take can also be authorized through Section 2835 with an approved Natural Community Conservation Plan.

Porter-Cologne Water Quality Control Act

Areas meeting the regulatory definition of *waters of the state* are subject to the jurisdiction of the California Regional Water Quality Control Board (RWQCB). *Waters of the state* means any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code, Chapter 2, 13050(e)). Any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system, must file a report of waste discharge with the appropriate regional board (California Water Code, Article 4, 13260(a)(1)).

California Fully Protected Species

In the 1960s, before CESA was enacted, the California Legislature identified species for specific protection under the California Fish and Game Code. These *fully protected* species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, and relocation of the bird species for the protection of livestock. Fully protected species are described in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code.

These protections state that "…no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird], [mammal], [reptile or amphibian], or [fish]."

California Fish and Game Code Section 1602

Activities that result in the diversion or obstruction of the natural flow of a stream, substantially change its bed, channel or bank, or utilize any materials (including vegetation) from the streambed, require that the project applicant enter into a Streambed Alteration Agreement with CDFW pursuant to Section 1602 of the California Fish and Game Code. The definition of streams includes "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flows." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife.

California Fish and Game Code Section 3503, Bird Nests and Birds of Prey

Bird nests are protected in California under Section 3503 of the California Fish and Game Code. Section 3503 states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Disturbance during the breeding season can result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFW. CDFW may issue permits authorizing take.

Section 3503.5 of the Code specifies that 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."

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS AND ORDINANCES

Solano Multispecies Habitat Conservation Plan

The Solano Multispecies Habitat Conservation Plan (MSHCP) has not yet been adopted. A final draft EIR was released in October 2012. The purpose of the Solano HCP is to: promote the conservation of biological diversity and the preservation of endangered species and their habitats consistent with the recognition of private property rights; provide for a healthy economic environment for the citizens, agriculture, and industries; and allow for the ongoing maintenance and operation of public and private facilities in Solano County. The plan provides coverage for 36 plant and animal species. The MSHCP includes three covered activity zones:

- Zone 1: Urban Zone (cities of Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo),
- Zone 2: Solano County Water Agency and Irrigation and Reclamation District Zones (land within boundaries of various local water and irrigation districts), and
- Zone 3: Remainder of the County.

The project site is within Zone 3 of the Solano MSHCP plan area. However, Solano County is not a participant in the MSHCP. The project site contains several proposed designated conservation areas, including for burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), California tiger salamander (*Ambystoma californiense*), grasslands and vernal pools. Covered activities described in the Solano MSCHP include: proposed development projects; construction of new public facilities; operation and maintenance of public facilities; work associated with Solano Irrigation District service area inclusions, expansions, and annexations; habitat management, enhancement, restoration, and construction work; monitoring, scientific data collection, and related activities in designated reserves, mitigation sites/banks, and open space lands; and relocation of covered species.

Solano County General Plan

Chapter 4, Resources, of the Solano County General Plan (Solano County 2008) contains the following biological-resource-related goals and policies that are relevant to the proposed project:

GOAL RS.G-1: Manage and preserve the diverse land, water, and air resources of the county for the use and enrichment of the lives of present and future generations.

GOAL RS.G-2: Ensure continued presence and viability of the county's various natural resources.

GOAL RS.G-3: Repair environmental degradation that has occurred, and seek an optimum balance between the economic and social benefits of the county's natural resources.

GOAL RS.G-4: Preserve, conserve, and enhance valuable open space lands that provide wildlife habitat; conserve natural and visual resources; convey cultural identity; and improve public safety.

- **Policy RS.P-1:** Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections.
- **Policy RS.P-2:** Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.
- **Policy RS.P-3:** Focus conservation and protection efforts on high-priority habitat areas depicted in Figure RS-1 (Priority Habitat Areas identified in Chapter 4 of the County General Plan.
- **Policy RS.P-5:** Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.

The Solano County Resource conservation overlay is depicted in Chapter 4, 'Resources', Figure RS-1 and RS-2, of the Solano County General Plan (2008) and includes the following resources:

- California red-legged frog critical habitat and core recovery areas
- Callippe butterfly priority conservation areas
- Giant garter snake priority conservation areas
- Priority habitat corridors
- Vernal pool conservation areas
- Suisun Marsh Protection Plan primary management zone

4.4.2 Environmental Setting

REGIONAL SETTING

The Recology Hay Road (RHR) Landfill is located west of SR 113 and south of Hay Road in unincorporated Solano County. The project site is approximately 12 to 20 feet in elevation and contains mostly disturbed/ruderal and developed land (approximately 389.5 acres), including the landfill, several buildings, roads, and parking areas (Table 4.4-1, Figure 4.4-1). Landfill expansion would occur within the approximately 24-acre Triangle within the eastern portion of the project site. An 18-acre Bird Sanctuary Pond is located adjacent to the Triangle, the Western Mitigation Area is located on the western edge of the project site, and the Eastern Mitigation Area is located south of the Triangle (Figure 4.4-1).

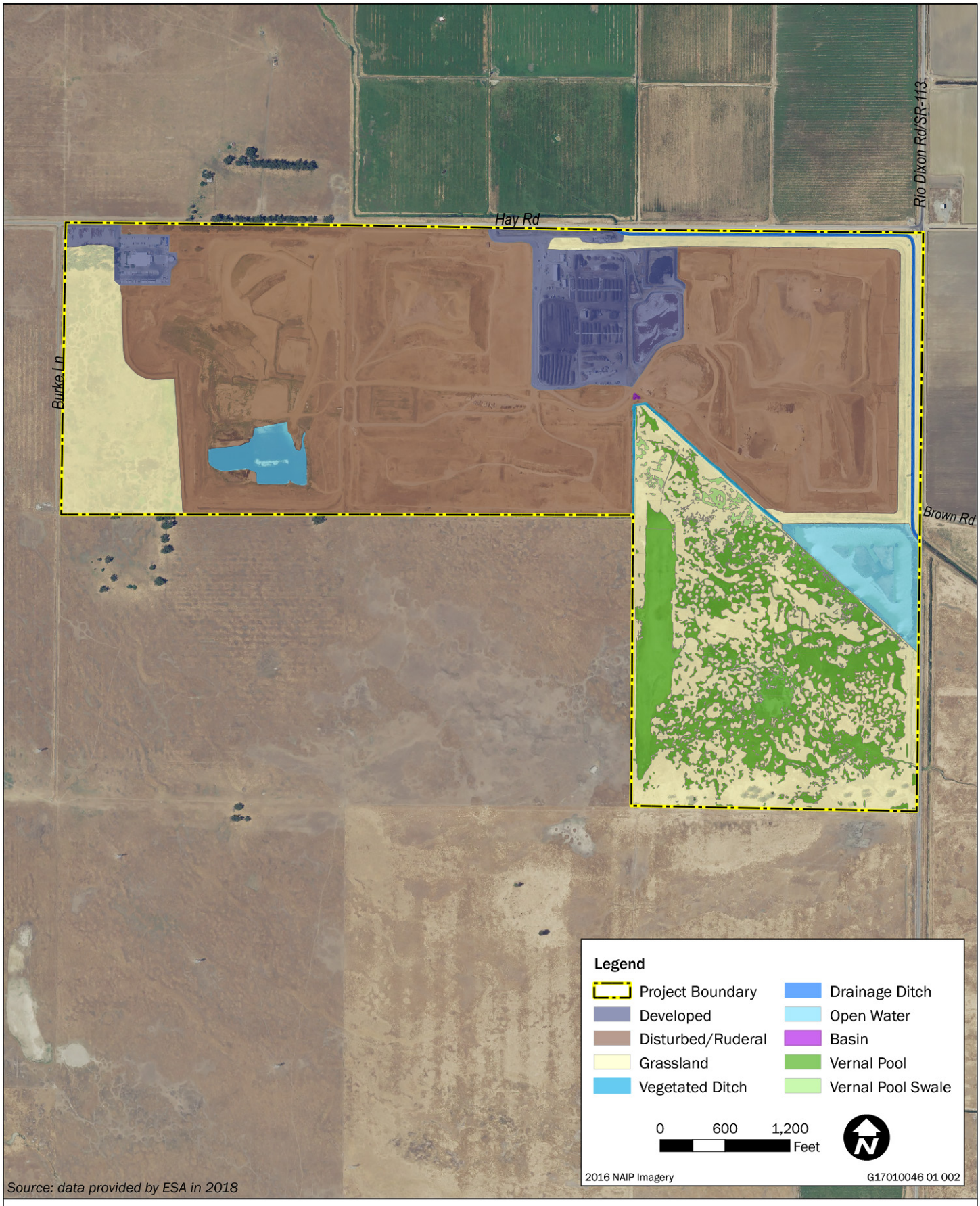

Figure 4.4-1 Land Cover

VEGETATION AND WILDLIFE

Grassland

The project site contains approximately 155 acres of grassland habitat within the Triangle and the Western and Eastern Mitigation Areas (Table 4.4-1, Figure 4.4-1). The grassland habitat contains many species of annual grasses and forbs, and bromes (*Bromus hordeaceaus*, *B. diandrus*), Italian rye grass (*Festuca perennis*), and bur clover (*Medicago polymorpha*) are dominant (ESA 2016d).

Wetlands and Vernal Pools

The project site contains approximately 75 acres of northern claypan vernal pool/vernal swale habitat within the Triangle and Eastern Mitigation Area, and 26 acres of open water habitat within the Bird Sanctuary and within a pond near the existing soil borrow pit (Table 4.4-1, Figure 4.4-1, ICF 2017). The project site includes a large playa pool that extends north to south and the northern portion of this playa pool is within the Triangle. An approximately 1-mile drainage ditch runs along the northeast corner of the project site (Table 4.4-1, Figure 4.4-1). Vernal pool-associated species are present within the project site, including alkali heath (*Frankenia salina*), Fremont's goldfields (*Lasthenia fremontii*), salt grass (*Distichlis spicata*), California eryngo (*Eryngium aristulatum*), butter 'n' eggs (*Triphysaria eriantha* ssp. *eriantha*), hogwallow starfish (*Hesperevax caulescens*), and stalked popcorn flower (*Plagiobothrys stipitatus*; ESA 2016d).

Trees

Trees are present within the northwest corner of the project site and along the southern border of the Eastern Mitigation Area; mostly non-native eucalyptus. During the 2017 reconnaissance-level survey, a large nest was observed within one of the large eucalyptus trees and owl pellets were observed beneath the nest. No trees within the project site are planned for removal.

Table 4.4-1 Habitat Types within the Project Site

Habitat Type	Size (acres)
Developed	49.3
Disturbed/Ruderal	340.2
Grassland	153.9
Drainage Ditch	3.1
Vegetated Ditch	0.8
Detention Basin	0.04
Open Water	25.8
Vernal Pool	72.5
Vernal Pool Swale	2.3

Source: Data compiled by Ascent Environmental in 2017 and 2018

SPECIAL-STATUS SPECIES

Special-status species are plants and animals that are legally protected under the California Endangered Species Act (CESA; Fish and Game Code, Section 2050 et seq.), the federal Endangered Species Act (ESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For this SEIR, special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the ESA (50 Code Fed. Regs., Section 17.12) for listed plants, (50 Code Fed. Regs., Section 17.11) for listed animals, and various notices in the Federal Register for proposed species;
- species that are candidates for possible future listing as threatened or endangered under the ESA (75 Code Fed. Regs., Section 69222);

- species that are listed or proposed for listing by the State of California as threatened or endangered under the CESA of 1984 (14 Cal. Code Regs., Section 670.5);
- plants considered by California Department of Fish and Wildlife (CDFW) and CNPS to be "rare, threatened, or endangered in California" (Rare Plant Ranks 1A, 1B, 2A, and 2B; CNDDB 2018; CNPS 2017);
- species that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) Guidelines, Section 15380;
- animals fully protected in California (Fish and Game Code, Section 3511 for birds, Section 4700 for mammals, and Section 5050 for reptiles and amphibians); or
- animal species of special concern to CDFW.

A list of special-status species that could potentially occur on the project site or immediate vicinity was developed primarily through review of the CNDDB (CNDDB 2018) and the CNPS Inventory (CNPS 2018) records of previously documented occurrences of special-status species in the Allendale, Dixon, Saxon, Elmira, Dozier, Liberty Island, Denverton, Birds Landing, and Rio Vista U.S. Geological Survey 7.5-minute quadrangles.

Special-Status Plants

Table 4.4-2 provides a list of the special-status plant species that have been documented on the project site or the CNDDB five-mile search area, and describes their regulatory status, habitat, and potential for occurrence in the project site. A total of 23 special-status plant species have potential to occur within the project site (Table 4.4-2). These species include Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*), alkali milk-vetch (*Astragalus tener* var. *tener*), heartscale (*Atriplex cordulata* var. *cordulata*), brittlescale (*Atriplex depressa*), vernal pool smallscale (*Atriplex persistens*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), pappose tarplant (*Centromadia parryi* ssp. *parryi*), hispid salty bird's-beak (*Chloropyron molle* ssp. *hispidum*), recurved larkspur (*Delphinium recurvatum*), dwarf downingia (*Downingia pusilla*), Jepson's coyote-thistle (*Eryngium jepsonii*), San Joaquin spearscale (*Extriplex joaquinana*), fragrant fritillary (*Fritillaria liliacea*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), Carquinez goldenbush (*Isocoma arguta*), legenere (*Legenere limosa*), Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*), marsh microseris (*Microseris paludosa*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), bearded popcornflower (*Plagiobothrys hystriculus*), California alkali grass (*Puccinellia simplex*), Sanford's arrowhead (*Sagittaria sanfordii*), and saline clover (*Trifolium hydrophilum*).

Table 4.4-2 Special-Status Plant Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*			1B.1	Wetland. Meadows and seeps, valley and foothill grassland. Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 16 to 246 ft in elevation. Blooms April-May.	Could occur. The nearest known occurrence of this species is approximately 5 miles northeast of the project site (CNDDB 2018). The project site contains potentially suitable grassland habitat.
alkali milk-vetch *Astragalus tener* var. *tener*			1B.2	Wetland. Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0 to 551 ft in elevation. Blooms March-June.	Likely to occur. This species was observed within the project site during focused special-status plant surveys (ESA 2016d).
heartscale *Atriplex cordulata* var. *cordulata*			1B.2	Chenopod scrub, valley and foothill grassland, meadows and seeps. Alkaline flats and scalds in the Central Valley, sandy soils. 10 to 902 ft in elevation. Blooms April-October.	Likely to occur. This species was observed within the project site during focused special-status plant surveys (ESA 2016d).
brittlescale *Atriplex depressa*			1B.2	Alkali playa, wetland. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. Usually in	Could occur. The nearest known occurrence of this species is approximately 2.5 miles south of the project site (CNDDB 2018). Suitable vernal

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
				alkali scalds or alkaline clay in meadows or annual grassland; rarely associated with riparian, marshes, or vernal pools. 3 to 1,066 ft in elevation. Blooms April-October.	pool and grassland habitat is present within the project site.
vernal pool smallscale *Atriplex persistens*			1B.2	Vernal pools, wetland. Alkaline vernal pools. 10 to 377 ft in elevation. Blooms June-October.	Could occur. The nearest known occurrence of this species is approximately 3 miles south of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool habitat for this species.
round-leaved filaree *California macrophylla*			1B.2	Cismontane woodland, valley and foothill grassland. Clay soils. 49 to 3,937 ft in elevation. Blooms March-May.	Not expected to occur. The project site is outside of the elevation range of this species.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*			1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 0 to 755 ft in elevation. Blooms May-November.	Could occur. The nearest known occurrence of Congdon's tarplant is approximately 9.7 miles southwest of the project site (CNPS 2018). The project site contains potentially suitable grassland habitat for this species.
pappose tarplant *Centromadia parryi* ssp. *parryi*			1B.2	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites. 7 to 1,378 ft in elevation. Blooms May-November.	Could occur. The nearest known occurrence of pappose tarplant is approximately 7.8 miles south of the project site (CNPS 2018). The project site contains potentially suitable grassland and vernal pool habitat for this species.
hispid salty bird's-beak *Chloropyron molle* ssp. *hispidum*			1B.1	Alkali playa, wetland. Meadows and seeps, playas, valley and foothill grassland. In damp alkaline soils, especially in alkaline meadows and alkali sinks with *Distichlis*. 3 to 509 ft in elevation. Blooms June-September.	Could occur. The nearest known occurrence of hispid salty bird's beak is approximately 3.5 miles south of the project site (CNPS 2018). The project site contains potentially suitable grassland habitat for this species.
soft salty bird's-beak *Chloropyron molle* ssp. *molle*	FE		1B.2	Wetland. Coastal salt marsh. In coastal salt marsh with *Distichlis*, *Salicornia*, *Frankenia*, etc. 0 to 16 ft in elevation. Blooms July-November.	Not expected to occur. The project site does not contain salt marsh habitat.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*			2B.1	Salt marsh, Wetland. Marshes and swamps, fresh or brackish water. 0 to 656 ft in elevation. Blooms July-September.	Not expected to occur. Suitable salt marsh habitat is not present within the project site.
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE		1B.1	Salt marsh, Wetland. Marshes and swamps. Grows with *Scirpus*, *Distichlis* near small watercourses within saltmarsh. 0 to 3 ft in elevation. Blooms June-September.	Not expected to occur. Suitable salt marsh habitat is not present within the project site.
recurved larkspur *Delphinium recurvatum*			1B.2	Chenopod scrub, valley and foothill grassland, cismontane woodland. On alkaline soils; often in valley saltbush or valley chenopod scrub. 10 to 2,592 ft in elevation. Blooms March-June.	Could occur. The nearest known occurrence of recurved larkspur is approximately 4.7 miles west of the project site. The project site contains potentially suitable grassland habitat for this species.
dwarf downingia *Downingia pusilla*			2B.2	Wetland. Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 3 to 1,608 ft in elevation. Blooms March-May.	Could occur. The nearest known occurrence of this species is approximately 1.8 miles southwest of the project site (CNDDB 2018). Suitable vernal pool and grassland habitat is present within the project site.
Jepson's coyote-thistle *Eryngium jepsonii*			1B.2	Vernal pools, valley and foothill grassland. Clay. 10 to 984 ft in elevation. Blooms April-August.	Could occur. The nearest known occurrence of Jepson's coyote-thistle is less than one mile east of the project site (CNPS 2018). The project site contains potentially suitable vernal pool and grassland habitat for this species.

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
San Joaquin spearscale *Extriplex joaquinana*			1B.2	Alkali playa. Chenopod scrub, alkali meadow, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia*, etc. 3 to 2,740 ft in elevation. Blooms April-October.	Could occur. The nearest know occurrence of this species is approximately 3.8 miles east of the project site (CNDDB 2018). The project site contains potentially suitable grassland habitat for this species.
fragrant fritillary *Fritillaria liliacea*			1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 10 to 1,312 ft in elevation. Blooms February-April.	Could occur. The nearest known occurrence of this species is approximately 1.8 miles south of the project site (CNDDB 2018). The project site contains potentially suitable grassland habitat for this species.
adobe-lily *Fritillaria pluriflora*			1B.2	Ultramafic. Chaparral, cismontane woodland, foothill grassland. Usually on clay soils; sometimes serpentine. 148 to 3,100 ft in elevation. Blooms February-April.	Not expected to occur. The project site is outside of the elevation range of this species and does not contain suitable habitat.
Boggs Lake hedge-hyssop *Gratiola heterosepala*		SE	1B.2	Wetland. Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 33 to 7,792 ft in elevation. Blooms April-August.	Could occur. The nearest known occurrence of this species is approximately 1.8 miles southeast of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool habitat.
woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*			1B.2	Wetland. Marshes and swamps (freshwater). Moist, freshwater-soaked river banks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. 0 to 509 ft in elevation. Blooms June-September.	Not expected to occur. The project site does not contain suitable river bank or marsh habitat for this species.
Carquinez goldenbush *Isocoma arguta*			1B.1	Valley and foothill grassland. Alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 3 to 164 ft in elevation. Blooms August-December.	Could occur. The nearest known occurrence is approximately 2 miles north of the project site (CNDDB 2018). Potentially suitable grassland habitat is present within the project site.
Northern California black walnut *Juglans hindsii*			1B.1	Riparian forest, riparian woodland. Few extant native stands remain; widely naturalized. Deep alluvial soil, associated with a creek or stream. 0 to 2,100 ft in elevation. Blooms April-May.	Not expected to occur. The project site does not contain riparian forest or woodland habitat. Norther California black walnut has not been observed on the project site during site surveys.
Contra Costa goldfields *Lasthenia conjugens*	FE		1B.1	Alkali playa, wetland. Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas. 3 to 1,476 ft in elevation. Blooms March-June.	Not expected to occur. The nearest known occurrence of Contra Costa goldfields is approximately 4.7 miles west of the project site (CNPS 2018). The project site contains potentially suitable grassland and vernal pool habitat for this species. However, a focused survey of the project site for Contra Costa goldfields was conducted in 2017, and the species was not observed (ESA 2017c).
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*			1B.2	Wetland. Freshwater and brackish marshes. Often found with *Typha*, *Aster lentus*, *Rosa californica*, *Juncus* sp., *Scirpus*, etc. Usually on marsh and slough edges. 0 to 16 ft in elevation. Blooms May-September.	Not expected to occur. The project site does not contain suitable marsh habitat for this species.
legenere *Legenere limosa*			1B.1	Vernal pools, wetland. In beds of vernal pools. 3 to 2,887 ft in elevation. Blooms April-June.	Could occur. The nearest known occurrence of this species is approximately 2.2 miles south of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool habitat for this species.

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*			1B.2	Valley and foothill grassland, vernal pools. Grassland, and sometimes vernal pool edges. Alkaline soils. 3 to 98 ft in elevation. Blooms March-May.	Could occur. The nearest known occurrence of this species is approximately 3.4 miles southwest of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool and grassland habitat.
Mason's lilaeopsis *Lilaeopsis masonii*			1B.1	Wetland. Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0 to 33 ft in elevation. Blooms April-November.	Not expected to occur. The project site does not contain suitable marsh or river bank habitat for this species.
Delta mudwort *Limosella australis*			2B.1	Wetland. Riparian scrub, marshes and swamps. Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. 0 to 16 ft in elevation. Blooms May-August.	Not expected to occur. The project site does not contain suitable riparian or marsh habitat for this species.
marsh microseris *Microseris paludosa*			1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 16 to 984 ft in elevation. Blooms April-July.	Could occur. The nearest known occurrence of marsh microseris is approximately 9 miles southwest of the project site (CNPS 2018). The project site contains potentially suitable grassland habitat for this species.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*			1B.1	Wetland. Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 16 to 5,709 ft in elevation. Blooms April-July.	Could occur. The nearest known occurrence of this species is approximately 1.8 miles southeast of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool and grassland habitat.
Colusa grass *Neostapfia colusana*	FT	SE	1B.1	Vernal pools, wetland. Usually in the bottoms of large, or deep vernal pools; adobe soils. 16 to 410 ft in elevation. Blooms May-August.	Not expected to occur. The project site does not contain large, deep, adobe vernal pool habitat.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT	SE	1B.1	Vernal pools, wetland. 33 to 2,477 ft in elevation. Blooms April-September.	Not expected to occur. This species requires deep vernal pools with a long period of inundation. The vernal pools within the project site are shallow and have a relatively short hydroperiod, and thus are not suitable for this species.
bearded popcornflower *Plagiobothrys hystriculus*			1B.1	Wetland. Vernal pools, valley and foothill grassland. Wet sites. 0 to 902 ft in elevation. Blooms April-May.	Could occur. The nearest known occurrence of this species is approximately 1.5 miles southeast of the project site (CNDDB 2018). Suitable vernal pool and grassland habitat is present within the project site.
California alkali grass *Puccinellia simplex*			1B.2	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Alkaline, vernally mesic. Sinks, flats, and lake margins. 3 to 3,002 ft in elevation. Blooms March-May.	Could occur. The nearest known occurrence of this species is approximately 1.5 miles south of the project site (CNDDB 2018). The project site contains potentially suitable vernal pool and grassland habitat for this species.
Sanford's arrowhead *Sagittaria sanfordii*			1B.2	Wetland. Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0 to 2,133 ft in elevation. Blooms May-November.	Could occur. The nearest known occurrence of Sanford's arrowhead is approximately 9.7 miles southeast of the project site (CNPS 2018). The project site contains potentially suitable habitat within ditches for this species.

Species	Listing Status[1]			Habitat	Potential for Occurrence[2]
	Federal	State	CRPR		
Keck's checkerbloom *Sidalcea keckii*	FE		1B.1	Ultramafic. Cismontane woodland, valley and foothill grassland. Grassy slopes in blue oak woodland. On serpentine-derived, clay soils, at least sometimes. 279 to 1,657 ft in elevation. Blooms April-June.	Not expected to occur. The project site is outside of the elevation range of this species.
Suisun Marsh aster *Symphyotrichum lentum*			1B.2	Wetland. Marshes and swamps (brackish and freshwater). Most often seen along sloughs with *Phragmites*, *Scirpus*, blackberry, *Typha*, etc. 0 to 98 ft in elevation. Blooms April-November.	Not expected to occur. The project site does not contain suitable marsh or swamp habitat for this species.
two-fork clover *Trifolium amoenum*	FE		1B.1	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently sighted on a roadside and eroding cliff face. 16 to 1,017 ft in elevation. Blooms April-June.	Not expected to occur. The nearest known historic occurrence (from 1909) of this species is approximately 5 miles northwest of the project site, in an area that is now urbanized (CNDDB 2018). This occurrence is presumed to be extirpated. There is otherwise no known population of this species within 5 miles of the project site.
saline clover *Trifolium hydrophilum*			1B.2	Wetland. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0 to 984 ft in elevation. Blooms April-June.	Could occur. The nearest known occurrence of saline clover is approximately 5 miles northeast of the project site (CNPS 2018). The project site contains potentially suitable grassland and vernal pool habitat for this species.
Crampton's tuctoria or Solano grass *Tuctoria mucronata*	FE	SE	1B.1	Wetland. Vernal pools, valley and foothill grassland. Clay bottoms of drying vernal pools and lakes in valley grassland. 16 to 49 ft in elevation. Blooms April-August.	Not expected to occur. The nearest known occurrence of this species is approximately 2.5 miles south of the project site (CNDDB 2018). This species requires long periods of inundation within vernal pool habitats. The vernal pools within the project site have a relatively short hydroperiod, and are not suitable for this species.

Notes: CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

1. Legal Status Definitions

Federal:

E Endangered (legally protected by ESA)

T Threatened (legally protected by ESA)

C Candidate (legally protected by ESA)

USFS-S US Forest Service Sensitive Species

State:

E Endangered (legally protected by CESA)

R Rare (legally protected by CNPPA)

California Rare Plant Ranks:

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

Threat Ranks

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)

0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

2. Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

Could occur: Suitable habitat is available at the project site; however, there are little to no other indicators that the species might be present.

Likely to occur: The species, or evidence of its presence, was observed at the project site during reconnaissance surveys, or was reported by others.

Sources: CNDDB 2018; CNPS 2018; Calflora 2018; ESA (2016d, 2017c)

Special-Status Wildlife

Table 4.4-3 provides a list of the special-status wildlife species that have been documented on the project site or the CNDDB 5-mile search area, and describes their regulatory status, habitat, and potential for occurrence in the project site. A total of 11 special-status wildlife species have potential to occur within the project site (Table 4.4-3). These species include California tiger salamander, burrowing owl, California black rail (*Laterallus jamaicensis coturniculus*), mountain plover (*Charadrius montanus*), northern harrier (*Circus cyaneus*), Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), white-tailed kite (*Elanus leucurus*), conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and giant garter snake (*Thamnophis gigas*).

Table 4.4-3 Special-Status Wildlife Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Site

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Amphibians				
California tiger salamander *Ambystoma californiense*	FT	ST	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland, vernal pool, and wetlands. Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Could occur. The nearest known occurrence of this species is approximately 1.5 miles southeast of the project site (CNDDB 2018). California tiger salamanders were not observed during a focused survey within the vernal pools on the project site (ESA 2016b, 2016c). However, suitable habitat is present within the project site, and California tiger salamanders could be present onsite seasonally (ESA 2016b).
giant garter snake *Thamnophis gigas*	FT	ST	Marsh and swamp, riparian scrub, wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	Could occur. The nearest known occurrence of this species is approximately 5.5 miles northeast of the project site (CNDDB 2018). This most recent observation at this location took place in 1987, and the species has not been observed there since. A more recent observation (2017) of a dead giant garter snake occurred approximately 7.1 miles east of the project site (CNDDB 2018). The project site is within the historic range of this species, is hydrologically-connected to waters where giant garter snake have been observed and contains potentially suitable habitat for giant garter snake within drainage ditches that are hydrologically connected to other irrigation ditches in the area and the borrow pit.
Birds				
burrowing owl *Athene cunicularia*		SSC	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, and valley and foothill grassland. Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Could occur. The nearest known occurrence of this species is approximately 1.6 miles southwest of the project site (CNDDB 2018). While the project site does not contain many suitable burrows or populations of California ground squirrels, burrowing owls could colonize the site in the future.
California black rail *Laterallus jamaicensis coturniculus*		ST FP	Brackish marsh, freshwater marsh, marsh and swamp, salt marsh, wetland. Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Could occur. The nearest known occurrences of this species are approximately 3 to 4 miles southeast of the project site within sloughs near the Sacramento River Delta (CNDDB 2018). The Bird Sanctuary area adjacent to the project site contains potentially suitable nesting habitat for black rail within the thick tule and cattails.

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
mountain plover *Charadrius montanus*		SSC	Chenopod scrub, valley and foothill grassland. Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Could occur. The nearest known occurrence of this species is approximately 4.5 miles south of the project site (CNDDB 2018). The project site contains potentially suitable grassland habitat for this species.
northern harrier *Circus cyaneus*		SSC	Coastal scrub, Great Basin grassland, marsh and swamp, riparian scrub, valley and foothill grassland, and wetlands. Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Could occur. There have been many recent occurrences of this species within approximately 1 mile of the project site (eBird 2017). Potentially suitable grassland nesting habitat is present within and adjacent to the project site.
Swainson's hawk *Buteo swainsoni*		ST	Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Could occur. There have been several recent occurrences within one mile of the project site (eBird 2017). The project site does not contain any suitable trees for Swainson's hawk nesting; however, there are several suitable, large trees approximately 0.5 mile south of the project site. Swainson's hawks have historically (2005) nested within these trees (CNDDB 2018). This species could use the habitat within the project site for foraging.
tricolored blackbird *Agelaius tricolor*		CE SSC	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Likely to occur. This species has been observed nesting within the Bird Sanctuary area adjacent to the project site, as well as within another aquatic area on Recology property approximately 0.5 mile west of the project site (CNDDB 2018).
white-tailed kite *Elanus leucurus*		FP	Cismontane woodland, marsh and swamp, riparian woodland, valley and foothill grassland, and wetlands. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Could occur. There have been several recent occurrences of this species within approximately 1 mile of the project site (eBird 2017). Potentially suitable nest trees are present approximately 0.5 mile south of the project site.
Fish				
longfin smelt *Spirinchus thaleichthys*	FC	SSC	Aquatic, estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	Not expected to occur. The nearest known occurrence of this species is approximately 4.6 miles southeast of the project site within a tributary to the Sacramento River Delta. The project site does not contain any aquatic habitat that feeds into the Sacramento River Delta.
Invertebrates				
conservancy fairy shrimp *Branchinecta conservatio*	FE		Valley and foothill grassland, vernal pool, wetland. Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	Could occur. While the species has not been observed within the project site, a focused survey could not rule out the presence of conservancy fairy shrimp (ESA 2016c). The species has been observed within the property adjacent to the project site approximately 1.4 miles to the south (CNDDB 2018). Suitable habitat within the project site includes the large playa pool.

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Delta green ground beetle *Elaphrus viridis*	FT		Vernal pool, wetland. Restricted to the margins of vernal pools in the grassland area between Jepson Prairie and Travis Air Force Base. Prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100 percent cover.	Not expected to occur. This species has been observed during focused surveys within the project site (Entomological Consulting Services, Ltd. 2016). However, the beetles that were observed were adjacent to the southern end of the large playa pool on the project site, which represents typical suitable habitat for the species (i.e., large, deep pools with patches of bare ground). The vernal pools present within the Triangle did not provide suitable habitat for Delta green ground beetle, because these vernal pools are shallow with short hydroperiods and dense vegetative growth (Entomological Consulting Services, Ltd. 2018).
vernal pool fairy shrimp *Branchinecta lynchi*	FT		Valley and foothill grassland, vernal pool, wetland. Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Likely to occur. This species has been observed within vernal pools on the project site (ESA 2016c).
vernal pool tadpole shrimp *Lepidurus packardi*	FE		Valley and foothill grassland, vernal pool, wetland. Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Po01ols commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Likely to occur. This species has bene observed within vernal pools on the project site (ESA 2016c).

Note: CNDDB = California Natural Diversity Database

1. Legal Status Definitions

Federal:

E Endangered (legally protected)
T Threatened (legally protected)
D Delisted
C Candidate

State:

D Delisted
FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
E Endangered (legally protected)
T Threatened (legally protected)
C Candidate

2. Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present in the project area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

Could occur: Suitable habitat is available in the project area; however, there are little to no other indicators that the species might be present.

Likely to occur: The species, or evidence of its presence, was observed in the project area during reconnaissance surveys, or was reported by others.

Source: CNDDB 2018; eBird 2017; ESA (2016a, 2016b, 2016c, 2017b); Entomological Consulting Services Ltd. (2016, 2018)

SENSITIVE HABITATS

Sensitive Natural Communities

Sensitive natural communities include those that are of special concern to resource agencies or are afforded specific consideration through CEQA or other federal or State laws. Sensitive natural communities may be of special concern to regulatory agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species. Many of these communities are tracked in CDFW's CNDDB. There are three sensitive natural communities within five miles of the project site, which have potential to occur within the project site.

Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh are typically areas with permanent flooding dominated by tall, perennial vegetation such as tule (*Scirpus* sp.) and cattail (*Typha* sp.). approximately 4 miles south of the project site adjacent to a tributary to the Sacramento River Delta (CNDDB 2018). The bird sanctuary area within the project site may be considered marsh habitat, because it contains water year-round and contains marsh vegetation including tule and cattail.

Northern Claypan Vernal Pool

Northern claypan vernal pools are shallow, ephemeral waterbodies found in depressions among grasslands and open woodlands in the northern Central Valley of California. These pools include a clay hardpan that retains water throughout some portion of the spring and typically dry down completely in the early summer months. Northern claypan vernal pools are often alkaline and slightly saline, and contain characteristic plant species, including endemic species or state and federally-listed species. The project site contains approximately 75 acres of northern claypan vernal pool habitat within the Triangle and Eastern Mitigation Areas, and there are several other occurrences within a 5-mile radius of the project site (CNDDB 2018).

Valley Needlegrass Grassland

Valley needlegrass grassland is associated with two needlegrass species: purple needle grass (*Stipa pulchra*) and nodding needle grass (*Stipa cernua*). There are several occurrences of valley needlegrass grassland within approximately 1 mile of the project site (CNDDB 2018); however, needle grass was not observed during the 2016 special-status plant survey during which a full inventory of plant species was conducted (ESA 2016d).

WILDLIFE MOVEMENT CORRIDORS

The California Essential Habitat Connectivity Project is an effort to identify large remaining blocks of intact habitat or natural landscape blocks in California, and to model linkages between them; primarily for wildlife movement (Spencer et al. 2010). The project site contains portions of larger surrounding natural landscape blocks, primarily within the Triangle and Western and Eastern Mitigation Areas (Figure 4.4-2). The project site is not located within any defined Essential Connectivity Area (Figure 4.4-2).

FEDERAL DESIGNATED CRITICAL HABITAT

The project site is not within but is adjacent to critical habitat for the Delta green ground beetle, vernal pool tadpole shrimp, and vernal pool fairy shrimp (Figure 4.4-3).

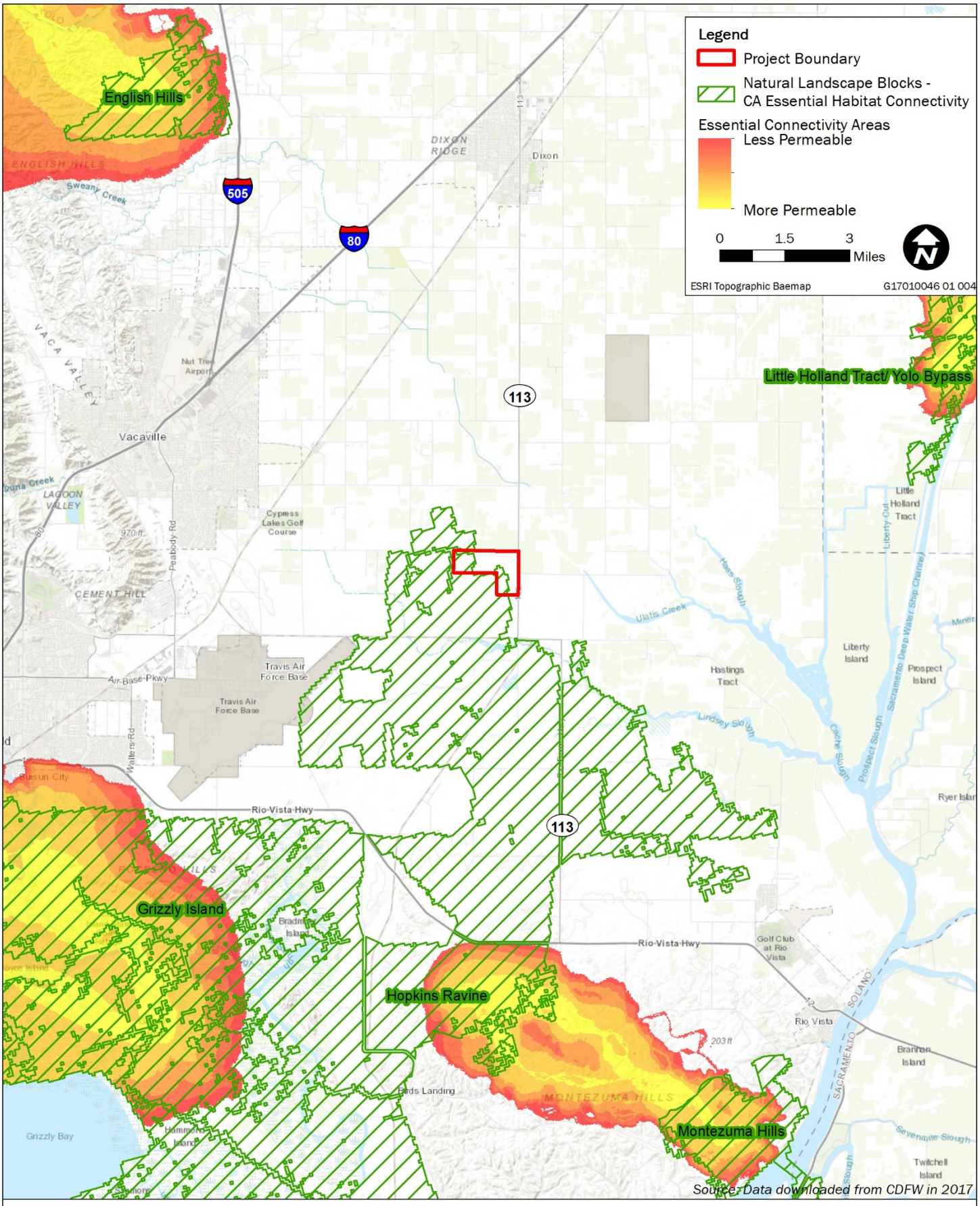

Figure 4.4-2 Essential Connectivity Areas

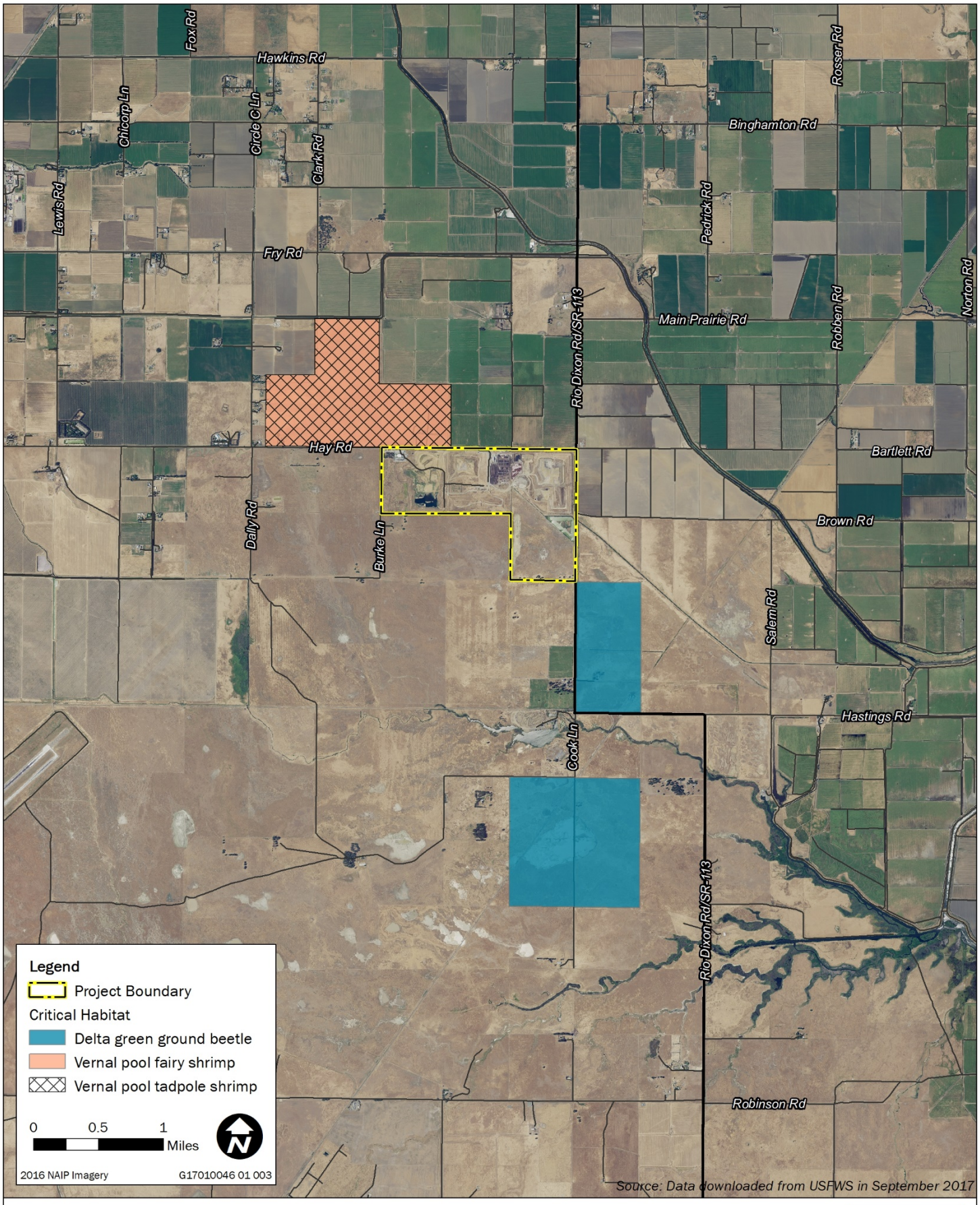

Figure 4.4-3 Critical Habitat

4.4.3 Environmental Impacts and Mitigation Measures

SIGNIFICANCE CRITERIA

The following standards of significance are based on Appendix G of the CEQA Guidelines. For purposes of this SEIR, the proposed project would result in a potentially new significant impact, or substantial increase in a previously identified significant impact, with regard to biological resources if it would:

- result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species (as defined above) in local or regional plans, policies, or regulations, or by 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, regulations or by the CDFW or USFWS;
- result in a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local applicable policies protecting biological resources; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan (NCCP), or other applicable HCP.

METHODOLOGY

The analysis of potential impacts to biological resources resulting from project implementation is based on review of existing databases and reports regarding natural resources in the project site described previously in Section 4.4.2, "Environmental Setting."

ISSUES NOT DISCUSSED FURTHER

Certain Special-status Species

Mountain plovers do not nest in California; however, wintering plovers are considered species of special concern in California by CDFW. There have been several observations of mountain plover within 5 miles of the project site; however, the project site does not contain suitable habitat for this species (e.g., recently burned fields, alkali flats, grasslands heavily grazed by domestic livestock), and it is unlikely that mountain plovers would winter on the site. This issue is not analyzed further in this SEIR.

Consistency with Solano MSHCP

The project site is within Zone 3 of the Solano MSHCP area. Solano County is not a participant in the MSHCP, and thus projects within unincorporated Solano County are not subject to the MSHCP provisions. Additionally, while a final draft of the MSHCP and its EIS/EIR has been released, the MSHCP has not yet been adopted. Because the MSHCP is not an approved plan and Solano County is not a participant in the plan, no conflicts with adopted plans would occur and there would be no impact. This issue is not analyzed further in this SEIR.

IMPACTS AND MITIGATION MEASURES

Impact 4.4-1: Potential Impacts to Special-Status Plants

Project construction activities, including ground disturbance and vegetation removal, could result in disturbance to or loss of special-status plants if present on the project site. Because the loss of special-status plants could substantially affect the abundance, distribution, and viability of local and regional populations of these species, this would be a **significant** impact.

A total of 23 special-status plant species have the potential to occur within the project site (Table 4.4-2). These species include Ferris' milk-vetch, alkali milk-vetch, heartscale, brittlescale, vernal pool smallscale, Congdon's tarplant, pappose tarplant, hispid salty bird's-beak, recurved larkspur, dwarf downingia, Jepson's coyote-thistle, San Joaquin spearscale, fragrant fritillary, Bogg's Lake hedge-hyssop, Carquinez goldenbush, legenere, Heckard's pepper-grass, marsh microseris, Baker's navarretia, bearded popcornflower, California alkali grass, Sanford's arrowhead, and saline clover. Bogg's Lake hedge-hyssop is listed as endangered under CESA. The remaining 22 special-status plant species have California Rare Plant Rankings ranging from 1B.1 to 2B.2. Project construction activities, including vegetation removal and ground disturbance, could result in disturbance or removal of special-status plants if present. The loss of special-status plants and their habitat associated with the lateral expansion of the landfill's disposal area could substantially affect the abundance, distribution, and viability of local and regional populations of these species. This would be a **significant** impact.

Mitigation Measures

Mitigation Measure 4.4-1a: Special-Status Plant Surveys

Prior to commencement of ground disturbance within habitats in the Triangle where special-status plants may occur (i.e., grassland habitat, vernal pool habitat), and during the blooming period for the special-status plants with potential to occur on the sites (Table 4.4-4), a qualified botanist will conduct protocol-level surveys for the potentially occurring special-status plants that could be removed or disturbed by project activities. Protocol-level surveys will be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009). If special-status plants are not found, the botanist will document the findings in a letter report to CDFW and further mitigation will not be required.

Table 4.4-4 Normal Blooming Period for Special-Status Plants with Potential to Occur Within the Triangle

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*				■	■							
alkali milk-vetch *Astragalus tener* var. *tener*			■	■	■	■						
heartscale *Atriplex cordulata* var. *cordulata*				■	■	■	■	■	■	■		
brittlescale *Atriplex depressa*				■	■	■	■	■	■	■		
vernal pool smallscale *Atriplex persistens*						■	■	■	■	■		
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*					■	■	■	■	■	■	■	
pappose tarplant *Centromadia parryi* ssp. *parryi*					■	■	■	■	■	■	■	
hispid salty bird's-beak *Chloropyron molle* ssp. *hispidum*						■	■	■	■			

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
recurved larkspur *Delphinium recurvatum*			■	■	■	■						
dwarf downingia *Downingia pusilla*			■	■	■							
Jepson's coyote-thistle *Eryngium jepsonii*				■	■	■	■	■				
San Joaquin spearscale *Extriplex joaquinana*				■	■	■	■	■	■	■		
Fragrant fritillary *Fritillaria liliacea*		■	■	■								
Bogg's Lake hedge-hyssop *Gratiola heterosepala*				■	■	■	■	■				
Carquinez goldenbush *Isocoma arguta*								■	■	■	■	■
Legenere *Legenere limosa*				■	■	■						
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*			■	■	■							
marsh microseris *Microseris paludosa*				■	■	■	■					
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*				■	■	■	■					
Bearded popcornflower *Plagiobothrys hystriculus*				■	■							
California alkali grass *Puccinellia simplex*			■	■	■							
Sanford's arrowhead *Sagittaria sanfordii*					■	■	■	■	■	■	■	
saline clover *Trifolium hydrophilum*				■	■	■						

Source: Data compiled by Ascent Environmental in 2018, Calflora 2018

Mitigation Measure 4.4-1b: Special-Status Plant Avoidance

If special-status plant species are found on the project site and are located outside of the permanent footprint of any proposed structures/site features and can be avoided, the project applicant will establish and maintain a protective buffer around special-status plants to be retained.

Mitigation Measure 4.4-1c: Special-Status Plant Impact Minimization Measures

If special-status plants are found during rare plant surveys and cannot be avoided, the project applicant will consult with CDFW and USFWS, as appropriate depending on species status, to determine the appropriate compensation to achieve no net loss of occupied habitat or individuals. Mitigation measures may include, but are not limited to, preserving and enhancing existing populations, creating offsite populations on mitigation sites through seed collection or transplantation at a 1:1 ratio, and restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Potential mitigation sites could include suitable locations within or outside of the campus. The project applicant will develop and implement a site-specific mitigation strategy describing how unavoidable losses of special-status plants will be compensated. Success criteria for preserved and compensatory populations will include:

- The extent of occupied area and plant density (number of plants per unit area) in compensatory populations will be equal to or greater than the affected occupied habitat. Compensatory and preserved populations will be self-producing. Populations will be considered self-producing when:
  - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
  - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity.

If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures will be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long term viable populations.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-1a through 4.4-1c would reduce significant impacts on special-status plants to a **less-than-significant** level because it would require identification and avoidance of special-status plants or provide compensation for loss of special-status plants through enhancement of existing populations, creation and management of offsite populations, conservation easements, or other appropriate measures.

Impact 4.4-2: Potential impacts to Special-status Wildlife

Construction activities, such as ground disturbance, grading, and vegetation removal could result in the disturbance to several special-status wildlife species, including California tiger salamander, giant garter snake, burrowing owl, California black rail, northern harrier, Swainson's hawk, tricolored blackbird, white-tailed kite, special-status branchiopods, and Delta green ground beetle. The loss of special-status wildlife species and their habitat would be a **potentially significant** impact.

A total of 11 special-status wildlife species have potential to occur within the project site and to be adversely affected by project implementation (Table 4.4-3). These species include California tiger salamander, giant garter snake, burrowing owl, California black rail, northern harrier, Swainson's hawk, tricolored blackbird, white-tailed kite, conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp.

Project activities including ground disturbance, grading, vegetation removal, and presence of construction vehicles, trucks, and personnel could result in disturbance or direct loss of these special-status species. Potential effects of project implementation on special-status wildlife species known of with potential to occur within the project site are discussed below.

California Tiger Salamander

California tiger salamander is listed as threatened under ESA and CESA. A habitat assessment for California tiger salamander was conducted within the project site in 2016, and it was determined that the project site contains potentially suitable aquatic breeding and upland habitat for this species (ESA 2016b). No California tiger salamanders were observed incidentally in the project site during focused branchiopod surveys (ESA 2016c). However, because potentially suitable habitat is present within the site, it is possible that the species could be present. Project activities, including ground disturbance, vegetation removal, grading, and permanent conversion of vernal pool and grassland habitat could result in disturbance or direct loss of California tiger salamander if present, and reduction of suitable habitat for the species in the region. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.4-2a: California Tiger Salamander Avoidance and Compensatory Mitigation for Habitat Loss

Prior to deepening and widening of the borrow pit and commencement of ground-disturbing activities within suitable habitat for California tiger salamander (i.e., grassland, vernal pools), the project applicant will implement the following measures to avoid direct loss of California tiger salamanders if present within the project site.

- A worker environmental awareness training shall be conducted to inform onsite construction personnel regarding the potential presence of listed species and the importance of avoiding impacts to these species and their habitat.
- A USFWS-approved biologist will conduct a pre-construction survey of the project site no more than two weeks before commencement of project construction activities.
- When feasible, there will be a 50-foot no-disturbance buffer around burrows that provide suitable upland habitat for California tiger salamander. Burrows considered suitable for California tiger salamander will be determined by a qualified biologist, approved by USFWS.
- All suitable burrows directly impacted by construction will be hand excavated under the supervision of a qualified wildlife biologist. If California tiger salamanders are found, the biologist will relocate the organism to the nearest burrow that is outside of the construction impact area.
- For work conducted during the California tiger salamander migration season (November 1 to May 31), exclusionary fencing will be erected around the construction site during ground-disturbing activities after hand excavation of burrows has been completed. A qualified biologist will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design will be subject to the approval of the USFWS. If exclusionary fencing is not used, a qualified biological monitor will be onsite during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.
- For work conducted during the California tiger salamander migration season (November 1 to May 31), a qualified biologist will survey the active work areas (including access roads) in mornings following measurable precipitation events. Construction may commence once the biologist has confirmed that no California tiger salamander are in the work area.
- Prior to beginning work each day, underneath equipment and stored pipes greater than 1.2 inches (3 cm) in diameter will be inspected for California tiger salamander. If any are found, they will be allowed to move out of the construction area under their own accord.
- Trenches and holes will be covered and inspected daily for stranded animals. Trenches and holes deeper than 1 foot will contain escape ramps (maximum slope of 2:1) to allow trapped animals to escape uncovered holes or trenches. Holes and trenches will be inspected prior to filling.
- All food and food-related trash will be enclosed in sealed trash containers at the end of each workday and removed completely from the construction site once every three days to avoid attracting wildlife.
- A speed limit of 15 mph will be maintained on dirt roads.
- All equipment will be maintained such that there are no leaks of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks will be cleaned up immediately and disposed of properly.
- Plastic monofilament netting (erosion control matting) or similar material will not be used at the Project site because California tiger salamander may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitat. If it is not feasible to store hazardous materials 100 feet from wetlands and the river channel, then spill containment measures will be implemented to prevent the possibility of accidental discharges to wetlands and waters.

- The applicant shall secure any necessary take authorization prior to project construction through formal consultation with USFWS pursuant to Section 7 of the ESA.

Prior to commencement of ground-disturbing activities within suitable habitat for California tiger salamander in the Triangle (i.e., grassland and vernal pools within the landfill expansion area), the project applicant will implement the following measures to compensate for loss of California tiger salamander habitat.

- The project applicant will provide suitable in-kind habitat that will be created, restored, and/ or set aside in perpetuity at a ratio of 3:1. Alternatively, credits will be purchased at a USFWS-approved conservation bank. Compensation plans will be subject to review and approval by USFWS. All compensation will be acquired or secured prior to the beginning of ground disturbance.
- In-kind habitat compensation will occur prior to initiation of ground or vegetation disturbance activities. Aquatic habitat will be provided for damage or loss of aquatic habitat and upland habitat will be provided for damage or loss of upland habitat. Compensation will be accomplished through the following options: 1) acquire land, by itself, or possibly in conjunction with a conservation organization, State park, State Wildlife Area, National Wildlife Refuge, or local regional park that provides occupied habitat; 2) purchase the appropriate credit units at a USFWS-approved conservation bank; 3) restore habitat to support the Central California tiger salamander; or 4) other method as determined by USFWS including participation within a HCP permit area.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2a would reduce impacts on California tiger salamander to a **less-than-significant** level because California tiger salamanders and their habitat would be avoided and protected from construction activities, and the project applicant would compensate for loss of suitable occupied habitat because of construction activities.

Giant Garter Snake

Giant garter snake is listed as threatened under ESA and CESA. There has been one recent (2017) observation of a dead giant garter snake approximately 7 miles east of the project site (CNDDB 2018). The project site contains potentially suitable habitat for giant garter snake within a drainage ditch that is potentially hydrologically connected to other irrigation ditches within the vicinity of the recent sighting, and within the borrow pit. Project activities, including removal and re-routing of the drainage ditch, ground disturbance, vegetation removal, and grading could result in disturbance or direct loss of giant garter snake if present. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.4-2b: Protection of Giant Garter Snake

Prior to deepening and widening of the borrow pit and commencement of ground-disturbing activities within suitable aquatic (i.e., irrigation ditches) or upland habitat (i.e., grassland habitat) for giant garter snake in the Triangle, the project applicant will implement the following measures to avoid direct loss of giant garter snake if present within the project site.

For projects or ground-disturbing activities with potential to disturb suitable aquatic or adjacent upland habitat for giant garter snake, the following measures will be implemented.

- The applicant shall retain a qualified biologist to conduct a field investigation to delineate giant garter snake aquatic habitat within the project footprint and adjacent areas within 300 feet of the project footprint. Giant garter snake aquatic habitat includes agricultural ditches. A report summarizing the results of the delineation shall be submitted to the Solano County Department of Resource Management within 10 days of the delineation.
- During construction, an approved biologist experienced with giant garter snake identification and behavior shall be onsite daily when construction activities within aquatic habitat or within 300 feet of aquatic habitat are taking place. The biologist shall inspect the project site daily for giant garter snake prior to construction activities. The biologist

will also conduct environmental awareness training for all construction personnel working on the project site on required avoidance procedures and protocols if a giant garter snake enters an active construction zone.

- All construction activity within giant garter snake aquatic and upland habitat in and around the site shall be conducted between May 1 and September 15, the active period for giant garter snakes. This would reduce direct impacts on the species because the snakes would be active and respond to construction activities by moving out of the way.
- If construction activities occur in giant garter snake aquatic habitat (i.e., irrigation ditches, the borrow pit, other habitat identified during the delineation of habitat), aquatic habitat shall be dewatered and then remain dry and absent of aquatic prey (e.g., fish and tadpoles) for 15 days prior to initiation of construction activities. If complete dewatering is not possible, the project applicant shall consult with CDFW and USFWS to determine what additional measures may be necessary to minimize effects to giant garter snake. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing shall be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing shall be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing shall be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Giant garter snake habitat outside construction fencing shall be avoided by all construction personnel. The fencing and the work area shall be inspected by the approved biologist to ensure that the fencing is intact and that no snakes have entered the work area before the start of each work day. The fencing shall be maintained by the contractor until completion of the project.
- If a giant garter snake is observed, the biologist shall notify CDFW and USFWS immediately. Construction activities will be suspended in a 100-foot radius of the garter snake until the snake leaves the site on its own volition. If necessary, the biologist shall consult with CDFW and USFWS regarding appropriate procedures for relocation. If the animal is handled, a report shall be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect giant garter snake within 1 business day to CDFW and USFWS. The biologist shall report any take of listed species to USFWS immediately. Any worker who inadvertently injures or kills a giant garter snake or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.
- All excavated steep-walled holes and trenches more than 6 inches deep shall be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches shall be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within giant garter snake modeled habitat shall be inspected for giant garter snake by the approved biologist prior to being moved.
- If erosion control is implemented on the project site, non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure snakes are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.
- The applicant shall ensure that there is no-net-loss of giant garter snake habitat by compensating for loss of habitat at a ratio of 1:1, by purchasing credits from a USFWS-approved conservation bank.
- Prior to construction, USFWS shall be consulted pursuant to Section 7 of the ESA. The activities may qualify to use the "Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California" (USFWS 1997). The Habitat Replacement & Restoration Guidelines (Appendix A), Items Necessary for Formal Consultation (Appendix B), Avoidance & Minimization Measures During Construction (Appendix C), and Monitoring Requirements (Appendix D) shall be followed.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2b would reduce impacts on giant garter snake to a **less-than-significant** level because giant garter snakes and habitat would be avoided and protected from construction activities, and the project applicant would compensate for loss of suitable occupied habitat because of construction activities.

Special-status Branchiopods

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Vernal pool fairy shrimp is listed as threatened under ESA, and vernal pool tadpole shrimp is listed as endangered under ESA. A branchiopod survey of the project site was conducted in 2016, and vernal pool fairy shrimp and vernal pool tadpole shrimp were detected within vernal pools on the project site (ESA 2016c). Project construction activities, including conversion of vernal pool habitat, ground disturbance, and vegetation removal, could result in disturbance or removal of vernal pool fairy shrimp and vernal pool tadpole shrimp and their habitat. This would be a **potentially significant** impact.

Conservancy fairy shrimp

Conservancy fairy shrimp is listed as endangered under ESA. Conservancy fairy shrimp was not detected during wet season surveys of the vernal pools, including the playa pool, on the project site; however, the species could not be ruled out due to the presence of *Branchinecta* cysts observed during the wet and dry seasons that could not be identified to the species level and therefore may be attributed to Conservancy fairy shrimp (ESA 2016c). Conservancy fairy shrimp prefer large, turbid playa-like vernal pools rather than small pools with short hydroperiods. Suitable habitat on the project site for this species includes the large playa pool, and likely does not include the smaller vernal pools on the project site. Project implementation would include conversion of the northern end of the large playa pool within the triangle. The northern end of the playa pool is shallower than the remaining majority of the pool, and likely does not exhibit the preferred conditions for Conservancy fairy shrimp (ESA 2017b). However, conversion of the large playa pool could result in indirect impacts to the playa pool, including introduction of sediments or changes in hydrology. This would be a **potentially significant** impact.

Guidance has been described in the *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California* (USFWS 1996) (Programmatic Biological Opinion [BO]) for estimating impacts to vernal pool crustaceans and suitable habitat. In assessing impacts, both direct and indirect, to vernal pool crustaceans, the guidelines outlined in the Programmatic BO were used, even though the proposed action does not qualify for approval under the Programmatic BO because it would result in impacts greater than 1 acre.

Mitigation Measures

Mitigation Measure 4.4-2c: Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp Habitat Compensation for Direct Effects

The project applicant shall implement the following measures to minimize and compensate for loss of vernal pool fairy shrimp and vernal pool tadpole shrimp and suitable habitat prior to ground-disturbing activities.

The following mitigation shall occur prior to ground-disturbing activities and approval of improvement plans for the lateral expansion and any project phase that would allow work within 250 feet of such habitat, and before any ground-disturbing activity within 250 feet of the habitat.

- Habitat Preservation: The applicant, in consultation with USFWS, shall compensate for direct effects of the project on potential habitat for vernal pool fairy shrimp, conservancy fairy shrimp, and vernal pool tadpole shrimp at a ratio of 2:1, by purchasing vernal pool preservation credits from a USFWS-approved conservation bank. Compensation credits shall be purchased prior to any ground-disturbing activities.

- Habitat Creation: The applicant shall compensate for the direct effects of the project on potential habitat for vernal pool fairy shrimp, conservancy fairy shrimp, and vernal pool tadpole shrimp at a ratio of 1:1, by purchasing vernal pool creation credits from a USFWS-approved conservation bank.
- For seasonal wetlands and drainages that shall be retained on the site (i.e., those not proposed to be filled), a minimum setback of at least 50 feet from these features will be avoided on the project site. The buffer area shall be fenced with high visibility construction fencing prior to commencement of ground-disturbing activities and shall be maintained for the duration of construction activities.
- A worker environmental awareness training shall be conducted to inform onsite construction personnel regarding the potential presence of listed species and the importance of avoiding impacts to these species and their habitat.
- The applicant shall secure any necessary take authorization prior to project construction through consultation with USFWS pursuant to Section 7 of the ESA.
- Documentation of habitat preservation, habitat creation, and take authorization shall be provided to the County following approval by USFWS.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2c would reduce significant impacts on vernal pool fairy shrimp, and vernal pool tadpole shrimp and suitable habitat to a **less-than-significant** level because it would offset the impact through preserving vernal pool habitat at a ratio of 2:1 and the creation of vernal pool habitat at a ratio of 1:1 within a USFWS-approved mitigation bank or onsite habitat enhancement and protection subject to USFWS approval.

Mitigation Measure 4.4-2d: Protection of Conservancy Fairy Shrimp Habitat From Indirect Effects

The project applicant shall implement the following measures to minimize indirect effects to Conservancy fairy shrimp habitat prior to any ground-disturbing activities within or adjacent to the playa pool on the project site.

- During the dry season, when the playa pool is completely devoid of water, the project applicant shall construct a permanent, impermeable barrier along the southern boundary of the new disposal area within the Triangle that overlaps the playa pool. The barrier will be designed to prevent stormwater runoff or sediment discharge between the project site and the playa pool and will remain in place after construction to prevent operation-related discharge into the playa pool. The barrier shall be constructed of material that prevents discharge into the playa pool, including but not limited to: an earthen levee, steel sheet piles, or concrete riprap. Final design plans shall be reviewed and approved by a qualified biologist and the County.
- The project site will be graded in a manner that prevents surface water flow from the project site into the playa pool.
- A worker environmental awareness training shall be conducted to inform onsite construction personnel regarding the potential presence of listed species and the importance of avoiding impacts to these species and their habitat.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2d would reduce significant impacts on conservancy fairy shrimp habitat to a **less-than-significant** level because it would prevent indirect effects to suitable habitat for this species within the playa pool by preventing sediment discharge from the project site.

Burrowing Owl

Burrowing owl is a California species of special concern. Potentially suitable breeding habitat is present within the grassland on the project site. Suitable burrows and ground squirrel activity were not observed during the 2017 reconnaissance-level survey; however, there are known occurrences of burrowing owl within less than 2 miles of the project site. It is feasible that nearby burrowing owls could prospect and breed within the project site. Project activities, such as ground disturbance, grading, and vegetation removal could result in disturbance to burrowing owls, as well as direct loss of owls (i.e., adults, chicks, eggs) and burrows if present. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.4-2e: Protection of Burrowing Owl

Prior to ground disturbance, grading, or vegetation removal activities for the lateral expansion (Triangle), the project applicant will implement the following measures:

- The applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of the project site. Surveys shall be conducted prior to the start of construction activities and in accordance with Appendix D of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to CDFW and no further mitigation will be required.
- If an active burrow is found during the nonbreeding season (September 1 through January 31), the applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be excluded from occupied burrows until the project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls.
- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to ensure burrowing owls are not detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report.
- If active burrowing owl nests are found on the site and are destroyed by project implementation, the project applicant shall mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW 2012 Staff Report, which states that permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that habitat acreage, number of burrows, and burrowing owls impacted are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:
    - Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species range wide.
    - If feasible, mitigation lands shall be provided adjacent or proximate to the site so that displaced owls can relocate with reduced risk of take. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient suitable habitat to support displaced owls that may be preserved in perpetuity.
    - If suitable habitat is not available for conservation adjacent or proximate to the project site, mitigation lands shall be focused on consolidating and enlarging conservation areas outside of urban and planned growth areas and within foraging distance of other conservation lands. Mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. If mitigation credits are not

available from an approved bank and mitigation lands are not available adjacent to other conservation lands, alternative mitigation sites and acreage shall be determined in consultation with CDFW.

- If mitigation is not available through an approved mitigation bank and will be completed through permittee-responsible conservation lands, the mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as suggested in the 2012 Staff Report, shall include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2e would reduce potential impacts on burrowing owl to a **less-than-significant** level because burrowing owls would be avoided and protected from construction activities, or the project applicant would compensate for project-related loss of suitable occupied habitat.

Swainson's Hawk, White-Tailed Kite, Tricolored Blackbird, Northern Harrier, California Black Rail

California black rail and Swainson's hawk are listed as threatened under CESA and California black rail is also a fully protected species under California Fish and Game Code. White-tailed kite is also fully protected under Fish and Game Code. Tricolored blackbird is a candidate for listing under CESA and is currently a California species of special concern. Northern harrier is a California species of special concern. Potentially suitable nesting habitat for tricolored blackbird and California black rail is present within the Bird Sanctuary area adjacent to the Triangle, and within vegetation along drainage ditches on and adjacent to the project site. Northern harrier could nest within the grassland habitat within the project site, and Swainson's hawk and white-tailed kite could nest within trees within and adjacent to the project site. Additionally, project plans include the conversion of approximately 17 acres of potentially suitable grassland Swainson's hawk foraging habitat within the Triangle.

Project activities, such as ground disturbance, vegetation removal, and presence of construction equipment, vehicles, and personnel could result in disturbance to special-status bird species or direct loss of adults, chicks, or eggs, if present within the project site. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.4-2f: Special-status and Other Nesting Bird Surveys and Avoidance

Prior to any ground disturbances for the lateral expansion (Triangle), the applicant will implement the following measures to reduce impacts on special-status bird species:

- To minimize the potential for disturbance or loss of tricolored blackbird, northern harrier, California black rail, or other bird nests, vegetation removal activities will only occur during the nonbreeding season (September 1-January 31). If all suitable nesting habitat (e.g., trees, grassland) is removed during the nonbreeding season, no further mitigation would be required.
- Prior to removal of any vegetation or any ground disturbance between February 1 and August 31, a qualified biologist will conduct preconstruction surveys for nests within 0.5 mile of the project site for Swainson's hawks, 500 feet for other nesting raptors, and 100 feet for all other birds. The surveys will be conducted no more than 30 days before construction commences.
- If no active nests are found during focused surveys, no further action under this measure will be required.
- If active nests are located during the preconstruction surveys, the biologist will notify CDFW. Impacts to nesting Swainson's hawks, other raptors, or other nesting birds shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. Project activity shall not commence within the

buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of 0.5-mile-wide buffer for Swainson's hawk, 500 feet for other raptors, and 100 feet for other nesting birds, but the size of the buffer may be adjusted if a qualified biologist and the project applicant, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities shall be required if the activity has potential to adversely affect the nest.

Mitigation Measure 4.4-2g: Swainson's Hawk Foraging Habitat Mitigation

To mitigate for the loss of approximately 17 acres of suitable Swainson's hawk foraging habitat, the project applicant shall implement a Swainson's hawk mitigation plan consistent with the following but not limited to the requirements described below:

- Prior to site disturbance associated with the landfill expansion, such as clearing or grubbing within the Triangle, building, or other site improvements, or recordation of a final map, whichever occurs first, the project applicant shall acquire suitable Swainson's hawk foraging habitat as determined by CDFW.
- The project applicant shall preserve through conservation easement(s) or fee title one acre of similar habitat for each acre affected or shall purchase credits from a CDFW-approved mitigation bank in Solano County at the same ratio.
- The project applicant may transfer said easement(s) or title to CDFW and a third-party conservation organization as acceptable to CDFW. Such third-party conservation organizations shall be characterized by non-profit 5019(c)(3) status with the Internal Revenue Service.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-2f would minimize impacts on nesting special-status birds, raptors, and other migratory birds by requiring pre-construction surveys and protection of active nests within and adjacent to the project site. Implementation of Mitigation Measure 4.4-2g would reduce impacts to Swainson's hawk foraging habitat by requiring compensation for habitat loss. With implementation of these mitigation measures and for the aforementioned reasons, impacts would be **less than significant**.

Impact 4.4-3: Potential impacts to Wetlands, Vernal Pools, and Other Waters of the United States and State

Potentially jurisdictional vernal pools, vernal pool swales, open water, detention basins, and drainage ditches are present within the project site. Future land use changes and development would result in conversion of these wetlands and vernal pools to urban uses. Loss or degradation of wetland or vernal pool habitat would be a **potentially significant** impact.

The project site contains wetland habitat within vernal pools, vernal pool swales, a detention basin, open water within the Bird Sanctuary and borrow pit area, and drainage ditches. An aquatic resources delineation of the project site concluded that approximately 5.7 acres of potentially jurisdictional wetland habitat, located primarily within the Triangle, would be adversely affected by project construction activities, including 4.8 acres of vernal pool habitat, 0.8 acres of drainage ditch habitat, and a 0.04-acre detention basin (Figure 4.4-1, ICF 2017). This would be a **potentially significant** impact.

Mitigation Measures

Mitigation Measure 4.4-3: Wetland Delineation Verification, Permitting, and Compensatory Mitigation

Prior to ground disturbance, grading, or vegetation removal activities within undeveloped areas of the project site (including ditches) the project applicant will implement the following measures:

- Wetlands and vernal pools are of special concern to resource agencies and are afforded specific consideration, based on Section 404 of the CWA and other applicable regulations. An updated delineation of waters of the United States or state, including wetlands that would be affected by the project, was completed by ICF in 2017 (ICF 2017). This delineation shall be submitted to and verified by USACE. If, based on the verified delineation, it is determined that fill of waters of the United States or state would result from implementation of the project, authorization for such fill shall be secured from USACE through the 404 permitting process.
- Any waters of the United States that would be affected by project development shall be replaced or restored on a "no-net-loss" basis in accordance with USACE mitigation guidelines (or the applicable USACE guidelines in place at the time of construction). In association with the Section 404 permit (if applicable) and prior to ground disturbance, grading, or vegetation removal activities within undeveloped areas of the project site (including ditches), Section 401 Water Quality Certification from the RWQCB shall be obtained.
- If it is determined that waters subject to jurisdiction by CDFW are present within the project site following the delineation of waters of the United States and state, and that site development would affect the bed, bank, or channel, a Streambed Alteration Notification will be submitted to CDFW, pursuant to Section 1600 et seq. of the California Fish and Game Code. If proposed activities are determined to be subject to CDFW jurisdiction, the project proponent will abide by the conditions of any executed agreement prior to ground disturbance, grading, or vegetation removal activities within undeveloped areas of the project site (including ditches). Several aquatic features onsite, including intermittent streams, would likely fall under the jurisdiction of CDFW.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-3 would reduce impacts to wetlands, other waters of the United States, and waters of the state to a **less-than-significant** level because it would result in no net loss of functions and acreage of wetlands, vernal pools, and other waters through implementation of USACE mitigation guidelines.

Impact 4.4-4: Impacts to Wildlife Migratory Corridors

Future land use changes and development within the project site would result in loss of grassland and vernal pool habitats but would not substantially impede wildlife movement because the project site is relatively small, mostly developed, and is surrounded by roads and agricultural development. The project site does not contain any native wildlife nursery sites. Impacts to movement corridors and habitat connectivity for these species would be **less than significant**.

While the project site is mostly developed, the Triangle contains vernal pool grassland habitat that is contiguous with the same habitat in the Eastern Mitigation Area and the Burke Ranch conservation bank to the southwest (Figure 4.4-1). The Triangle and portions of the Western and Eastern Mitigation Areas are located within natural landscape blocks, but the project site does not contain any portion of an Essential Connectivity Area (Figure 4.4-2). The project site itself is mostly developed and is bordered by Hay Road to the north and SR 113 to the east. The project site is otherwise surrounded by extensive agricultural development; especially to the north, east, and west. The project site does not contain portions of any creeks or rivers that would serve as wildlife corridors, nor does the project site contain any nursery sites. Because of the relatively small size of the project site and its proximity to existing agricultural and urban development and roads, the project site is not expected to provide significant connectivity for wildlife movement between important habitats or core areas within the region or contain any portion of a major or local wildlife corridor. Therefore, impacts to wildlife corridors or nursery sites would be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact 4.4-5: Conflict with the Solano County General Plan

Project implementation could result in impacts to natural resources and conversion of vernal pool habitat within an area identified as a high-priority habitat area in the Solano County General Plan, potentially resulting in a conflict with the Plan. This would be a **potentially significant** impact.

The Solano County General Plan contains resource goals to preserve wildlife habitat and natural resources, including special-status species, wetlands, sensitive natural communities, oak woodlands, and heritage oak trees (Solano County 2008). The project site is located within the Solano County General Plan "resource conservation overlay" (Solano County 2008: Figure RS-1 and RS-2) which includes an area identified as a containing high-priority habitat. Project implementation could result in adverse effects to special-status plants, special-status wildlife, and vernal pool grassland habitat. However, all significant impacts would be reduced to a less-than-significant level with implementation of previously discussed mitigation measures (i.e., Mitigation Measures 4.4-1a, 4.4-1b, 4.4-1c, 4.4-2a, 4.4-2b, 4.4-2c, 4.4-2d, 4.4-2e, 4.4-2f, 4.4-2g, and 4.4-3 of this SEIR). Additionally, the project site does not contain any native oak trees, and no trees on the site are planned for removal.

Mitigation Measures

Implement Mitigation Measures 4.4-1a, 4.4-1b, 4.4-1c, 4.4-2a, 4.4-2b, 4.4-2c, 4.4-2d, 4.4-2e, 4.4-2f, 4.4-2g, and 4.4-3 as described in this section.

Significance after Mitigation

Implementation of the above previously-described mitigation measures would result in consistency with the Solano County General Plan. Impacts would be **less than significant**.

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