4.3 BIOLOGICAL RESOURCES

The information contained in this analysis is primarily based on the *Biological Resources Report, Highway 12 Logistics Center, Suisun City, Solano County, California* and the *Permittee-Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Mitigation Management Plan for the Highway 12 Logistics Center, Solano County, California* both prepared by the Huffman-Broadway Group (HBG). Additional details on plant and wildlife species presence are based upon field surveys performed by Vollmar Consulting, Helm Biological Consulting, and Area West Environmental. Full species lists and habitat mapping, as well as survey results, are provided in Appendix C.

Issues identified in response to the NOP were considered in preparing this analysis. Comments received on the NOP related to biological resources included recommendations for baseline habitat assessments of special status species, wetland creation/preservation and associated acreages, and sensitive plant and wildlife species presence on the Project Site. The City has incorporated applicable suggestions from NOP responses into this section.

4.3.1 ENVIRONMENTAL SETTING

REGIONAL SETTING

The Project Site is in southwestern Solano County within the Sacramento Valley geographic sub region of the Great Central Valley. The Central Valley is a north-south oriented valley that extends approximately 430 miles from southern Tehama County to south-central Kern County in southern California. Elevations range from approximately sea level to 400 feet above mean sea level (msl). Now predominantly agricultural, the central valley once supported grassland (California Prairie), marshes, extensive riparian woodlands, and valley-oak savanna. The Sacramento Valley is the smaller, wetter, northern sub-region of the Central Valley, extending from Red Bluff in Tehama County to the salt marshes of the Suisun Marsh in southwestern Solano County.

The proposed Project Development Area is adjacent to the Suisun Marsh, while portions of the Open Space Management Area are located within the Marsh itself. The Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America. It is a critical migratory stop for birds using the Pacific Flyway and a critical part of the San Francisco Bay-Delta estuary ecosystem. Encompassing 116,000 acres, the Suisun Marsh includes vernal pools, managed wetlands, upland grasslands, tidal wetlands, bays, and sloughs. It is home to public and private waterfowl hunting areas, supports the state's commercial salmon fishery by providing important tidal rearing areas for juvenile fish, and provides important habitat for many rare plant and animal species indigenous to California. Additionally, the Marsh has 230 miles of levees that provide critical protection of the drinking water for 22 million people by preventing saltwater intrusion into the Delta.

PROJECT SITE OVERVIEW

The Project Site consists of the proposed Development Area (Planning Areas 1, 2, and 3) and the Managed Open Space area (see Chapter 3, Project Description, of this EIR).

Suisun Marsh is south of the Project Site, and marshland associated with Suisun Marsh occurs in southern portions of the Project Site. The Managed Open Space area south of Cordelia Road and Cordelia Street is bordered on the west by Orehr Road, on the east by the UPRR, and on the south by the upper Suisun Marsh. The UPRR tracks along the eastern boundary of this portion of the Project Site separate the area south of Cordelia

Road and Cordelia Street from the Peytonia Slough Ecological Reserve, a California Department of Fish and Wildlife ecological reserve.

Proposed Development Area of the Project Site (Planning Areas 1, 2, and 3)

Planning Area 1 (PA-1) and Planning Area 2 (PA-2) are west of Pennsylvania Avenue and north of Cordelia Road and consist of nearly level grazed upland annual grasslands, seasonally saturated annual grasslands, vernal pool, and alkali seasonal wetland. The upland annual grasslands and seasonally saturated annual grasslands are dominated by introduced annual grass species. Within Planning Area 1, there is one vernal pool that covers approximately 8 acres. The vernal pool appears to have formed or was enhanced due to the construction of a berm along Pennsylvania Avenue and partially blocked culverts. The alkali seasonal wetlands are dominated by halophytes such as brass buttons (C*otula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed *(Salicornia pacifica*). Elevation within the site ranges from 5 to 10 feet msl.

Planning Area 3 (PA-3), the approximately 10.7-acre portion of the Development Area east of Pennsylvania Avenue, is bordered by Pennsylvania Avenue Creek along the eastern perimeter of the Planning Area and consists of upland annual grasslands, alkali seasonal wetlands, one vernal pool that covers approximately 6 acres, and a perennial brackish marsh. Planning Area 3 is grazed and supports annual grasslands dominated by introduced annual grass species. The vernal pool appears to have been formed or enhanced by the construction of a berm along the channelized perennial brackish marsh abutting the eastern boundary and an elevated landfill abutting the northern boundary. The alkali seasonal wetlands and vernal pool are dominated by halophytes such as brass buttons (C*otula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed *(Salicornia pacifica*).

Managed Open Space Area

As part of the proposed Project, 393.2 acres would be Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. This area comprises 57 acres of the proposed Annexation Area that would not be developed, a 4.5-acre parcel in the northeastern corner of the proposed Project Site that is currently within the City's municipal boundary, and 331.7 acres southeast of Cordelia Road and south of the California Northern Railroad line. The *Biological Resources Report, Highway 12 Logistics Center, Suisun City, Solano County, California, provided as Appendix C to this EIR,* (Appendix C) describes the proposed Managed Open Space. Managed Open Space would be required to be managed consistent with the Suisun Marsh Protection Plan and in accordance with permit conditions required by applicable regulatory agencies, including the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and the San Francisco Bay Conservation and Development Commission.

As shown in Exhibit 3-3 of the Project Description of this EIR, the portion of the Project Site east of Pennsylvania Avenue and north of the California Northern Railroad line to be Managed Open Space is adjacent to, but outside of, the management areas identified under the Suisun Marsh Protection Plan per the Suisun Marsh Preservation Act, as further detailed below under the "Regulatory Framework" below. This area is dominated by a mix of wetland and upland habitats. A perennial brackish marsh drainage channel (which is a tributary to Pennsylvania Avenue Creek) runs north to south through the western portion of this portion of the site. This ditch carries stormwater runoff from the city of Fairfield and may also convey runoff from natural drainages north of Fairfield. It flows directly to a slough feeding into Suisun Bay (i.e., Peytonia Slough) and is subject to tidal fluctuation. West of the drainage channel are several medium to large seasonal wetlands, including both vernal pools and alkali seasonal wetlands. These aquatic features are not tidally influenced. The property east of the drainage

channel supports perennial brackish marsh with dense stands of cattail (*Typha* sp.), California bulrush (S*choenoplectus californicus*), and pickleweed. These wetlands receive tidal flow from the perennial brackish marsh drainage channels, which are open to this portion of the site. The limited upland areas on the site support introduced annual grassland.

The entire 331.7-acre portion of the Project Site south of Cordelia Road and Cordelia Street is proposed for Managed Open Space and is within the management areas identified in the Suisun Marsh Protection Plan. The majority this area is located within the Primary Management Area prescribed by the Suisun Marsh Protection Plan, with a portion in the southeastern corner of the Project Site being within the Secondary Management Area. This portion of the Project Site consists of nearly level terrain with a gentle slope trending south-southeast toward Peytonia Slough Ecological Reserve. Elevation ranges from approximately 10 feet msl to sea level. The higher areas in the northern portions of the property support introduced, nearly level, grazed, upland annual grasslands with interspersed seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands. Lower areas in the southern portion are dominated by muted tidal perennial brackish marsh.

Peytonia Slough and several smaller unnamed sloughs cut through the perennial brackish marsh habitat. These sloughs are subject to muted tidal fluctuations and are hydrologically connected to Suisun Slough via a culvert under the railroad tracks. Ledgewood Creek, which originates in the Gordon Valley several miles to the northwest, bisects this area north to south discharging freshwater into Peytonia Slough. There is one wetland drainage channel that traverses the property from north to south. This perennial brackish marsh drainage channel is muted tidal, conveys stormwater runoff from the City of Fairfield and is hydrologically connected to Peytonia Slough. This lower portion of Ledgewood Creek and the perennial brackish marsh drainage channel are subject to muted tidal fluctuations and support bankside stands of perennial brackish marsh vegetation. The perennial brackish marsh drainage channel has an inoperative flap gate a few hundred yards south of Cordelia Road that prevented tidal backflow when it was operating.

The topographic relief on most of the site is flat with slopes ranging from two to three percent. Elevations range on the majority of the Project Site from 15 feet to 0 feet msl (HBG 2006). A review of the Natural Resources Conservation Service (NRCS) Soil Survey maps for Solano County (USDA 2022) shows five soil types occurring within the Project Site. A soils map of the Project Site is shown in Exhibit 4.5-3 in DEIR Section 4.5, "Geology, Soils, Minerals, and Paleontological Resources." Field investigations confirmed that the NRCS soils mapping is reasonably accurate throughout the Project Site.

The Hydrologic Unit Code (HUC) watershed boundaries encompassing the Project Site are shown for the HUC 8, HUC 10, and HUC 12 watershed boundaries in Figures 8, 9, and 10 in Appendix C, respectively. According to the USGS National Hydrography Dataset, the Project Site is in HUC 8 Suisun Bay subbasin and within the HUC 10 Suisun Bay watershed with a portion in the HUC 10 Wooden Valley Creek-Frontal Suisun Bay Estuaries watershed.

The source of inundation of the perennial brackish marsh is the muted tide which enters through Peytonia Slough by way of a culvert under the UPRR. The culvert under UPRR appears to be undersized, which likely restricts flows causing a "muted" tidal cycle. The ebb and flow of the tide enters Peytonia Slough from the Suisun Slough which receives tidal waters from Grizzly Bay.

The primary source of inundation of the seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands is direct precipitation. Pooling surface water and saturation below the soil surface is driven by direct precipitation during the winter months. During heavy storm events, the pooling water may overflow into the adjacent perennial brackish marsh. Once precipitation for the winter or spring ends, surface water and soil saturation remain until the water has evaporated. The hydrology within these wetlands is not driven by the influence of tides, snow melt, or seasonal groundwater.

Federal Emergency Management Agency rate map shows that the Project Site is in Zone A, which has 0.1 percent annual chance of flooding.

Table 4.3-1. Pertinent Characteristics of Soils Mapped within the Project Site

Map Unit Symbol and Unit Name	Landform / Landform Position	Depth to Restrictive Feature	Slope	Drainage Class	Depth to Water Table	Frequency of Flooding/Ponding
St – Sycamore silty clay loam, saline	Alluvial Fans	36 inches	0-2%	Somewhat poorly drained	36 to 60 inches	None / None
Pc – Pescadero silty clay loam, 0 percent slopes, MLRA 17	Basin Floors	4 inches	0%	Somewhat poorly drained	4 to 85 inches	None-Rare / Frequent
An – Alviso silty clay loam	Tidal Flats	80+ inches	0-2%	Poorly drained	24 to 36 inches	Rare / None
Ja – Joice muck, MLRA 16	Tidal Flats	80+ inches	0-2%	Very poorly drained	24 to 36 inches	Frequent to None / Frequent
Ma – Made Land[1]	Toeslopes	80+ inches	N/A	Well drained	80+ inches	None / None

Notes: N/A = not available.
[1] "Made land" consists of land that has been substantially modified by human activity and may partially consist of artificial fill.
Source: USDA 2022

VEGETATION COMMUNITIES

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Table 4.3-2 summarizes the vegetation communities identified on various portions of the Project Site during field investigations.

Table 4.3-2. Plant Communities Observed on the Project Site

Plant Community	Project Development Area (acres)	Managed Open Space—Outside Project Development Area (acres)	Total within Project Site (acres)
Upland Habitat			
Upland Annual Grasslands	54.2	98.2	152.4
Seasonal Wetlands			
Seasonally Saturated Annual Grassland	16.3	62.6	78.9
Vernal Pool	14.1	5.7	19.8
Akali Seasonal Wetland	7.4	39.0	46.4

Plant Community	Project Development Area (acres)	Managed Open Space—Outside Project Development Area (acres)	Total within Project Site (acres)
Perennial Wetlands			
Perennial Brackish Marsh	<0.01	176.3	176.3

The following is a summary of these vegetation communities within the Project Site. Additional information, including an inventory of plant species found on the Project Site during biological studies and a vegetation communities map, is available in Appendix C.

Upland Annual Grasslands (152.4 acres). Upland portions of the Project Site within all three planning areas support introduced upland annual grassland. A variety of native and non-native herbs also occur within the grasslands. In low-lying areas and areas bordering wetlands, species composition shifts to include some marginal wetland indicator species such as Italian ryegrass (*Festuca perenne*) and Mediterranean barley (*Hordeum marinum var. gussoneanum*). In general, there is a very low occurrence of noxious weeds within the grasslands such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Elymus caput-medusae*) (3 CCR § 4500 Noxious Weed Species).

Vernal Pools (19.8 acres). Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater from the pool basins. They are inundated throughout the winter and gradually dry during the spring and summer though evaporation and plant transpiration. The vernal pools then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools may support a unique assemblage of plants and animals specifically adapted to their unique hydrologic regime and soil chemistry. They are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

The vernal pools are concentrated in the north central portion of the Project Site, including the eastern portion of the Planning Area 1 and northeastern portion of Planning Area 3; no vernal pools are present in Planning Area 2. Many of the pools appear to have formed or were enhanced due to the construction of berms, unmaintained roadside ditches, and partially blocked culverts on the site. The partially blocked culverts and berms and ditches may collect and block the flow of water across the landscape. This is especially true in the northern portion of the Project Site within the proposed Annexation Area. The large vernal pool within Planning Area 1 may be the result of, or enhanced by, the adjacent berm that runs parallel to Pennsylvania Avenue and the unmaintained and partially blocked culvert along Pennsylvania Avenue.

Alkali Seasonal Wetland (46.4 acres). The alkali seasonal wetlands form in low-lying basins and clay flats. They become seasonally inundated or saturated during the rainy season and gradually dry through the spring and early summer. The salinity comes from residual salts concentrated in a buried silty clay loam soil horizon within the predominant soil type (Sycamore silty clay, saline).

Alkali seasonal wetlands are scattered throughout the Project Site, including in the northeastern portion of the Planning Area 1 and western portion of Planning Area 3. The alkali seasonal marsh generally lacks vernal pool indicator species.

Seasonally Saturated Annual Grasslands (78.9 acres). Given the very flat topography across the overall Project area, there are broad transitional wetland areas between the low-lying seasonal wetlands (vernal pools and alkali

seasonal wetlands) and the surrounding upland annual grasslands. These transitional areas have prolonged periods of surface and subsurface saturation but are rarely inundated. The dominant plants include a mix of facultative wetland species associated with both the annual grasslands and alkali seasonal marsh. Seasonally saturated annual grasslands are generally located adjacent to alkali seasonal marsh and perennial brackish marsh throughout the Project Site, including in Planning Areas 1 and 2; this vegetation community is not present in Planning Area 3.

Perennial Brackish Marsh (176.3 acres). Perennial brackish marsh occurs throughout the southern and southeastern portions of the area south of Cordelia Road and Cordelia Street and dominates the eastern portion of the proposed Annexation Area. Within the proposed Development Area, perennial brackish marsh is only present in the eastern portion of Planning Area 3. This habitat occurs in estuarine environments where there is a mixing of fresh and salt waters such as occurs in the Delta region. The soils are perennially inundated or saturated and are generally subject to some level of tidal fluctuation. The perennial brackish marsh habitat found in the Project area is subject to tidal fluctuations that extend from Suisun Bay, up tidal sloughs, and into drainage ditches that traverse the properties. The ditch within the eastern portion of the annexation area has one branch that extends northeast and provides water to the marsh habitat. In addition, water levels become elevated during the rainy season and gradually lower during the spring through evaporation, transpiration, and drainage. This is especially true for the northern portion of the marsh. The majority of alkalinity within the marsh habitat comes from residual salts in the silty clay soils in addition to salts carried through tidal fluctuations.

Dominant plant species within perennial brackish marsh in the area south of Cordelia Road and Cordelia Street include a broad range of perennial emergent monocots, and herbaceous and woody dicots, often occurring in a mosaic dependent on local soil conditions, hydrologic regime, and micro-elevation. Low-lying areas and the lower banks of sloughs are dominated by tall, dense emergent monocots. Upper slough banks are dominated by a mix of woody dicots. The special status plants delta tule pea (*Lathyrus jepsonii ssp. Jepsonii*) and Suisun Marsh aster (*Symphyotrichum lentum*) occur in scattered locations along the upper slough banks (see "Special Status Species" section below). Open areas along some of the smaller slough channels support native herbs. There are also dense stands of pickleweed and saltgrass in some low-lying areas away from the slough channels.

WILDLIFE POPULATIONS

The Project Site provides habitat for wildlife species, mostly those adapted to open grassland and wetland habitat areas, pasturelands, and somewhat disturbed environments. Both upland and wetland grasses and herbaceous plants within the Project Site provide nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. The complex of habitats includes the presence of standing water, on a seasonal basis, which can accommodate wildlife adapted to aquatic areas. Seasonal wetlands provide wildlife with a seasonal water source that supports various animal species during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. Tidal wetlands in the southern portion of the Project Site provide aquatic habitat for wildlife on regular tidal cycles. Significant riparian habitat is found within the portion of Ledgewood Creek that is adjacent to and just west of the Project Site. This portion of Ledgewood Creek, just beyond the western boundary of the Project Site, is considered a wildlife corridor. Ledgewood Creek was channelized by the U.S. Army Corps of Engineers for flood control and is currently managed by the Fairfield-Suisun Sewer District for flood control purposes.

A list of wildlife species observed on-site or expected to use the site was obtained through habitat reconnaissance, field observation, and literature sources. A complete listing of the references from which information was compiled on the flora and fauna inhabiting the region is contained in Chapter 8, "References," of this EIR. Wildlife observations were also made during site reconnaissance visits conducted by HBG both during preparation of the 2006 Biological Assessment and during more recent evaluations conducted in 2020, 2021 and early 2022. Table 4.3-4 provides species lists based on these reconnaissance level observations for reptiles, amphibians, birds, and mammals. The table lists wildlife species observed or expected to occur within the Project Site. The table includes the scientific names of all species mentioned in the text.

Several wildlife species were observed on the site during the site reconnaissance conducted by HBG's wildlife biologist in the summer of 2005 (during preparation of the 2006 Biological Assessment) and during the summer of 2022. All species are common to abundant in the region and would be expected in the combination of grassland and wetland habitats present at the site. Some of the species observed at the site could nest on-site or in the vicinity.

Raptors (birds of prey) observed foraging over the on-site grasslands and wetlands included red-tailed hawk, northern harrier, and American kestrel. Additional birds documented within on-site grasslands included Canada goose, American white pelican, killdeer, rock pigeon, mourning dove, Anna's hummingbird, European starling, American crow, northern mockingbird, black phoebe, western kingbird, loggerhead shrike, savannah sparrow, western meadowlark, Brewer's blackbird, brown-headed cowbird, house finch, and house sparrow. Both cliff swallows and barn swallows were observed nesting underneath bridge structures over the creeks and various drainages and foraging over the Project Site grasslands. Additional avian species that were observed flying over the site during the surveys included turkey vulture and white-throated swift. Observed within areas of seasonal and perennial marsh were great blue heron, green heron, great egret, snowy egret, marsh wren, common yellowthroat, Suisun song sparrow, and red-winged blackbird. Several water birds and shorebirds were found only in the northeastern portion of the Project area, including American bittern, black-necked stilt, and long-billed curlew.

Patches of riparian habitat at the site could support additional species such as northern flicker, California towhee, and lesser goldfinch, and wintering species such as ruby-crowned kinglet, yellow-rumped warbler, and golden-crowned and white-crowned sparrows. More extensive offsite riparian habitats of Ledgewood Creek could support migratory breeding species such as Pacific-slope flycatcher, warbling vireo, black-headed grosbeak, and Bullock's oriole.

Special status bird species observed during on-site surveys conducted by HBG biologists included the northern harrier (state species of special concern for nesting), long-billed curlew (state watch list for nesting and USFWS bird species of conservation concern), loggerhead shrike (state species of special concern and USFWS bird species of conservation concern), and Suisun song sparrow (state species of special concern and USFWS bird species of conservation concern). Suisun song sparrows were observed during the summer months and may nest within the wetlands in the eastern portion of the proposed Annexation Area. Northern harrier and loggerhead shrike were also observed during the summer and may nest in the Project area, though nesting habitat for loggerhead shrike does not occur on the Project Site. These species are discussed below in the Special Status Species section, along with a number of other special status species known to occur in the Project area. The long-billed curlew is not known to nest in the Project area. The curlew individuals observed during the summer were

likely non-breeding individuals that are often known to linger in appropriate Central Valley habitats (like those on the Project Site) during the nesting season.

Western fence lizards were documented during the survey, and additional species of reptiles and amphibians found at the site would be expected to include common species such as Pacific chorus frog, Pacific gopher snake, western kingsnake and common garter snake. The site would be expected to support common mammal species such as Virginia opossum, black-tailed jackrabbit, Botta's pocket gopher, California ground squirrel, deer mouse, California vole, striped skunk, raccoon, and mule deer.

AQUATIC RESOURCES

History of Jurisdictional Delineations and USACE Determinations

Vollmar Consulting conducted an aquatic resource delineation on the parcels north of Cordelia Road, which was subsequently verified by the USACE on March 5, 2003, and May 16, 2003, under USACE file No. 26613N, and the parcel south of Cordelia Road, which was verified by the USACE on January 27, 2004, under USACE file No. 27207N. Since the verified wetland delineations did not include the rights-of-way for Cordelia Road and Pennsylvania Avenue, HBG conducted a delineation to include these areas and to re-verify the January 27, 2004, verification. This re-verification was verified by the USACE on July 2, 2008, under USACE file No. 2005-29818N.

HBG conducted an aquatic resource reverification delineation in the summer of 2020 and winter and spring of 2021, which was verified as a Preliminary Jurisdictional Determination on February 1, 2022, under USACE file No. SPN-2005-298180.

2021 Aquatic Resource Delineation

Overview

An aquatic resources delineation was conducted by HBG Senior Wetland Scientist, Robert Perrera, during 2020 and 2021 following the methodology described in the Corps of Engineers' (Corps) 1987 Wetlands Delineation Manual; the Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0); and supporting Corps and U.S. EPA guidance documents. Robert Perrera also followed the State Water Resources Control Board (SWRCB) April 2, 2019, State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board, 2019) and current CDFW guidance regarding identification and delineation of lake and streambed boundaries to determine if the aquatic resources identified may also be subject to regulation by these two agencies.

The aquatic resource delineation was conducted within most of the Project Site and areas abutting the Project Site which included a portion of Ledgewood Creek, Cordelia Road and Pennsylvania Avenue, and an area between Cordelia Road and Union Pacific Railroad. HBG conducted field work for a re-verification in the summer of 2020. Based on the vegetation observed, and lack of hydrologic indicators, it appeared a significant vegetation shift has occurred over the past 15 years. Based on this observation, HBG conducted additional field work in 2021 to record direct observations of ponding and soil saturation in the winter, and additional sample points recording vegetation, soils, and hydrology taken in the spring during the peak growing season. As part of the spring field work HBG requested cattle grazing on Planning Area 1 be delayed until after the field work was completed.

Due to the below average rainfall, hydrology conditions were considered "naturally problematic" and the "Difficult Wetland Situations in the Arid West" procedures for wetlands that periodically lack indicators of wetland hydrology was used. In accordance with these procedures, if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation (e.g., no drainage ditches, dams, levees, water diversions, etc.), and the region has been affected by drought, then the area should be identified as a wetland. HBG followed this procedure and included areas that met the hydrophytic vegetation and hydric soil indicators, but lacked wetland hydrology indicators, as "wetlands."

Rainfall Analysis

An antecedent precipitation analysis was also conducted for the Project Site. The rainfall analysis followed the USACE guidance[1] that was required by the USACE in 2020.

In addition to the antecedent precipitation analysis, HBG acquired USDA NRCS historical precipitation data for the Project Site using the WETS Tables station for Fairfield. HBG reviewed the rainfall mean total precipitation data from 1990-2020 and compared rainfall data from 2011-2020 to the rainfall data from 2001-2010. The purpose of this review was to determine what may be causing the vegetation shift observed within the Project area.

In summary, a significant decrease in precipitation over the last 30 years has driven a shift in vegetation from facultative or greater rated plants to more upland and facultative upland rated plants. This decrease in precipitation has resulted in a decrease in the extent of seasonally saturated annual grasslands. HBG has conducted various plant surveys and wetland delineations from 2005 to the present and has noticed an observable, and measurable change over this time. The mean annual rainfall per year from 1991 to 2020 is 24.67 inches. When compared with yearly mean rainfall data every 10 years over the last 30 years, the average annual rainfall totals have consistently decreased.

This decrease in precipitation is a long-term trend which is likely driven by climate change. If climate change continues as predicted, HBG anticipates the extent of shallow aquatic resources driven by direct precipitation will likely decrease further within the foreseeable future. Refer to Figure 12 of Appendix C for the USACE verified preliminary jurisdictional delineation map and Attachment 3 of Appendix C for a copy of the USACE preliminary jurisdictional determination verification letter.

Results

Refer to Figure 11 of Appendix C for the USACE verified preliminary jurisdictional delineation map and Attachment 3 of Appendix C for a copy of the USACE preliminary jurisdictional determination verification letter.

SPECIAL STATUS SPECIES

Special status species to be evaluated in reviews pursuant to CEQA include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. CEQA provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of

[1] United States Army Corps guidance available at https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool.

Regulations Section 15380. Special status species also include those species listed by CDFW as Species of Special Concern (species that face extirpation in California if current population and habitat trends continue), those listed as Fully Protected by CDFW (a designation that provides additional protection to those animals that were rare or faced possible extinction), and bird species designated as Bird Species of Conservation Concern by the USFWS. Special status species included in CEQA review also include bat species protected by the California Fish and Game Code and that have been designated with conservation priority by the Western Bat Working Group. CEQA also requires evaluation of impacts to plant species on California Rare Plant Rank Lists 1 and 2.

The CDFW maintains records for the distribution and known occurrences of special status species in the California Natural Diversity Database (CNDDB). The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The Project Site is located on the Fairfield North and Fairfield South USGS 7.5-minute quadrangle maps.

Tables 4.3-3 and 4.3-4 present a list of special status plants and animals, respectively, reported by the CNDDB within a 10-mile radius of the Project Site. An evaluation of the potential for all sensitive species to occur at the site is included in Tables 4.3-3 and 4.3-4.

TABLE 4.3-3. Special Status Plants Known to Occur Within a 10-Mile Radius of the Project Site

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Ferris' milk-vetch (*Astragalus tener* var. *ferrisae*)	--/--/1B.1	Inhabits subalkaline flats on overflow land within meadows and valley and foothill grassland, usually on dry, adobe soil. Extirpated from Solano Co. 5-75m.	**Not present.** Some suitable habitat is present, but the species is extirpated from Solano County.
Alkali milk-vetch *(Astragalus tener* var. *tener*)	--/--/1B.2	Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m.	**Present.** Special status plant surveys in 2021 and 2022 and prior years indicated this species is present in central areas of the proposed Development Area of the Project Site, as well as in the area south of Cordelia Road.
Heartscale (*Atriplex cordulata* var. *cordulata*)	--/--/1B.2	Inhabits alkaline flats and scalds with sandy soils. 0-560m.	**Unlikely**. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Brittlescale (*Atriplex depressa*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in alkali scalds in alkaline clay soils. Rarely in riparian marshes or vernal pools. 1-320m.	**Possible.** A CNDDB element was mapped on the Project Site in 2002, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Vernal pool smallscale (*Atriplex persistens*)	--/--/1B.2	Inhabits alkali vernal pools; known from scattered locations in the Delta and Central Valley basin. 10-115m.	**Unlikely.** Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Big-scale balsamroot (*Balsamorhiza macrolepis*)	--/--/1B.2	Chaparral, cismontane woodland, valley, and foothill grassland, sometimes on serpentinite. 90-1555m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	--/--/1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest, valley, and foothill grassland. 110-915m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Mt. Diablo fairy-lantern *(Calochortus pulchellus)*	--/--/1B.2	Found on wooded and brushy slopes within chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. 30-915 m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Lyngbye's sedge (*Carex lyngbyei*)	-/-/2B.2	Marshes and swamps (brackish or freshwater) at sea level.	**Unlikely.** Suitable habitat present but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Tiburon paintbrush (*Castilleja affinis* var. *neglecta*)	FE/ST/1B.2	Rocky serpentine sites within valley and foothill grassland. 75-400m.	**Not present.** Suitable habitat is not found at the site.
Holly-leaved ceanothus (*Ceanothus purpureus)*	--/--/1B.2	Rocky volcanic slopes in chaparral. 120-640m.	**Not present.** Suitable habitat is not found at the Project Site.
Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*)	--/--/1B.1	Found in alkaline soils in valley and foothill grasslands. 1-230m.	**Unlikely.** Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Pappose tarplant (*Centromadia parryi ssp. Parryi*)	--/--/1B.2	Found in mesic and often alkaline sites in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Hispid salty bird's-beak (*Chloropyron 4.3-12ons* ssp. *Hispidum*)	--/--/1B.1	Found in meadows and seeps, playas, and valley and foothill grasslands. Alkaline soils in alkaline meadows and alkali sinks with *Distichlis*. 1-155m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Soft bird's-beak (*Chloropyron 4.3-12ons* ssp. *4.3-12ons*)	FE/SR/1B.2	Coastal salt marsh with *Distichlis*, *Salicornia*, *Frankenia*, etc. 0-3m.	**Unlikely.** According to the CNDDB, this species was collected in 1904 along the railroad near Suisun. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Bolander's water-hemlock (*Cicuta 4.3-12onserva* var. *bolanderi*)	--/--/2B.1	Found in fresh or brackish water. 0-200m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*)	FE/--/1B.1	Found with *Scirpus* and *Distichlis* near small watercourses within salt marsh 0-1m; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano, Co.	**Unlikely.** Designated Critical Habitat occurs in the southern portion of the site. Although potential habitats are found on site, the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Recurved larkspur (*Delphinium recurvatum*)	--/--/1B.2	On alkaline soils in chenopod scrub, cismontane woodland and valley and foothill grassland.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Western leatherwood (*Dirca occidentalis*)	--/--/1B.2	On brushy slopes and mesic sites mostly in mixed evergreen and foothill woodland communities. 30-550m.	**Not present.** Suitable habitat is not found on site.
Dwarf downingia (*Downingia pusilla*)	--/--/2B.2	Inhabits vernal pools and vernal lake margins. 1-445m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Greene's narrow-leaved daisy (*Erigeron greenei*)	--/--/1B.2	Serpentine and volcanic substrates in chaparral. 75-1060m.	**Not present.** Suitable habitat not found at the site.
Mt. Diablo buckwheat (*Eriogonum truncatum*)	--/--/1B.1	On dry, exposed clay or sandy substrates in chaparral, coastal scrub and valley and foothill grasslands. 3-350m.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Jepson's coyote-thistle *(Eryngium jepsonii)*	--/--/1B.2	On clay soils in vernal pools and valley and foothill grassland. 3-305 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
San Joaquin spearscale (*Etriplex joaquiniana*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with *Distichlis*, *Frankenia*, etc. 1-835m.	**Unlikely.** Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Fragrant fritillary (*Fritillaria liliaceas*)	--/--/1B.2	Coastal scrub, coastal prairie and valley and foothill grasslands, often on serpentine but usually in clay. 3-410m.	**Not present.** Suitable habitat is not found at the Project Site.
Adobe-lily (*Fritillaria pluriflora*)	--/--/1B.2	Clay soils in valley and foothill grasslands, chaparral or cismontane woodland. 60-705m.	**Not present.** Suitable habitat is not found at the Project Site.
Bogg's Lake hedge hyssop (*Gratiola heterosepala*)	--/SE/1B.2	Inhabits vernal pools and margins of vernal lakes. 10-2375m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005.
Diablo helianthella (*Helianthella castanea*)	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	**Not present.** Suitable habitat is not found at the site.
Brewer's western flax (*Hesperolinon breweri*)	--/--/1B.2	Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland at 30-885 meters.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	--/--/1B.2	Serpentine substrates in chaparral. 180-670 m.	**Not present.** Suitable habitat not found at the site.
Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)	--/--/1B.2	Freshwater marshes and swamps. Found on freshwater-soaked riverbanks and low peat islands in sloughs. 0-120m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Carquinez goldenbush (*Isocoma arguta*)	--/--/1B.1	Found in valley and foothill grasslands on alkaline soils, on low benches near drainages and on the tops and sides of mounds in swale areas. 1-20m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Contra Costa goldfields (*Lasthenia conjugens*)	FE/--/1B.1	Inhabits vernal pools, swales and low depressions in open grassy areas. Most remaining occurrences restricted to the Fairfield region. 1-470m.	**Present.** Designated Critical Habitat occurs on the Project Site. Populations of this species were observed on-site in special status species surveys conducted in 2021 and 2022 and in prior surveys conducted in 2000, 2001, 2002, and 2005.
Coulter's goldfields *(Lasthenia glabrata* ssp. *Coulteri*)	--/--/1B.1	Coastal salt marsh, playas, and vernal pools. Usually found on alkaline soils in in playas, sinks, and grasslands. 1-1375m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	--/--/1B.2	Freshwater and brackish marshes with *Typha*, *Rosa*, *Juncus*, *Scirpus* etc. Usually on the marsh the slough edges.	**Present.** Observed on-site in the southern portion of the property during special status plant surveys conducted in 2005 and again in 2021 and 2022. There are numerous known occurrences south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh.
Legenere (*Legenere limosa*)	--/--/1B.1	Inhabits the beds of vernal pools. 1-880m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Heckard's pepper-grass (*Lepidium latipes var. heckardii*)	--/--/1B.2	Valley and foothill grassland. In grassland or vernal pool edges on alkaline soils. 2-200 m.	**Present.** Although not observed during special status plant surveys conducted in 2000, 2001, 2002, 2005, or 2021, this species was found on the Project Site in surveys conducted in 2022.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Jepson's leptosiphon (*Leptosiphon jepsonii*)	--/--/1B.2	Found on volcanics or the periphery of serpentine substrates in chaparral, cismontane woodland, and open to partially shaded grassy slopes. 55-855 m.	**Not present.** Suitable habitat not found at the site.
Mason's lilaeopsis (*Lilaeopsis masonii*)	--/SR/1B.1	Found in the tidal zone in muddy or silty soils with freshwater and brackish marshes and riparian scrub. 1-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Delta mudwort (*Limosella australis*)	--/--/2B.1	Found in riparian scrub and in freshwater and brackish marshes. On mud banks in marsh and riparian associations. Often with Mason's lilaeopsis. 0-3m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Marsh microseris (*Microseris paludosa*)	--/--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Baker's navarretia (*Navarretia leucocephala ssp. Bakeri*)	--/--/1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils at 5-1740m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Few-flowered navarretia (*Navarretia leucocephala ssp. Pauciflora*)	FE/ST/1B.1	Inhabits volcanic ash flows and volcanic substrates in vernal pools. 400-855m.	**Not present.** Suitable habitat not found at the site.
Colusa grass (*Neostapfia colusana*)	FT/SE/1B.1	Inhabits pool bottoms in adobe soils in large vernal pools and vernal lakes. 5-200m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT/SE/1B.1	Vernal pools 15-660 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Bearded popcorn flower (*Plagiobothrys hystriculus*)	--/--/1B.1	Vernal pools, valley and foothill grassland in wet sites. 0-275m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005.
Marin knotweed (*Polygonum marinense*)	--/--/3.1	Coastal salt marshes and brackish marshes. 0-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
California alkali grass *(Puccinellia simplex)*	--/--/1B.2	Found in meadows and seeps, chenopod scrub, and vernal pools in foothill grasslands. Found in alkaline, vernally mesic sinks, flats, and lake margins. 1-915 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
California beaked-rush (*Rhynchospora californica*)	--/--/1B.1	Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Chaparral ragwort *(Senecio aphanactis)*	--/--/2B.2	Known from foothill woodland and chaparral habitats.	**Not present.** Suitable habitat is not found at the site.
Keck's checkerbloom (*Sidalcea keckii*)	FE/--/1B.1	Found on grassy slopes in blue oak woodland. 75-650m.	**Not present.** Suitable habitat is not found at the Project Site.
Long-styled sand-spurrey *(Spergularia macrotheca* var. *longistyla)*	--/--/1B.2	Found in alkaline marshes and swamps, meadows and seeps. 0-220 m.	**Present.** Observed in previous surveys but not mapped as it had no listing status at the time. Observed in one location north of Cordelia Road and west of Pennsylvania Avenue during 2022 surveys.
Northern slender pondweed (*Stuckenia filiformis* ssp. *Alpina*)	--/--/2B.2	Found in marshes and swamps, in shallow, clear water of lakes and drainage channels. 300-2150m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Suisun Marsh aster (*Symphyotrichum lentum*)	--/--/1B.2	Found in freshwater and brackish marshes and swamps, often along sloughs with *Phragmites*, *Scirpus*, *Typha*, etc. 0-3m.	**Present.** Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in the southern portion of the Project Site and in the eastern portion of the proposed Annexation Area adjacent to the perennial brackish marsh ditch.
Napa bluecurls (*Trichostema ruygtii*)	--/--/1B.2	Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
		montane coniferous forest. 30-590 m.	
Two-fork clover (*Trifolium amoenum*)	FE/--/1B.1	Open, sunny sites and swales, sometimes on serpentine soil, within valley and foothill grassland and coastal buff scrub. Recently found on an eroding cliff face on a roadside. 5-415m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Saline clover (*Trifolium hydrophilum*)	--/--/1B.2	Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m.	**Present.** Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002, and 2005. Surveys found this species in within proposed Development Area, as well as the eastern portion of the Annexation Area, and the area south of Cordelia Road.
Crampton's tuctoria (*Tuctoria 4.3-17onservat*)	FE/SE/1B.1	Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Oval-leaved viburnum (*Viburnum ellipticum*)	--/--/2B.3	Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m.	**Not present.** Suitable habitat not found at the site.

1 Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Map and surrounding areas, information dated March 2023.

4 Status Codes:

FE Federally listed Endangered
F Federally listed Threatened
FPE Federally Proposed Endangered
FPT Federally Proposed Threatened
SE California State-listed Endangered
ST California State-listed Threatened
SR California State Listed as Rare

California Rare Plant Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A: Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B: Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3: Plants about which more information is needed – a review list.
California Rare Plant Rank 4: Plants of limited distribution – a watch list.
CNPS 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)
0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Table 4.3-4. Special Status Animal Species Known to Occur Within a 10-Mile Radius of the Project Site

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Invertebrates			
Conservancy fairy shrimp (*Branchinecta 4.3-18onservation*)	FE/--	Inhabits large vernal pools, often with turbid water; known from fewer than 15 occurrences in the Delta (Jepson Prairie) and Central Valley.	**Not present.** Nearest known occurrence several miles to the east (Jepson Prairie). Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative.
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE/--	Inhabits vernal pools; known from fewer than 15 occurrences along western edge of the mid Central Valley (including Contra Costa, Alameda Counties)	**Not present.** Nearest known occurrence approximately 50 miles to the south (west of Tracy) in pools on sandstone outcrops. Protocol level wet season (2000 and 2020) and dry season (2002, 2005, and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Vernal Pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Inhabits vernal pools; occurs throughout the Delta and Central Valley.	**Not present.** Known from sites miles to the north and east of the property. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Midvalley fairy shrimp (*Branchinecta mesovallensis*)	--/--	Vernal pools, swales, and ephemeral freshwater habitat.	**Not present.** Protocol level wet season (2000 and 2020) and dry season (2002, 2005, and 2021) sampling for vernal pool large Brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Vernal Pool tadpole shrimp (*Lepidurus packardi*)	FE/--	Inhabits vernal pools; known from scattered locations in the Delta and Central Valley.	**Not present.** Known CNDDB records miles to the east of at Potrero Hill landfill and along Highway 12. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
			negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
California Linderiella (*Linderiella occidentalis*)	--/--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	**Not present.** Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
California freshwater shrimp (*Syncaris pacifica*)	FE/SE	Found in low-elevation (less than 53-foot) and low gradient (generally less than 1%) streams.	**Not present.** Suitable habitat is not present at the site. Brackish waters in the lower portion of Ledgewood Creek that occurs within areas proposed as Managed Open Space as part of the Project would not be considered suitable habitat for California freshwater shrimp.
Wilbur Springs shore bug (*Saldula usingeri)*	--/--	Found only on wet substrate of spring outflows. Requires springs/creeks with high concentrations of sodium, chlorine and lithium.	**Not present.** Suitable habitat not found at the site.
Hairy water flea (*Dumontia oregonensis*)	--/--	Vernal pools. In California, known only from Mather Field.	**Not present.** Outside the range of the species.
Western bumble bee *(Bombus occidentalis)*	--/SCE	This species was once common and widespread, but the species has declined precipitously from Central California to Southern British Columbia, perhaps from disease. Nests and overwinters underground (e.g., rodent burrows), forages on pollen and nectar of a variety of plants.	**Not present.** This widespread and once common species is included in the CNDDB due to a general decline in bee populations in recent years. CNDDB records, primarily from the 1950s through 1970s are scattered throughout the north Bay Area; the nearest record of this species (from 1950) is located approximately 1 mile to the southeast from the Project Site. Currently, this species is largely confined to high elevation sites and a small number of records on the northern California coast. Perennially flooded portions of the Project Site (within Managed Open Space) are not suitable as nesting or overwintering sites.
Crotch bumble bee (*Bombus crotchii*)	--/SCE	Found in coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia* and *Eriogonum*. Nests and overwinters underground	**Unlikely.** This species occurs primarily in California with relatively few contemporary records in the northern California area vicinity of the Project Site and is included in the CNDDB due to sharp declines over the last decade. The nearest record of this species (from 2014) is approximately 4 miles to the northwest from the Project Site. Perennially flooded portions of the Project

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		(e.g., rodent burrows), forages on pollen and nectar of a variety of plants.	Site (within Managed Open Space) are not suitable as nesting or overwintering sites.
Valley Elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/--	Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills.	**Not present.** CNDDB records of elderberry bushes with exit holes along creeks northwest of Fairfield. However, no blue elderberry bushes were observed on the site, therefore no potential habitat exists for this species on-site.
Delta Green ground beetle (*Elaphrus viridis*)	FT/--	Inhabits the drying edges of large vernal pools; presently only known from Jepson Prairie area. They prefer barren areas with an abundance of their favored prey, springtails.	**Not present.** CNDDB records at Jepson Prairie. Unlikely to occur due to a lack of suitable habitat. Project Site is not within designated critical habitat.
Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i)	--/--	Aquatic beetle that lives in weedy shallow, open water associated freshwater seeps, springs, farm ponds, vernal pools (playa type pools) and slow-moving stream habitats. Occurs in Jepson Prairie preserve in Solano County.	**Not present.** May Consulting Services conduct dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative.
Curved-foot hygrotus diving beetle (*Hygrotis curvipes*)	--/--	Inhabits small seasonal water bodies, mostly alkaline.	**Not present.** No CNDDB records in the vicinity. May Consulting Services conduct dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative.
Monarch butterfly (*Danaus plexippus*) (wintering sites)	FC/--	Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby.	**Not present.** Suitable habitat for winter roosting sites is not present on-site.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE/--	Habitat for this species is grassland, often with a significant component of native grasses including the host plant (*Viola pedunculata*) and characterized by shallow rocky soils and numerous rock outcrops.	**Not present.** Suitable habitat consisting of grassland with shallow rocky soils and the larvae host plant is not present on-site.
Fish			

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Western River lamprey (*Lampetra ayresii*)	--/SSC	Adult lampreys spawn in gravel bottomed streams, at the upstream end of riffle habitat, typically above suitable ammocoete habitat. River lampreys are associated with large river systems such as the Fraser, Columbia, Klamath, Eel, and Sacramento Rivers.	**Not present.** Suitable habitat is not present on-site. Ledgewood Creek, including portions adjacent to the Project Site within areas proposed as Managed Open Space as part of the Project, is not characteristic of the large river systems with which River Lampreys are associated.
Pacific lamprey (*Lampetra tridentata*)	--/SSC	Spawning takes place in low gradient sections of water, with gravel and sandy bottoms. Pacific lampreys have been historically or recently documented in many streams of the San Francisco Bay area.	**Not present.** Suitable habitat is not present on-site.
Green sturgeon, Southern DPS (*Acipenser medirostris*)	FT/--	Green Sturgeon rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. They prefer to spawn in lower reaches of large rivers with swift currents and large cobble. They are found spawning in the Sacramento, Klamath and Rogue Rivers.	**Not present.** Suitable habitat is not present on-site. Ledgewood Creek, including portions adjacent to the Project Site within areas proposed as Managed Open Space as part of the project, is not characteristic of the large river systems Green Sturgeon are associated with.
Coho Salmon-Central California Coast ESU (*Oncorhynchus kisutch*)	FE/SE	Coho Salmon spawn in streams that are narrow, shallow, clear, and cold with a strong upwelling of water through the gravel. This ESU encompasses the area from Punta Gorda in northern California south to and including tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin river system.	**Not present.** This ESU is not known to occur east of Carquinez Strait.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Steelhead-Central California Coastal DPS (*Oncorhynchus mykiss irideus*)	FT/--	Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the San Pablo Bay/Napa River watersheds.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek south of Cordelia Road, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat.
Steelhead-Central Valley DPS (*Oncorhynchus mykiss irideus*)	FT/--	Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Suisun Bay/Sacramento River Delta watersheds. Waterways currently known to support breeding/rearing habitat for steelhead in Solano County include Green Valley, Suisun Valley and American Canyon Creeks.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek south of Cordelia Road, within the area proposed as Managed Open Space as part of the project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat.
Chinook Salmon-Central Valley fall/late fall-run ESU (*Oncorhynchus tshawytscha*)	--/SSC	Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat.
Chinook Salmon Central Valley spring-run ESU (*Oncorhynchus tshawytscha*).	FT/ST	Chinook salmon choose to spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Sacramento River and its tributaries.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Chinook Salmon Sacramento River winter-run ESU (*Oncorhynchus tshawytscha)*	FE/SE	Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes populations of winter-run Chinook Salmon in the Sacramento River and its tributaries.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat
Delta smelt (*Hypomesus transpacificus*)	FT/SE	During spawning they migrate upstream into shallow fresh or slightly brackish tidally-influenced backwater sloughs and channel edges. In Solano County, Delta Smelt are found in Suisun Bay/Suisun Marsh sloughs upstream through the delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed Annexation Area (not the proposed Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the Project) and a slough that runs through the eastern portions of the Project Site are hydrologically connected to Suisun Slough and may provide suitable spawning habitat.
Longfin smelt (*Spirinchus thaleichthys*)	FC/ST	In California, Longfin Smelt have been commonly collected from San Francisco Bay, Eel River, Humboldt Bay and Klamath River. As they mature in the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning probably takes place in freshwater.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed annexation area (not the Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the project) and a slough that runs through the eastern portions of the Project Site are hydrologically connected to Suisun slough and may provide suitable spawning habitat.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Sacramento splittail (*Pogonichthys macrolepidotus*)	--/SSC	Adult Sacramento Splittail migrate upstream from brackish areas to spawn in freshwater areas subject to flooding, such as the lower reaches of rivers, dead end sloughs, and in larger sloughs such as Montezuma Slough. Within Solano County, splittail are year-round residents of Suisun Marsh, concentrating in the dead-end sloughs that typically have small streams feeding into them.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed Annexation Area (not the proposed Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the project) and a slough that runs through the eastern portions of the project Site are hydrologically connected to Suisun slough and may provide suitable spawning habitat.
Amphibians			
California tiger salamander, Central California DPS *(Ambystoma californiense)*	FT/ST,WL	Found in annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water source for breeding.	**Not present.** Previous dip-netting surveys have all been negative for CTS. Lack of turbid water in deeper pools not conducive to breeding and lack of suitable small mammal burrows not conducive to use as upland habitat. Pools in the southern portion of the project area were too shallow to support breeding. Significant barriers to migration occur between the Project area and known CTS occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies. Also, the proposed Annexation Area is within the 100-year floodplain as is 95 percent of the area south of Cordelia Road.
Western spadefoot toad (*Spea hammondii*)	--/SSC	Breeds in vernal pools/seasonal stock ponds in the Central Valley and southern coast.	**Not present.** CNDDB records in vicinity of the property. Nearest recorded occurrences more than 20 miles to the east and south. Dip-net surveys for other species did not turn up this species.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
California red-legged frog *(Rana draytonii)*	FT/SSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to aestivation habitat.	**Not present.** The Project Site is considered to be outside of the current range of this species. Additionally, non-tidal wetlands on-site are seasonal and do not provide the perennial waters typically required for California red-legged frog.
Foothill yellow-legged frog- North Coast DPS *(Rana boylii)*	--/SSC	Partly shaded shallow streams with riffles, with a rocky substrate in a variety of habitats; needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Frogs are usually found on stream banks, especially near riffles.	**Not present.** No suitable habitat on-site. The brackish marsh habitat within Ledgewood Creek (within areas proposed as Managed Open Space as part of the Project) is not considered suitable habitat for Foothill Yellow-legged Frog.
Reptiles			
Western pond turtle *Emys marmorata)*	--/SSC	Inhabits freshwater ponds and sluggish streams; occurs from WA to Baja, mostly west of the Sierra crest.	**Not present.** No CNDDB records in the vicinity of the property. Unlikely to occur due to a lack of perennial freshwater.
Giant garter snake *(Thamnophis gigas)*	FT/ST	Utilizes marshes, sloughs, small lakes, low gradient streams, ponds, agricultural wetlands (irrigation and drainage canals) and adjacent uplands.	**Not present.** Not known to occur in Project area.
Birds			
Great egret (*Ardea alba*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Snowy Egret (*Egretta thula*) [Rookery]	--/--	Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-	**Rookery not present.** Suitable habitat for a rookery is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		flats, streams, wet meadows, and borders of lakes.	
Black-crowned night-heron *(Nycticorax nycticorax)* [Nesting]	--/--	Colonial nester, usually in trees but occasionally in tule patches. Rookery sites are located adjacent to foraging areas including lake margins, mud-bordered bays and marshy spots.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Great blue heron (*Ardea 4.3-26onserva*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Golden eagle (*Aquila chrysaetos*) [nesting and wintering]	--/FP, WL	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	**Not present.** Suitable habitat is not found at the site.
Ferruginous hawk *(Buteo reglais)* (wintering)	--/WL	Inhabits open country. Winters in small numbers along California coast and inland valleys.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
Swainson's hawk (nesting) *(Buteo swainsoni)*	--/ST	Nests in trees and riparian stands; summer migrant to Central Valley. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands.	**Not present.** No suitable nest trees occur at the site. CNDDB records nesting by this species as close as 1.4 miles from the Project Site. Use of the site for foraging is possible.
Northern harrier *(Circus hudsonius)* (nesting)	BCC/SSC	Forages and nests in grasslands, marshes, and agricultural fields; occurs throughout California, concentrated in the Central Valley and coastal valleys.	**Nesting possible.** Observed on-site during the nesting season by HBG and Vollmar Consulting. Suitable nesting habitat may occur. Expected to use the site as a foraging area in winter.
White-tailed kite *(Elanus leucurus)* (nesting)	--/FP	Nests in dense oaks, willows, other trees; occurs in the Central Valley and adjacent low foothills.	**Not present.** No suitable nest trees occur at the site. No CNDDB records in vicinity but likely to be observed foraging over the property.
Bald eagle *(Haliaeetus leucocephalus)*	--/SE,FP	In winter, may be found throughout most of California at lakes,	**Not present.** Suitable habitat not present on-site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
(nesting and wintering)		reservoirs, rivers and some rangelands and coastal wetlands. California's breeding habitats are mainly located in mountains and foothill forests near permanent water sources.	
Peregrine falcon (*Falco peregrinus*)	--/FP	Nests in woodland, forest and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structure. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	**Not present.** Occurs in the area but suitable nesting habitat is not found at the site.
Prairie falcon (*Falco mexicanus*)(Nesting)	--/WL	Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Permanent resident and migrant along inner coast and ranges. Nests on cliffs.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
Merlin (*Falco columbarius*) [wintering]	-/WL	Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
California black rail *(Laterallus jamaicensis coturninculus)*	--/ST,FP	Inhabits tidal salt and brackish marsh bordering sloughs and large bays.	**Not present.** No suitable habitat at the proposed Development Area of the Project Site. CNDDB records for sloughs along edge of Suisun Bay, and may occur in the portions of the site nearest to Suisun Bay and within areas proposed as a Managed Open Space as part of the Project.
California Ridgway's rail *(Rallus obsoletus obsoletus)*	FE/SE,FP	Inhabits tidal salt marsh along larger sloughs and bays in the SF Bay and lower Delta.	**Not present.** CNDDB records south and east of the Project Site. No nesting habitat for the species found at the site; the species may occasionally utilize perennial marsh in the southern portions of the site nearest to Suisun Bay as a winter foraging habitat. Generally occurs closer to edge of Suisun Bay.
Yellow rail (*Coturnicops noveboracensis*)	BCC/SSC	Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Western snowy plover *(Charadrius 4.3-28onservation nivosus)* (nesting) (coastal population)	FT/SSC	In the San Francisco Estuary, salt pond levees and exposed salt pond beds (playa-like habitat), San Francisco Bay; rare in San Pablo Bay. Typical coastal habitat is on wide, sandy beaches with scattered debris.	**Not present.** Suitable habitat is not found at the site.
Mountain plover *(Charadrius montanus)* (wintering)	BCC/SSC	Winters in shortgrass plains, plowed fields, arid plains, alkali sink scrub, valley sink scrub, alkali playa, burned and annual grasslands, and open sagebrush areas that are barren or have sparse vegetation. Wintering plovers found in variable elevations but generally in valley bottoms below 300 meters.	**Not present.** Although Mountain Plovers winter in Solano County (e.g. area around Flannery and Robinson Roads) this species has not been reported as wintering in Project Area. Habitat conditions at the site are not likely to support wintering populations of Mountain Plover.
Long-billed curlew *(Numenius americanus)* (nesting)	--/WL	An uncommon to fairly common breeder from April to September in wet meadow habitat in northeastern California. Uncommon to locally very common as a winter visitant along the California coast, and in the Central and Imperial Valleys. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. Large numbers remain in some localities in the Central Valley in winter.	**Nesting unlikely.** The Project area is not within the nesting range of the species. Long-billed curlews observed in the proposed Managed Open Space area were likely non-breeders lingering through the summer months.
Black skimmer *(Rynchops niger)* (nesting colony)	BCC/SSC	Nests at Salton Sea and San Diego Bay and recently at San Francisco Bay. Nests primarily on gravel bars, low islets, and sandy beaches in unvegetated sites.	**Not present.** Suitable habitat is not found at the site.
California least tern *(Sterna antillarum browni)* (nesting colony)	FE/SE,FP	Nests on coastal, sandy, open areas usually around bays, estuaries, and creek and river mouths. Forages in shallow estuaries and lagoons, diving head	**Not present.** Suitable habitat for a nesting colony is not present on-site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		first into the water after a wide variety of small fish.	
Short-eared owl (nest site) *(Asio flammeus)*	BCC/SSC	Forages and nests in perennial marsh and grassland habitat; occurs in the Central Valley, coast, and east Sierra regions.	**Nesting possible.** CNDDB nest site records at Grizzly Island Wildlife Area. This species was not observed on-site, however, the perennial brackish marsh and grasslands on the eastern portion of the Project Site provides potential foraging and nesting habitat for the species.
Burrowing owl *(Athene cunicularia)* (burrow sites)	BCC/SSC	Nests in mammal burrows, rock cavities in grassland and scrub; occurs throughout much of mid and lower California.	**Possible.** Numerous CNDDB records in vicinity including one just southwest of the property next to the Cordelia Road. This species was not observed onsite, however, nesting burrows may occur on the property along levee banks and other raised areas that do not become saturated during the winter and spring.
Loggerhead shrike *(Lanius ludovicianus)* (nesting)	--/SSC	Habitat includes open areas such as desert, grasslands, and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitat which contains trees, fence posts, utility poles and other perches.	**Possible.** Observed on-site by HBG and Vollmar Consulting during the nesting season. Loggerhead shrikes use the site for foraging and perching. It is unlikely this species nests onsite due to a general lack of suitable habitat, but some nest sites are available in limited on-site riparian habitat.
Bank swallow *(Riparia riparia)* (nesting)	--/ST	A migrant found primarily in riparian and other lowland habitats in California west of the deserts. In summer, restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil, into which it digs its nesting holes.	**Not present.** Suitable habitat is not found at the site.
Saltmarsh common yellowthroat *(Geothylpis trichas sinuosa)*	BCC/SSC	Forages and nests in dense fresh and saltwater marsh habitat in the San Francisco Bay and lower Delta.	**Not present.** Common yellowthroats observed on the property are most likely not of the subspecies that is designated as a species of concern. Salt marsh common yellowthroat range does not extend east of Carquinez Strait.
Grasshopper sparrow (*Ammodramus savannarum*)	--/SSC	Found in dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches.	**Possible.** Non-native grasslands may provide suitable nesting habitat.
Suisun song sparrow	--/SSC	Forages and nests in dense marsh and scrub	**Present.** Observed on site by HBG and Vollmar Consulting foraging in the dense perennial marsh habitat on the eastern

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
(Melospiza melodia maxillaris)		habitat along the margins of Suisun Bay.	portions of the site (not the Development Area of the Project Site) during the nesting season. CNDDB records south of the property along edge of Suisun Bay. May also use the site for nesting.
San Pablo song sparrow *(Melospiza melodia samuelis)*	BCC/SSC	Tidal, brackish or salt marshes, San Pablo Bay.	**Not present.** Site is outside the limited range of this species.
Tri-colored blackbird (*Agelaius tricolor*) [Nesting colony]	BCC/ST,SSC	Breeds near freshwater, usually in tall emergent vegetation. Requires open water with protected nesting substrate. Colonies prefer heavy growth of cattails and tules. Uses grasslands and agricultural lands for foraging.	**Possible.** Historic CNDDB records several miles east of the Project Site. This species was not observed on-site, however, perennial marsh on the property could provide suitable habitat for a nesting colony.
Mammals			
Suisun shrew *(Sorex ornatus sinuosus)*	--/SSC	Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays.	**Likely.** CNDDB record immediately east of the southern portion of the property south of Cordelia Road. Likely to occur on-site within perennial marsh in the southern and eastern portions of the property proposed to be included in a Managed Open Space.
Townsend's big-eared bat *(Corynorhinus townsendii)*	--/SSC	Found in desert scrub and coniferous forests. Roost in caves or abandoned mines and occasionally are found to roost in buildings.	**Not present.** Suitable habitat is not found at the Project Site.
Hoary bat (*Lasuirus cinereus*)	--/--	Prefers open habitats with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees.	**Not present.** Suitable habitat is not found at the site.
Western red bat *(Lasiurus blossevillii)*	--/SSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
San Joaquin pocket mouse *(Perognathus inornatus)*	--/--	Occurs in dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 meters in the Central and Salinas Valleys. Occurs in shrubby ridge tops and hillsides, characterized as being open, sandy areas with grasses and forbs. Digs burrows for cover.	**Not present.** Suitable habitat is not found at the Project Site.
Salt Marsh harvest mouse *(Reithrodontomys raviventris)*	FE/SE,FP	Inhabits pickleweed salt marsh flats in the San Francisco Bay and lower Delta.	**Likely.** CNDDB records an occurrence of the species in the perennial marsh habitat on eastern edge of the proposed Annexation Area (not the Development Area of the Project Site). Species may occur in the southern portion of the property nearest to Suisun Bay.

1 Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Maps and surrounding areas, information dated March 2023.

4 Status Codes:

FE Federally Endangered

FT Federally Threatened

FC Federal Candidate Species

BCC USFWS Bird Species of Conservation Concern

SE California State-listed Endangered

ST California State-listed Threatened

FP California Fully Protected

SSC CDFW Species of Special Concern

WL CDFW Watch Lis

4 Definitions

Present- Species has been recorded on the Project Site.

Possible-Species has not been observed on the Project Site but there is suitable habitat, and the species is highly mobile and could utilize the site.

Unlikely-There may be suitable habitat, but the species has not been observed during biological surveys, is not known to occur on or near the Project Site or it is outside of the range of a species, or the Project Site is not accessible to a specific species.

Not Present- Suitable habitat is not found at the Project Site, species is assumed to be extirpated from Solano County, and/or surveys were conducted, and the species was not found.

Special Status Plant Species

A list of special status plants with potential to occur on the Project Site was developed from the CNDDB. A complete list of special status plant species occurring in the vicinity of the property is included in Attachment 2 (Table 1) of Appendix C. Attachment 2 (Table 1) of Appendix C includes all species of flora mentioned in the CNDDB within approximately 10 miles of the site.

Based on the information obtained through the CNDDB and the results of past surveys and protocol rare plant surveys conducted on the Project Site (the methodology and results of which are detailed in Appendix C), seven special status plant species are known to occur on the site and several additional special status species are known to occur in the vicinity of the Project Site. These species are discussed below.

Rare plant surveys were conducted within the Project Site in 2000, 2001, 2002, 2005, 2021 and 2022. Special status plant surveys conducted in 2000 (spring and summer), 2001 (spring), 2002 (spring), and 2005 (spring and summer) were conducted in spring and summer throughout the entire Project Site, including the proposed Development Area and Managed Open Space. Detailed results of the 2005 surveys and summaries of the 2000, 2001, and 2002 survey findings are reported in Gentry, Tooby and Barnfield Properties-Special status Plant Survey Report 2000 – 2002 and 2005 Field Seasons (Vollmar Consulting, June 23, 2005), included in Attachment 4 of Appendix C.

Special status plant surveys performed in 2021 (spring and summer) and 2022 (spring, summer, and fall) were in accordance with state and federal plant survey protocols (CDFW 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. Surveys were conducted during the flowering periods of target special status species when they would be identifiable. Prior to conducting the field surveys in 2021 and 2022, the CNDDB, the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Project Site. Previous special status plant surveys conducted on the Project Site (described above) were also reviewed. Reference sites were visited to confirm that target species were identifiable at the time of the botanical surveys. The Jepson herbarium collection was also consulted. Detailed results of the 2021 and 2022 surveys are described in survey reports included in Attachment 4 of Appendix C.

Seven special status plant species have been observed within the Project Site during the six years of protocol surveys conducted since 2000. Each of these species and their occurrence on-site is described below. The location of each of these species within the Project Site is shown on Figure 12 of Appendix C. Table 4.3-5 summarizes special status species observations within the proposed Development Area and Managed Open Space recorded during special status plant surveys conducted in 2000 to 2005 and 2021 to 2022.

Table 4.3-5. Summary of Special Status Plant Survey Results, 2000-2005 and 2021-2022, within the Proposed Development Area and Managed Open Space.

Species Name	Proposed Development Area (2000-2005) Occurrences	Proposed Development Area (2000-2005) Plant Count/Acres	Managed Open Space (2000-2005) Occurrences	Managed Open Space (2000-2005) Plant Count/Acres	Proposed Development Area (2021-2022) Occurrences	Proposed Development Area (2021-2022) Plant Count	Managed Open Space (2021-2022) Occurrences	Managed Open Space (2021-2022) Plant Count
Alkali milk-vetch[1]	7	12 (0.016 acres)	2	250 (0.007 acres)	0	0	1[2]	300
Contra Costa goldfields[1]	8	183-231 (0.030 acres)	23-31	8 million (18.33 acres)	2	71	Similar general locations as in 2000-2005	115,000[3]
Delta tule pea	0	0	1	400	0	0	6[4]	1,350
Saline clover[1]	17	465 (1.398 acres)	42	6,335 (19.048 acres)	0	0	Found only south of Cordelia Road/Street in similar	22,000

Species Name	Proposed Development Area (2000-2005) Occurrences	Proposed Development Area (2000-2005) Plant Count/Acres	Managed Open Space (2000-2005) Occurrences	Managed Open Space (2000-2005) Plant Count/Acres	Proposed Development Area (2021-2022) Occurrences	Proposed Development Area (2021-2022) Plant Count	Managed Open Space (2021-2022) Occurrences	Managed Open Space (2021-2022) Plant Count
							locations as occurrences in 2000-2005	
Suisun Marsh aster	0	0	10	4,200	0	0	2 occurrences with same location as in 2000-2005; plus additional extensive occurrences	23,000
Heckard's pepper-grass[1]	0	0	0	0	0	0	2	280
Long-styled sand-spurrey[3]	-	-	-	-	1	A few plants	0	0

[1] Recorded occurrences and counts of these annual species may differ from the locations and counts at the time that impacts occur.

4 Occurrence in same location as both occurrences recorded in 2000-2005.

[3]Total estimated plant count for the entire Project Site, including proposed Development Area and Managed Open Space

[4] One occurrence is in same location as occurrences recorded in 2000-2005.

[5]Species reportedly observed during surveys in 2000 to 2005, but occurrences were not mapped because this species was not identified as a special-status species at the time.

Alkali Milk-vetch (*Astragalus tener var. tener*)**.** Alkali milk-vetch is considered to be rare and endangered (List 1B.2) by CNPS. It is associated with seasonally saturated grasslands with alkaline soils, as well as the upper margins of alkaline vernal pools.

Seven occurrences of alkali milk-vetch, totaling an estimated 12 individual plants, were detected within the proposed Development Area. No alkali milk vetch were observed during plant surveys in Planning Area 3 of the proposed Development Area. Two additional occurrences of this species, with an estimated total of 250-300 individuals, were observed in the Managed Open Space area south of Cordelia Road/Street. Observations of this species were reported in seasonally saturated annual grassland and weedy (ruderal pasture) annual grassland.

Contra Costa Goldfields *(Lasthenia conjugens*)**.** Contra Costa goldfields is federally listed as endangered and is considered rare and endangered (List 1B.1) by CNPS. It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands. Currently, 23 historic occurrences (records separated by 0.25-mile or more) are presumed to be extant across this species' range, the majority (11) of which are within Solano County. Two of these occurrences in Solano County are within the Suisun Marsh Core Area (Unit 5); subunit 5B of this Core Area overlaps the Project Site (USFWS 2013). Recognized threats to this species include: development, habitat alteration, hydrological alterations, overgrazing, and non-native plants (CNPS 2023).

Eight occurrences of Contra Costa goldfields, totaling an estimated 183-231 individuals, were observed within the proposed Development Area during 2000 to 2005 surveys. Of these eight occurrences, one occurrence each in Planning Area 1 and Planning Area 3 were found again during 2021 to 2022 surveys, but consisted of an overall reduced number of individuals compared to the 2000 to 2005 survey. Contra Costa goldfields within the proposed Development Area were observed within or along the edge of seasonally saturated annual grasslands and within large vernal pools.

During 2000 to 2005 plant surveys, 23 to 31 occurrences of this species were observed within the Managed Open Space area: seven occurrences were north of Cordelia Street and Cordelia Road (estimated total of 267 individuals) and remaining occurrences were south of Cordelia Street and Cordelia Road (estimated total of 8 million individuals). South of Cordelia Street and Cordelia Road, the population was composed primarily of 3 relatively large occurrences, one surrounding 5 small shallow vernal pools west of Ledgewood Creek, a second along a low gradient slope with seasonally saturated annual grassland above seasonal alkali marsh in the northwest corner, and the third within a broad area of undulating mound/basin topography along the western edge (occurrences ranging from 3,000 to 7.7 million individuals). Remaining occurrences south of Cordelia Street and Cordelia Road were relatively much smaller (from 1 individual to 10,000 individuals). During the 2021 to 2022 surveys, none of the seven occurrences north of Cordelia Street were relocated; however, south of Cordelia Street, Contra Costa goldfields were observed in generally similar locations as reported in 2000 to 2005 surveys, albeit in markedly reduced numbers (total of approximately 115, 000 versus 8 million individuals).

Although the aquatic resources within the proposed Development Area (i.e. Planning Areas 1-3) appear to provide suitable habitat for Contra Costa goldfields, the population within the proposed Development Area is limited to approximately 183 individual plants within a 0.03-acre area, as estimated during the 2000 to 2005 surveys, and has not expanded over the last 20 years. The proposed Development Area includes a broad range of pool types, thatch is minimized by cattle grazing, does not support dense populations of annual grasses within the wetlands, includes bare ground areas where Contra Costa goldfields could easily compete, and soils are clearly alkaline as is evident from the population of pickleweed and alkali heath observed there. However, the population has not expanded over time. Although Contra Costa goldfields are adapted to alkaline soils, the soil type within the proposed Development Area, Sycamore silty clay loam saline, may be less suitable for Contra Costa goldfields compared to other soil types, which may explain why the population has not expanded. The vast majority of the Contra Costa goldfields population on-site occurs within the westernmost portion of the Managed Open Space area south of Cordelia Road. This area covers approximately 18 acres (approximately 8 million plants estimated during the 2000 to 2005 plant survey), within which the soil type is Pescadero silty clay loam. Plant occurrences recorded in this area appear to abruptly end where the soil type changes to the Sycamore silty clay loam saline. Refer to Figure 15 of Appendix C for the Contra Costa goldfields locations overlaid onto the NRCS soils type map.

Delta Tule Pea (*Lathyrus jepsonii ssp. Jepsonii*)**.** Delta tule pea is considered rare and endangered (List 1B.2) by the CNPS. It occurs in marsh habitat along the margins of brackish water (and occasionally freshwater) bays and sloughs.

Delta tule pea was not observed within the proposed Development Area but six occurrences were observed within the Managed Open Space area south of Cordelia Street, with an estimated total of 1,350 individuals. One of these six occurrences was observed during both 2000 to 2005 and 2021 to 2022 plant surveys; located in a localized area south of Cordelia Road and UPRR at the south end of the area within perennial brackish marsh along the

eastern bank of Peytonia Slough. The remaining five occurrences were composed of small populations found only in 2022, located in the southernmost portions of the Managed Open Space area south of Cordelia Street, and all associated with thickets of California rose bordering slough edges. Some Delta tule pea occurrences were hard to access, in particular those between major slough channels; therefore, occupancy of the Managed Open Space area south of Cordelia Street may be underestimated.

Saline Clover (*Trifolium depauperatum var. hydrophilum*). Saline clover is considered to be rare and endangered (List 1B.2) by CNPS. It occurs in mesic grasslands and around vernal pools, typically in areas with subalkaline soils.

Seventeen occurrences of saline clover were observed within the proposed Development Area, with an estimated total of 465 individuals. This included seven occurrences around the upper margins of a single large vernal pool and seven occurrences in or on the edge of seasonally saturated annual grassland habitat within Planning Area 1, two occurrences in weedy (ruderal pasture) annual grassland habitat within Planning Area 2, and one occurrence within a large vernal pool in Planning Area 3.

Forty-two occurrences of saline clover were observed in the Managed Open Space area during plant surveys, two of which were north of Cordelia Street and the remaining were south of Cordelia Street. Most of these occurrences south of Cordelia Street were from seasonally saturated annual grasslands, some were in nearby upland annual grasslands and a few occurrences were located in the shallow vernal pools. The two occurrences north of Cordelia Street were located in small vernal pools. A total of 6,335 individuals were estimated during 2000 to 2005 surveys across all 42 occurrences within the Managed Open Space area.

The extent of area occupied by saline clover during 2021 to 2022 plant surveys within the Managed Open Space area south of Cordelia Street (approximately 40 occurrences) was much reduced compared to 2000 to 2005 surveys presumably due to several years of drought; however, total plant counts were much greater (Table 4.3-5). An estimated total of 22,000 individuals were estimated in the Managed Open Space area south of Cordelia Street in the 2021 to 2022 survey compared to 6,300 in the 2000 to 2005 survey.

Suisun Marsh Aster (*Symphyotrichum lentum*)**.** Suisun Marsh aster is considered rare and endangered (List 1B.2f) by the California Native Plant Society (CNPS). It occurs along the margins of bays and the banks of slough channels with brackish waters.

Suisun Marsh aster was not observed within the proposed Development Area.

More than 10 occurrences of Suisun Marsh aster were observed within the Managed Open Space area. Two of the occurrences in the Managed Open Space area were located north of Cordelia Street and were detected only during 2000 to 2005 surveys in scattered locations along the southern portion of the drainage ditch immediately to the east of Planning Area 3. Eight of the occurrences in the Managed Open Space area were located south of Cordelia Street, two of which were observed during both 2000 to 2005 surveys and 2021 to 2022 surveys. An additional unquantified number of extensive occurrences were reported in the Managed Open Space area south of Cordelia Street during 2021 to 2022 surveys. All occurrences of this species in the Managed Open Space area south of Cordelia Street were in perennial brackish marsh bordering slough banks.

Total population size of all colonies in the Managed Open Space area was estimated at approximately 4,200 plants during 2000 to 2005 surveys; an estimated population of 23,000 Suisun Marsh aster plants was observed

during 2022. Grazing pressure may have played a role in the marked changes in distribution and population count estimates between the 2 rare plant survey periods; slough banks that were closely grazed at the time of 2021 to 2022 survey period appeared to be absent of occurrences found during the 2000 to 2005 survey period, while the relocated and new populations found during the 2021 to 2022 survey period were primarily located in areas across deep tidal channels that were inaccessible to cattle.

As with Delta tule pea, some occurrences of Suisun Marsh aster were hard to access as a result of thick vegetation and deep tidal channels; therefore, occupancy of the Managed Open Space area by this species may be underestimated.

Heckard's Pepper-Grass (*Lepidium latipes* var. *herckardii).* Heckard's pepper-grass is no longer recognized as a distinct variety in the latest edition of the Jepson Manual (Baldwin et. Al., 2012), but the species is ranked 1B.2 in the CNPS Rare Plant Inventory. This species grows in grasslands and alkaline flats in the Centra Valley.

Heckard's pepper-grass was not observed within the Project Site (proposed Development Area or Managed Open Space area) during plant surveys conducted in 2000 to 2005. Two occurrences of this species with a total estimated population of 280 plants were observed in the Managed Open Space area south of Cordelia Road during surveys conducted in 2022, within annual grassland west of Ledgewood Creek.

Long-styled sand-spurrey *(Spergularia macrotheca* var. *longistyla).* Long-styled sand spurrey grows in alkaline seeps and meadows and is ranked 1B.2 in the CNPS Rare Plant Inventory.

The species was recorded as being observed on the Project Site during 2000 to 2005 surveys, but was not mapped because it had no listing status at the time. Long-styled sand spurrey was recorded at a single occurrence within the proposed Development Area during surveys conducted in 2022; a few plants were observed growing in the seasonally saturated annual grassland north of Cordelia Road and west of Pennsylvania Avenue, within Planning Area 1.

Other Special Status Plant Species. No other special status plants were observed within the Project Site during surveys conducted in six years since 2000. Special status vernal pool species included in Table 4.3-3, such as dwarf downingia (*Downingia pusilla*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legenere limosa*) were searched for during rare plant surveys and none of these species were observed during field surveys. Other vernal pool species listed in Table 4.3-3, including two Orcutt grasses, Colusa grass (*Neostapfia colusana*), and Crampton's tuctoria (*Tuctoria onservat*), were also considered target species during surveys. These two grasses typically occupy large and/or deep vernal pools that remain inundated into the summer during an average rain year. The large pool within the proposed Development Area can be considered possible habitat for Colusa grass and Crampton's tuctoria. However, surveys over the entire site over several years (2000 to 2005 and 2021 to 2022) yielded negative results for these species. The perennial brackish marsh in the southeastern area near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over the entire site over six years yielded negative results for this species.

The alkali seasonal wetlands on the site provide potential habitat for several of the special status plant species listed in Table 4.3-3, such as San Joaquin spearscale (*Atriplex joaquiniana*) and other species of saltbush (*Atriplex* spp.). San Joaquin spearscale is known from Travis Air Force Base (a few miles northeast of the Project Site) in habitat similar to that observed on the property. However, none of the special status plant species associated with

alkali seasonal wetlands was observed during plant surveys conducted within the Project Site during 2000 to 2005 or 2021 to 2022.

Several of the species in Table 4.3-3 are associated with marsh habitat along brackish sloughs and bay margins including Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*), soft bird's-beak (*Chloropyron mollis* ssp. *Mollis*), and Mason's lilaeopsis (*Lilaeopsis masonii*). Suisun thistle is known from only two historic locations, including one along lower Peytonia Slough. There is potential habitat for this species along the slough channels in the southern portion of the property south of Cordelia Road and the UPRR, but surveys over the entire site over six years yielded negative results for these species. Mason's lilaeopsis and soft bird's beak are more likely to occur south of the Project Site and closer to Grizzly Bay, though there is low potential for them to occur along sloughs in the southernmost portions of the Project Site, within the Managed Open Space area. As with Suisun thistle, there is the possibility these species could be present but were not seen during plant surveys conducted over six years due to the difficulty of accessing this area. However, it should be noted that this area is not proposed for development.

It is noteworthy that the three large, mapped occurrences of Contra Costa goldfields within the Managed Open Space area south of Cordelia Road and Cordelia Street are included within an area that contains a high cover of wildflower species associated with seasonally saturated grasslands and vernal pools. These fields are notable for their lack of introduced annual grasses.

Special Status Wildlife Species

A number of special status animal species with habitat requirements similar to habitats present at the Project Site are noted in the CNDDB as occurring either on portions of the Project Site or in the immediate vicinity of the Project Site, or have been observed on the site by HBG biologists during field surveys. Animal species noted in the CNDDB as occurring within a 10-mile radius of the Project Site, or that are known to occur in the vicinity based on the knowledge of HBG biologists, are presented in Table 4.3-4. Species documented from the site during HBG surveys or that are known from the CNDDB to occur in close proximity include vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California linderiella *(Linderiella occidentalis*), northern harrier (*Circus hudsonius*), Swainson's hawk (*Buteo swainsoni*), California black rail (*Laterallus jamaicensis coturniculus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludvicianus*), Suisun song sparrow (*Melospiza melodia maxillaries*), Suisun shrew (*Sorex ornatus sinuosus*), and salt marsh harvest mouse (*Reithrodontomys raviventris*).

Additional special status species with occurrence records farther from the Project Site could also find suitable habitat conditions within the Project Site. These species include Conservancy fairy shrimp (*Branchinecta conservation*), longhorn fairy shrimp (*Branchinecta longiantenna*), Western pond turtle (*Emmys marmorata*), Delta green ground beetle (*Elaphrus viridis*), California tiger salamander (*Ambystoma californiense*), western spadefoot toad (*Scaphiopus hammondi*i), short-eared owl (*Asio flammeus*), grasshopper sparrow (*Ammodramus savannarum*), and tricolored blackbird (*Aegelaius tricolor*). All species known or suspected of occurring within 10 miles of the Project Site are evaluated in Table 4.3-4, including species such as ferruginous hawk (*Buteo regalis*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco mexicanus*), and merlin (*Falco columbarius*), which would be expected to occasionally use the site as a foraging habitat in the winter.

Based on the habitat requirements of species listed in the table and on field review of habitats present at the site and the immediate vicinity, and through an evaluation of the suitability of on-site habitats to support these species,

it was determined that none of the other animal species discussed in the table have the potential to occur on the site (HBG 2023).

A variety of special status species surveys and assessments have taken place on the Project Site over the last 20 years. Protocol-level wet season surveys were conducted by May Consulting Services in the winter and spring of 2000 for federally listed vernal pool branchiopods, which were also appropriate for detection of non-listed special-status branchiopods. These surveys also served to check for the presence of California tiger salamanders (*Ambystoma californiense*), Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i), and curved-foot hygrotus diving beetle (*Hygrotus curvipes*). Protocol-level dry-season sampling for federally listed vernal pool brachiopods was conducted in summer of 2002 by Helm Biological Consulting and in the fall of 2005 by Area West Environmental. Recent protocol surveys for vernal pool large brachiopods included dry-season sampling in 2020 and wet-season surveys in 2021 conducted by Helm Biological Consulting. Vollmar Consulting (2006 and 2007) reviewed habitat conditions pertaining to potential presence of California tiger salamander and conducted seining for CTS larvae. Reconnaissance-level surveys were conducted during the period 2000 to 2003, 2005, and 2020, 2021, and 2022 to check for potential habitat for other special status invertebrates, amphibians, mammals and birds. The results of the species-specific site assessments, reconnaissance surveys, and habitat assessments are summarized in the following sections.

Invertebrates

Vernal Pool Brachiopods

Vernal Pool Fairy Shrimp. Vernal pool fairy shrimp (*Branchinecta lynchi*) was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical Habitat for this species was originally designated on August 6, 2003 (Federal Register 68: 46683-46867), and the designation was revised on August 11, 2005. Critical Habitat Unit Designations by individual fairy shrimp species were published on February 10, 2006 (Federal Register 71:7117). The Project Site is approximately 1.25 miles northwest of designated Critical Habitat.

Conservancy Fairy Shrimp. The Conservancy fairy shrimp (*Branchinecta conservation*) was listed as federally endangered in September 1994 (59 FR 48153). The Project Site is approximately 3.25 miles west of designated Critical Habitat.

Longhorn Fairy Shrimp. The longhorn fairy shrimp (*Branchinecta longiantenna*), a federally listed endangered species, inhabits clear to turbid grass-bottomed, vernal pools in grasslands and clear-water pools in sandstone depressions. There is no critical habitat designated within Solano County for longhorn fairy shrimp.

Vernal Pool Tadpole Shrimp. The vernal pool tadpole shrimp (*Lepidurus packardi*) was designated as threatened in its entire range on September 19, 1994 (*Federal Register* 59:48136-48153). Vernal pool tadpole shrimp is a federally listed threatened species. The Project Site is approximately 1.25 miles northwest of designated Critical Habitat.

California Linderiella. The California linderiella (*Linderiella occidentalis*), also known as the California fairy shrimp, is not listed by the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) but is listed by the International Union for the Conservation of Nature (IUCN) as a species threatened with extinction.

Both historical and recent dry-season and wet-season protocol surveys were negative for presence of federally listed large brachiopods on the Project Site. Vernal pool fairy shrimp and vernal pool tadpole shrimp do not occur on the Project Site. Refer to Attachment 5 of Appendix C for a copy of the Helm Biological Consulting 2020 and 2021 dry and wet season survey reports.

Other Invertebrates

Delta Green Ground Beetle. Delta green ground beetle (*Elaphrus viridis*) was designated as a threatened species in its entire range in 1980 (*Federal Register* 45:52807-52809). The Delta green ground beetle is known to occur only at two sites south of Dixon, and at the Jepson Prairie Preserve in Solano County, California. At the present time, the beetle is protected at the Jepson Prairie Preserve south of Dixon.

Vollmar Consulting assessed the habitat within the Project Site[2] for the presence of potential habitat of the Delta green ground beetle during studies conducted in 2003. Based on discussions of preferred habitat characteristics with Larry Sherpa, a species expert with the Nature Conservancy, Vollmar Consulting assessed the vernal pools within the proposed Development Area of the Project Site and the annexation area as not appearing to provide suitable habitat for this species since the vernal pools on-site are mostly small and shallow, and lack barren areas (Vollmar Consulting, November 2003). Vollmar Consulting indicated that the large vernal pools in the southern portion of the property appear to provide only marginally suitable foraging habitat for this species. This, along with the fact that the pools are manmade or enhanced, makes it very unlikely the beetles would occur on the site (Vollmar Consulting, January 2003). HBG wildlife biologists reviewed these findings during field reviews conducted in 2020, 2021, and 2022, and find that the only area of the Project Site providing marginally suitable habitat are areas within the southern portion of the preserved Managed Open Space closest to Suisun Marsh.

Fish

The Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run, and the spring run Chinook salmon, and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough and these fish could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur in the marshes within the eastern portion of the Annexation Area and within the portion of the site south of Cordelia Road. The lower reach of Ledgewood Creek adjacent to the southern portions of the Project Site, and a slough that runs through the eastern portion of the Annexation Area to the southern portion of the Project area, are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species.

Amphibians

California Tiger Salamander

Background. California tiger salamander (*Ambystoma californiense*) from the Central Valley Distinct Population Segment (includes Solano County) is listed as a threatened species under the federal Endangered Species Act. The species is also state listed as threatened under the California Endangered Species Act.

[2] The 5-acre landfill site was not included in this assessment.

Historically, the California tiger salamander inhabited low elevation grassland and oak savanna plant communities of the Central Valley and adjacent foothills, and the inner Coast Ranges in California. The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills. Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

Although the larvae of California tiger salamanders develop in vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders and spend most of their post-metamorphic lives in widely dispersed underground retreats. Subadult and adult California tiger salamanders spend the dry summer and fall months of the year in upland refugia such as the burrows of small mammals like California ground squirrels and Botta's pocket gopher, or other landscape features such as leaf litter or desiccation cracks in the soil. The upland burrows inhabited by California tiger salamanders have often been referred to as "aestivation'' sites or as "upland habitat."

Once fall or winter rains begin, the salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds. Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water. Historically, California tiger salamanders utilized vernal pools, but the animals also currently breed in livestock stock ponds. After breeding, adults leave the pool and return to the small mammal burrows, although they may continue to come out nightly for approximately the next two weeks to feed. In drought years, the seasonal pools may not form, and the adults cannot breed.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) inter-pond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. California tiger salamanders are known to travel large distances from breeding sites into upland habitats. Sweet (1998) found California tiger salamander individuals dispersing up to 1.3 miles in Santa Barbara County, and Orloff (2011) found a similar result for California tiger salamander in Contra Costa County. Searcy and Shaffer (2011) identified 1.5 miles as the potential physiological capacity for dispersal of this species in Solano County, on the Jepson Prairie. In addition to traveling long distances during migration to, or dispersal from ponds, California tiger salamanders may reside in burrows that are far from ponds. Although California tiger salamanders can travel far, typically they stay closer to breeding ponds, and evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adults.

Occurrence in the Project Area. Vollmar Consulting (2006) reported that the closest CTS occurrence to the Project Site was a 2001 report of thousands of larvae observed at a location approximately 5 miles southeast in the Potrero Hills, with the next nearest occurrence reported from approximately six miles northeast of the Project Site (about 1.5 miles northwest of Travis Field). Five additional occurrences were reported from 10-20 miles northeast of the Project Site. A recent data search with the CNDDB (CDFW 2023) shows that the situation with respect to California tiger salamander in this part of Solano County remains fairly unchanged. There are a total of 24 total occurrences of California tiger salamander within 10 miles of the Project Site, 6 found in the Potrero Hills between 5 to 6 miles southeast of the Project Site and an additional 18 found between 6 to 10 miles northeast of the site. The nearest breeding pond is located about 5 miles southeast of the Project Site near the Potrero Hills Landfill, where evidence of breeding has been documented as recently as 2017.

For their 2006 study, Vollmar Consulting followed federal survey protocols and conducted a regional and local California tiger salamander habitat assessment, as well as three rounds of seining for larvae. May Consulting Services also have conducted dip-net surveys for this species at the site in 2000. No CTS were observed during the seine surveys conducted by either May Consulting Services in 2000 or by Vollmar Consulting in 2006. In addition, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect California tiger salamander.

Vollmar Consulting concluded that suitable California tiger salamander breeding habitat occurred within some pools in the northern portion of the site as some pools remained inundated for periods that could support California tiger salamander breeding, but the water in these pools was clear to moderately clear, which is not consistent with California tiger salamander preference for turbid waters. All of the pools in the southern portion of the Project Site were too shallow to support breeding by California tiger salamander. Vollmar Consulting (2006) also found suitable upland California tiger salamander habitat in the non-native annual grasslands surrounding some pools in the northern portion of the site, but they found no ground squirrel burrows in the Project Site (mainly due to seasonal surface and subsurface soil saturation) which decreases the potential suitability of the uplands for California tiger salamander aestivation habitat. Use of upland areas of the site by California tiger salamander would not be likely as the nearest known breeding pond is 5 miles away, well beyond the 1.3-mile maximum observed dispersal distance of the species. In addition, significant barriers to migration occur between the Project area and known California tiger salamander occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies and floodplains. In 2007 Vollmar conducted a CTS upland habitat assessment and concluded that, due to the distance from known occurrences, the presence of significant migration barriers, and lack of surrounding breeding habitat, it was highly improbable that adult California tiger salamander could access and use the Project Site as upland habitat. Perhaps just as significantly, the entirety of the proposed Development Area of the Project Site is within the 100-year floodplain, as is 95 percent of the area south of Cordelia Road, which is an additional factor not conducive to presence of California tiger salamander. Refer to Attachment 6 of Appendix C for a copy of the 2006 and 2007 Vollmar Consulting California tiger salamander reports.

Western Spadefoot Toad

Background. The western spadefoot toad (*Scaphiopus hammondii*) is a state designated species of special concern that is known from the Central Valley and adjacent foothills, and from the interior coast ranges south of San Francisco Bay to Baja California. Western spadefoot toads require presence of an aquatic habitat for breeding and a terrestrial habitat for feeding and aestivation. Western spadefoot toads are mostly terrestrial, using upland habitats to feed and burrow in for their long dry-season dormancy. The species primarily occurs in grasslands habitat, typically near extensive areas of friable soils (but usually not sandy), but can occur in valley-foothill woodlands, coastal scrub, and chaparral communities below 3,000 feet in elevation.

The western spadefoot toad requires seasonally inundated wetlands for reproduction and metamorphosis, but have been known to utilize slow-moving waters and pools within washes, river floodplains, alluvial fans, alkali lakes and playas. They mate during the rainy season (generally from January to March), usually after heavy rains. Potential western spadefoot toad breeding habitat includes any seasonally to semi-permanently inundated depression, which occurs in the known range of the species, that on average ponds water at a sufficient depth and duration for a toad to complete its lifecycle (eggs to metamorphosis). Habitats that swiftly flow water (e.g.,

creeks, streams, and ephemeral drainages) or support populations of predators (e.g., bullfrogs, fish, crayfish) are generally not considered suitable habitat for western spadefoot toad larvae.

Occurrence in the Project Area. There are no CNDDB records in the vicinity of the property. The nearest recorded occurrences are more than 20 miles to the east and south. In addition, May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Dip net surveys included checking for larvae and egg masses. Dip-net surveys also corresponded with the rainy period when breeding toads are most likely to be observed migrating to breeding sites. Survey results were negative.

Birds

Northern Harrier

Background. The northern harrier (*Circus hudsonius*) is a medium-sized raptor that is a USFWS bird species of conservation concern and a state designated species of special concern. The females are brown with a white tail patch while the males are gray and white. It is a state species of special concern with respect to nesting. Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. The species forages over open habitats and annual croplands. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices.

Occurrence in the Project Area. The Project Site provides suitable foraging habitat for northern harrier both for wintering individuals and for individuals that may find suitable nesting sites in the open grasslands and wetlands over the Project Site. The nearest report in the CNDDB of northern harrier nesting is from 2004 at a location over two miles southeast of the Project Site within the area of Suisun Marsh. Northern harriers have been observed by HBG wildlife biologists foraging over the Project Site during the nesting season, suggesting that the species may nest somewhere in the project vicinity. Vollmar Consulting also observed individuals foraging over the perennial marsh and grassland habitats in the portion of the site south of Cordelia Road when conducting studies for the 2006 Biological Assessment. Northern harriers use the grasslands and wetlands within the Project Site as a foraging habitat, and there is a high probability that individuals of this species nest in the southern portion of the Project Site.

Swainson's Hawk

Background. The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that is state listed in California under CESA as a threatened species. This hawk is also designated by the USFWS as a Bird Species of Conservation Concern. Most Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. Valley oak, Fremont cottonwood, walnut, and large willows with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (CDFW 2007), but eucalyptus is also commonly used. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands. In the Central Valley, Swainson's hawks find suitable foraging habitat in such agricultural areas near suitable nest sites; however, nesting habitat is in decline due primarily to flood control projects, agricultural practices, and urban development.

The number of breeding pairs of Swainson's hawk in California has grown rapidly in recent years. Bloom (1980) estimated that as many as 17,136 pairs of Swainson's hawks historically nested in California and in the same report, based on a 1979 survey, estimated that only 375 (±50) breeding pairs remained in California. This demonstration of a 90 percent decline in the population prompted the listing of Swainson's hawk as a state threatened species in 1983. Estep (1989) estimated 430 breeding pairs in the Central Valley and 550 breeding pairs Statewide in 1988, and an estimate published by CDFW a decade later (CDFW 2007) showed a modest increase with an estimated number of breeding pairs statewide at 1,893 in 2005 and in the Central Valley at 2,251 in 2006. In a recent study published by CDFW researchers in early 2022, Furnas et al (2022) concluded that California's Swainson's hawk summering population grew between 2005 and 2018 at the rapid rate of 13.9 percent per year and estimated the total Statewide population at 18,810 breeding pairs in 2018, which is within the range of the historical baseline that Dr. Bloom estimated in 1979. According to the Five Year Status Review for Swainson's Hawk published by CDFW in 2016, habitat loss continues to be the primary threat to Swainson's hawk populations in California.

Occurrence in the Project Area. There are no large trees located on the Project Site, and few large trees capable of supporting nesting by Swainson's hawk in the immediate Project vicinity, therefore it is unlikely that Swainson's hawk nest in the immediate vicinity of the Project Site. Trees adjacent to the site include trees within the offsite riparian habitat of Ledgewood Creek, but these trees are mostly willows not of a size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within ½ mile of the site could support nesting by the species. The non-native grasslands, seasonal and brackish/tidal wetlands, and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the Project Site in areas nearby. There are 20 records of Swainson's hawk in the CNDDB within 10 miles of the Project Site, including 5 that are within 3 miles. The closest record of nesting Swainson's hawk to the Project Site is of a nest discovered in the summer of 2022 by an HBG wildlife biologist near Chadbourne Road and Courage Drive, a location that is approximately 1.4 miles west of the Project Site. (CNDDB 2022).

California Black Rail

Background. The California black rail (*Laterallus jamaicensis coturniculus*) is a state listed threatened species and a California Fully Protected Species. The California black rail most commonly occurs in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrush in association with pickleweed. In freshwater marsh, they are usually found in bulrush, cattails, and saltgrass. These rails typically occur in the high wetland zones near the upper limit of tidal influence. In California, the species occurs in San Francisco Bay, the Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and the lower Colorado River. Loss of upper marsh zone around San Francisco Bay has reduced numbers considerably.

Occurrence in the Project Area. No California black rails were seen or heard on the Project area, during a large number of field visits to the site over the last 20 years, though no formal vocalization surveys were conducted. The CNDDB records California black rail occurrences south of the site in marsh habitat bordering Suisun Bay and associated sloughs. The perennial marsh habitat on the eastern portion of the annexation area provides low to medium quality foraging and nesting habitat for this species. Though not detected during informal surveys, it is possible the species is present along slough channels with dense perennial marsh habitat in the southern portion of the Managed Open Space area closest to Suisun Marsh.

Short-eared Owl

Background. Short-eared owl (*Asio flammeus*) is a widespread species, with populations occurring on several continents. In California, short-eared owl is considered a species of special concern for its nesting habitat due to threats related to habitat loss, grazing, invasive plants, water management projects and disease. The species is also considered a USFWS bird species of conservation concern. Short-eared owls are found in the open country of grasslands, freshwater and saltwater marshes, lowland meadows, and irrigated alfalfa fields, inhabiting areas where small mammals, especially voles, are plentiful. Tule patches or heavily-grassed areas are needed for nesting and daytime seclusion. These owls nest on dry ground in depressions concealed in vegetation. In winter, short-eared owls forage in open habitats in grassland and marshes with a plentiful source of prey.

Occurrence in the Project Area. No short-eared owls were observed on the site during multiple site visits over the last 20 years. The CNDDB records numerous nesting occurrences at the Grizzly Island Wildlife Area in both perennial marsh and grassland habitat. The perennial brackish marsh along the eastern portion of the study site provides potential foraging and nesting habitat for the species. The annual grassland and wetland habitats on the rest of the site are generally too short to provide suitable habitat, but nesting by short-eared owl in the southern portion of the site cannot be ruled out.

Western Burrowing Owl

Background. Burrowing owls (*Athene cunicularia*) are small terrestrial owls commonly found in open grassland ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use burrows of California ground squirrel, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or stopovers during migration. While foraging, owls will perch on raised burrow mounds or other topographic relief such as rocks, tall plants, fence posts, and debris piles to attain better visibility. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, presence of "decoration" at or near a burrow entrance which can include molted feathers, cast pellets, prey remains, eggshell fragments, or excrement.

The burrowing owl is a USFWS bird species of conservation concern and a CDFW species of special concern. CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012, Staff Report (CDFG 2012).

Occurrence in the Project Area. No burrowing owls or their burrows were observed on the site by HBG wildlife biologists, although a formal survey was not completed. No burrowing owls were reported at the site by other biologists who have studied the site over the last 20 years, including biologists conducting branchiopod surveys (May Consulting Services, Area West Environmental, Helm Biological Consulting), rare plant surveys (Vollmar Consulting, HBG), and numerous site reconnaissance surveys by HBG wildlife biologists. The nearest record of burrowing owl in the CNDDB is a 2004 report of an occupied burrow off the site adjacent to Cordelia Road.

Vollmar Consulting (2006) reported that they found no ground squirrels burrows on the Project Site, presumably mainly due to seasonal surface and subsurface soil saturation, which limits the potential for burrowing owl to inhabit the site. HBG biologists conducting field surveys at the site for nearly 20 years report few ground squirrels on the Project Site, which decreases the potential suitability of the uplands as burrowing owl habitat. Some areas

of non-native grassland are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present. The species could also occur along levee banks and other raised areas that do not become saturated during the winter and spring. Burrowing owls do not currently occur on the Project Site, but future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels.

Loggerhead Shrike

Background. Loggerhead shrike (*Lanius ludovicianus*) is a California-designated species of special concern. Loggerhead shrikes are resident and winter visitors in lowlands and foothills throughout California and are rare along the coast in winter north to Mendocino County. Preferred habitat includes open areas such as desert, grasslands, and savannah. Loggerhead shrikes nest in thickly foliaged trees or tall shrubs and forage in open habitats which contain trees, fence posts, utility poles, and other perches. Loggerhead shrikes are usually solitary birds. They feed on insects, reptiles, and small mammals, which they frequently impale on thorns and barbed wire after capturing.

Occurrence in the Project Area. This species was observed on-site by HBG in June 2005 and in the area south of Cordelia Road in July of 2021. Biologists from Vollmar Consulting also observed a single loggerhead shrike perched on the fence line along the eastern edge of the proposed Development Area of the Project Site in May 2000. Loggerhead shrikes utilize the site for foraging and perching but it is unlikely to nest on the site due to a general lack of suitable habitat.

Salt Marsh Common Yellowthroat

Background. The salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), a type of warbler, is a subspecies of the widespread common yellowthroat and is a USFWS bird species of conservation concern and is designated as a California species of special concern. The breeding range of salt marsh common yellowthroat extends from Tomales Bay in the north, Carquinez Strait to the east, and Santa Cruz County to the south. This year-round resident is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. The species occupies the ecotone between moist and upland situations (Shuford and Gardali 2008), but requires thick, continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting.

Occurrence in the Project Area. Common yellowthroats have been observed by both HBG and Vollmar Consulting in the dense perennial brackish marsh habitat in the southern portion of the site south of Cordelia Road. However, a review of the breeding range map for the salt marsh common yellowthroat subspecies that is a state designated species of special concern shows that the breeding range of the subspecies of concern extends to the east only as far as about Carquinez Strait and does not include the marsh area near Suisun Bay. Although yellowthroats are present in the southern portion of the Project Site, they are not likely to be the salt marsh common yellowthroat that is a species of special concern.

Grasshopper Sparrow

Background. Grasshopper sparrow (*Ammodramus savannarum*) occurs in grasslands across North America and ranges from southern Canada to as far south as Ecuador. Grasshopper sparrows are common only in the Great Plains, but numbers are in decline due to loss of habitat, conversion of pasture to row crops, and fire suppression.

Grasshopper sparrows in California prefer moderately open, short to middle-height grassland habitats with scattered shrubs (Shuford and Gardali 2008). In California, agricultural and urban development has fragmented habitats within the range of the species, and Grasshopper sparrow has been designated in the state as a species of special concern.

Occurrence in the Project Area. Grasshopper sparrows were not observed during field surveys of the Project Site, but non-native annual grasslands on the property may provide suitable nesting and foraging habitat for the species.

Suisun Song Sparrow

Background. The Suisun song sparrow (*Melospiza melodia maxillaries*) is a state species of special concern endemic to Suisun Bay. Intermixed stands of bulrush (*Schoenoplectus* spp.), cattail (*Typha* spp.) and other emergent vegetation provide suitable habitat. Suisun song sparrows forage on the bare surface of tidally exposed mud among the tules and along slough margins in the brackish marshes of Suisun Bay during low tides (Shuford and Gardali 2008). This species' nests are strung along the edges of sloughs and bays in linear fashion. Each territory must have enough area for nesting and foraging, including tidally exposed mud, water, and vegetation suitable for nesting and cover while foraging. The vegetation must also harbor food and include permanent water or moisture in the form of tidal ebb and flow. Suisun song sparrows are physiologically and behaviorally adapted to naturally occurring brackish water conditions of Suisun Marsh. They are one of the few passerine birds that are adapted to allow direct consumption of saline water. This species prefers to consume water of the average salinity range that naturally occurs within its habitat. Previously, the literature suggested that these birds are confined to undiked tidal marshes. Recent field surveys have noted Suisun song sparrows along ditches, permanent ponds, and other areas in diked wetlands of Suisun Marsh where required plant assemblages and brackish water conditions exist.

Occurrence in the Project Area. Individuals of this species were observed by HBG in June 2005 foraging in the dense perennial marsh habitat both in the eastern portion of the annexation area and in the portion of the site south of Cordelia Road. This species was also observed by Vollmar Consulting biologists in the spring of 2000, foraging in the dense perennial marsh habitat along the eastern portion of the annexation area. The species uses the perennial marsh habitat on the site for foraging and may use the site for nesting.

Tricolored Blackbird

Background. The tricolored blackbird (*Agelaius tricolor*) is a medium-sized songbird similar in appearance to the more common red-winged blackbird but with three colors on its wing patches: red, yellow, and white. Tricolored blackbird is listed as threatened under the California Endangered Species Act and is a USFWS bird species of conservation concern. Tricolored blackbird is a highly colonial nesting species that breeds near freshwater, preferably in emergent wetlands with tall, dense growth of cattails or tules. Even when the preferred nesting substrates are available, other vegetation may be used for nesting including sedges, nettles, willows, thistles, mustard, blackberry, wild rose, foxtail grass or barley. Since the 1970s with declines in populations, nesting in cereal crops and dairy silage has been documented. Tricolored blackbird foraging areas include rangeland, fields of alfalfa or cut hay, or irrigated pastures with an abundance of insects.

Occurrence in the Project Area. No tricolored blackbirds were observed on the site and there are no current CNDDB records for the species in the vicinity. However, the perennial marsh habitat along the eastern portion of the annexation area provides suitable nesting habitat for the species.

Mammals

Suisun Shrew

Background. Suisun shrew (*Sorex ornatus sinuosus*) typically inhabit tidal marshes characterized in order of decreasing tolerance to inundation, by California cordgrass (*Spartina foliosa)*, perennial glasswort (*Salicornia ambigua)*, and hairy gumweed (*Grindelia cuneifolia),* and brackish marshes dominated by giant bulrush (*Schoenoplectus californicus)* and broadleaf cattail (*Typha latifolia)*. It inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays. It is a state species of special concern. They require dense, low-lying cover where invertebrates are abundant.

Occurrence in the Project Area. The CNDDB records an occurrence of Suisun shrew immediately east of the southern portion of the Project Site. Given the close proximity of this occurrence and the presence of suitable habitat, it is likely the Suisun shrew occurs within the perennial marsh habitat on the southern portion of the Project Site. Suisun Shrew is also likely to occur within the perennial marsh habitat along the eastern portion of the Annexation Area, as well. It is unlikely to occur elsewhere on the site, including the proposed Development Area of the Project Site, due to a lack of suitable habitat.

Salt Marsh Harvest Mouse

Background. The salt marsh harvest mouse was federally listed as endangered in its entire range in 1970 (*Federal Register* 35:16047). It is also state listed as endangered and a California Fully Protected species. The salt marsh harvest mouse is a small native rodent. There are two subspecies: the northern (*R. r. halicoetes*) and the southern (*R. r. raviventris*). The northern subspecies lives in the marshes of the San Pablo and Suisun bays, the southern subspecies resides in the marshes of Corte Madera, Richmond and South San Francisco Bay. Salt marsh harvest mice are critically dependent on dense cover and their preferred habitat is dominated by pickleweed. In marshes with an upper zone of peripheral halophytes (salt tolerant plants), mice use the vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides. Salt marsh harvest mice probably live on leaves, seeds, and stems of plants. The northern subspecies of the salt marsh harvest mouse can drink sea water for extended periods but prefers fresh water.

Occurrence in the Project Area. The CNDDB records an occurrence of the species in the perennial marsh habitat along the eastern portion of the proposed annexation area. This record was of a salt marsh harvest mouse trapped as part of trapping surveys conducted in the perennial brackish marsh at the east end of the annexation area in 1986. This area supports localized, homogeneous stands of pickleweed. It is assumed the species is still present in this location. There are a couple of small pickleweed stands within the portion of the site south of Cordelia Road near the railroad tracks along the southeastern property line. Given the occurrence of salt marsh harvest mice in similar habitat nearby, it is likely the species also occurs within the perennial marsh habitat on the southern portion of the property. The species is unlikely to occur on the rest of the site, including the proposed Development Area of the Project Site, due to lack of suitable habitat.

Sensitive Natural Communities

CDFW designates sensitive natural communities which are either considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW as those communities that provide special functions or values. CDFW identifies sensitive plant communities on their List of California Natural Communities and records their mapped presence as part of the information documented within the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

The area of the Project Site is documented within the CNDDB as supporting two communities designated on CDFW's list of sensitive natural communities: Northern clay pan vernal pools and Coastal brackish marsh. The mapped information in the CNDDB, shown on Figure 20 of Attachment C, provides a general location of these wetland habitat types within the Project area. Both of these natural communities were mapped in greater detail by HBG during field work conducted in 2021 as part of an Aquatic Resources Delineation pursuant to federal Clean Water Act and state Porter-Cologne Act criteria. The Aquatic Resources Delineation of the Project Site, which has been verified by the U.S. Army Corps of Engineers, is broken down by natural community type in Figure 13 of Attachment C. Areas noted in Figure 13 as perennial brackish marsh are a more detailed representation of the Coastal brackish marsh generally mapped in the CNDDB. Northern clay pan vernal pools are mapped as vernal pool communities in Figure 13 of Attachment C, but the verified aquatic resources delineation also includes additional wetland areas that would be classified as seasonally saturated annual grasslands, alkali seasonal wetlands, and riparian wetlands.

Some of the vernal pool habitats on site could be classified as a *Downingia pulchella – Cressa truxillensis* association, under the *Lasthenia fremontii – Distichlis spicata* alliance. Others fit better in the *Lasthenia glaberrima –Pleuropogon californicus* association or the *Lasthenia glaberrima Trifolium variegatum* association, both under the *Lasthenia glaberrima* alliance (Sawyer *et al.* 2009). Both the *Lasthenia fremontii – Distichlis spicata* alliance and the *Lasthenia glaberrima* alliance have a global and state rarity ranking of 2 (G2 and S2) and therefore are considered sensitive natural communities regardless of their wetland status.

CRITICAL HABITAT AND RECOVERY PLANS

Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants

The USFWS final designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon included designation of Critical Habitat for Contra Costa goldfields. The entire Project Site is included in the Contra Costa goldfields Critical Habitat designation "Subunit 5B"; no Critical Habitat for other species covered under this ruling is present within the Project Site, including vernal pool crustaceans. The Project Site encompasses approximately 487 acres, which is approximately 66 percent of the 737-acre Critical Habitat Subunit 5B. The proposed Development Area includes 93.4 acres (13 percent) of the 737-acre Critical Habitat Subunit 5B; this represents the entirety of the proposed Development Area. An additional 254.3 acres (35 percent) of Critical Habitat Subunit 5B is located within the Managed Open Space area, of which 38 acres (5 percent) overlap the area proposed for establishment of wetlands. The physical and biological features necessary for (i.e., primary constituent elements of) critical habitat for Contra Costa goldfields are the habitat components that provide: (1) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing

surface water in the depressional features including swales connecting the pools described as the next primary constituent element, providing for dispersal and promoting hydroperiods of adequate length in the pools; (2) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Designation of Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the Project Site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed Development Area and proposed Managed Open Space area of the Project Site are not located on Critical Habitat Unit 2 for the Suisun thistle and surveys have not detected any occurrences of the Suisun thistle.

Designation of Critical Habitat for the California Tiger Salamander, Central Population

The USFWS final designation of Critical Habitat for the California Tiger Salamander, Central Population includes the Project Site. The Project Site is within the 5,699-acre Critical Habitat designated as Jepson Prairie Unit. The Jepson Prairie Unit represents the northwestern portion of the species' distribution and the southern end of the Solano-Colusa vernal pool region in Solano County. The proposed Development Area includes 93.4 acres (1.6 percent) of the 5,699-acre Jepson Prairie Unit. An additional 393.2 acres (7 percent) of the Jepson Prairie Unit is located within the Managed Open Space, of which 38 acres (less than one percent) are within the area proposed for wetland establishment. However, the portion of the Jepson Prairie Unit that overlaps the proposed Project Development Area does not support the physical and biological features necessary for the conservation of the species (see additional discussion under "Issues Not Discussed Further").

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan covers 33 species of plants and animals that occur exclusively or primarily within a vernal pool ecosystem in California and southern Oregon. The recovery plan goals include protecting and conserving intact vernal pools and vernal pool complexes within the recovery planning area to maintain viable populations of listed species and species of concern and prevent additional threats from emerging over time. The recovery plan includes designated "core" areas that are specific sites necessary to recover these endangered or threatened species or to conserve the species of concern addressed in the recovery plan. The Project Site is within the "*Suisun Marsh Core Area*" and the extent and location is similar to the Contra Costa goldfields Critical Habitat designation Subunit 5B. For the purpose of this analysis the area of the *Suisun Marsh Core Area* is considered the same or similar to Subunit 5B of the Contra Costa goldfields Critical Habitat.

4.3.2 REGULATORY FRAMEWORK

FEDERAL REGULATIONS

Clean Water Act-Section 404

The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the U.S. Environmental Protection Agency (US EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into Waters of the United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b) (1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative" (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and "other waters of the U.S." Wetlands and other waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands as "…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (US EPA regulations at 40 CFR § 230.3(t); Corps' regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps' 1987 Wetlands Delineation Manual (1987 Manual); the Corps' 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the

high tide line…"or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters" (33 C.F.R.§328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R.§328.3(d)).

Solid Waste Agency of Northern Cook County and Rapanos

In the U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC), No. 99-1178 (2001),* some isolated wetlands may be excluded from the Corps' Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Subsequent to SWANCC, the U.S. Supreme Court decided on *Rapanos v. United States* and *Carabell v. United States*, 126 U.S. 2208 (2006) (herein referred to as Rapanos). In 2007, guidance was given to US EPA regions and Corps districts to implement the Supreme Court's decision which addresses the jurisdiction over waters of the U.S. under the Clean Water Act. The Rapanos guidance requires the Corps to conduct detailed analysis of the functions and values of wetlands and other waters of the U.S. potentially on-site and in some cases offsite, to determine if there is a nexus to traditional navigable waters and to evaluate the significance of the nexus to the traditional navigable water. Neither the Court nor the recently-issued guidance draw a clear line with respect to the geographic reach of jurisdiction, particularly in drainages where flows are ephemeral and where wetlands are adjacent to but not directly abutting relatively permanent water.

Navigable Waters Protection Rule

In 2020, the Trump Administration obtained approval of the Navigable Waters Protection Rule (NWPR) that altered the reach of the nation's Clean Water Act. The NWPR has four categories of jurisdictional waters and twelve categories of excluded waters/features. There is no standalone interstate waters category and no case-specific significant nexus analysis. Key changes were made for defining tributary, adjacent wetland, ditches, lakes, ponds, and impoundments. New definitions for defining typical year versus normal, perennial, intermittent, ephemeral, snowpack, and ditches. No change was made to the definition of wetlands or the methodology for defining wetlands. Under the NWPR, WOTUS includes (1) territorial seas and traditional navigable waters; (2) tributaries; (3) lakes and ponds, and impoundments of jurisdictional waters; and (4) adjacent wetlands.

A ruling in the U.S. District Court for the District of Arizona on August 30, 2021, in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency,* may result in the Final NWPR being overturned permanently. The Environmental Protection Agency (USEPA) and USACE are reviewing the U.S. District Court's order vacating and remanding the NWPR, have halted implementation of the Navigable Waters Protection Rule, and are currently interpreting "waters of the United States" consistent with the pre-2015 WOTUS definition and USEPA and USACE regulatory policies and guidance regime until further notice.

2023 Rule, Revised Definition of "Waters of the United States"

The final "Revised Definition of 'Waters of the United States" (2023 Rule) was published in the Federal Register on January 18, 2023 and the 2023 Rule took effect on March 20, 2023. This 2023 Rule rescinded the definition adopted in 2020 by the Trump Administration (2020 NWPR), and re-established federal Clean Water Act regulation of a number of types of water features left out of the 2020 NWPR. The new 2023 Rule cuts to the limits expressed in the 2006 *Rapanos* decision and reestablishes the "significant nexus test". This test establishes federal jurisdiction over waters that either alone or in combination with similarly situated waters significantly

affect the chemical, physical, or biological integrity of waters. Adjacent wetlands and non-navigable tributaries are regulated under this 2023 Rule if they satisfy either test. The 2023 Rule made no changes to the definition of the "tidal waters", "high tide line (HTL)" or ''ordinary high water mark'' (''OHWM'') contained in the 1986 regulations (and in the 2020 NWPR, which made no changes to the 1986 regulation).

Since the 2023 Rule was published the Supreme Court of the United States decided *Sackett v. EPA*. In Sackett, the Supreme Court unanimously rejected the significant nexus test, and decided only those wetlands with a continuous surface connection to other regulated waters such that the two are indistinguishable are subject to Clean Water Act authority. The result of the *Sackett* decision for the 2023 Rule will not be entirely clear until EPA releases guidance, but it appears at a minimum the portion of the 2023 Rule that regulates wetlands solely on the basis of the significant nexus test would be invalid and the decades old definition of "adjacent," also appears to be invalid.

Clean Water Act - National Pollution Discharge Elimination System Requirements

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related storm water discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board has developed a general construction storm water permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering storm water and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that the site design provide no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development ("LID") design features. The Construction General Permit is implemented and enforced by California's nine Regional Water Quality Control Boards.

The State Regional Water Quality Control Boards (RWQCBs) have also adopted requirements for NPDES storm water permits for medium and large municipalities, and the State Water Resources Control Board has adopted a General Permit for the discharge of storm water from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to

be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect Critical Habitat (16 USC 1532, 1536).

The FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term "harm" in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision.

In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). Section 7 of the FESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify Critical Habitat (16 USC 1536). In the regulations found at 50 CFR 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of Critical Habitat for both the survival and recovery of a listed species." Critical Habitat is defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." Critical Habitat designations identify, with the best available knowledge, those biological and physical features (primary constituent elements) which provide for the life history processes essential to the conservation of the species.

If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFA) conserves and manages the fishery resources found off the coasts of the United States, the anadromous species, and the Continental Shelf fishery resources of the United States, including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSFA and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSFA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regard to the overall productivity and sustainability of U.S. marine fisheries (Public Law 104-267). The revised MSFA mandates the identification and protection of Essential Fish Habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect

such habitat. Federal agencies are required to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSFA 305.b.2).

Under the MSFA, NMFS identifies, conserves, and enhances EFH for those species regulated under a federal fisheries management plan (FMP). EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity and includes all associated physical, chemical, and biological properties of aquatic habitat that are used by fish. Projects that have the potential to adversely affect EFH must initiate consultation with NMFS. Adverse effects are any impacts that reduce the quality and/or quantity of EFH and can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). There are four FMPs in California, Oregon, and Washington that identify EFH for groundfish, coastal pelagic species, Pacific salmon, and Pacific highly migratory fisheries.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or "incidental" taking or killing of migratory birds. In response to the Trump Administration's attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court, and the elimination of protections pursuant to the MBTA went into effect in January of 2021. On his first day in office, new President Joe Biden placed the Trump Administration's changes to the MBTA on hold, pending further review. The Biden Administration announced the repeal of the January 2021 changes and the reinstatement of protection for migratory birds in December of 2021.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

State Regulations

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Control Act

Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCBs). A water quality certification from a RWQCB must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States;" all surface waters that are not "waters of the United States, e.g., non-jurisdictional wetlands; groundwater; and the territorial seas.

The State Water Resources Control Board's State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State adopted April 2, 2019 (the Procedures) along with the Implementation Guidance for the Procedures dated April 2020 (the Implementation Guidance) defines a wetland as an area that under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, state that the permitting authority (e.g., RWQCB) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters, but these delineations will be verified by the RWQCB staff during application review. Similarly, if the Corps does not require a delineation, but similar information is prepared for CDFW, the applicant submit that information to the RWQCB, who will determine if it is sufficient for the Water Board's purposes. In addition, as a matter of policy, the SWQCB/RWQCBs consider wetlands and waters determined to be non-jurisdictional by the Corps/USEPA under SWANCC or Rapanos guidance or the NWPR to remain jurisdictional as waters of the State subject to SWQCB/RWQCB jurisdiction.

The Procedures along with the Interim Guidance also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acres. The Procedures require an alternatives analysis to be completed in accordance with a three tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction storm water permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a RWQCB must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) has permit jurisdiction over San Francisco Bay. There are two types of BCDC jurisdiction within the Bay Area:

a. Bay Jurisdiction: San Francisco Bay jurisdiction, being all areas that are subject to tidal action from the south end of the bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended north easterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).

b. Shoreline Band Jurisdiction: A shoreline band consisting of all territory located between the shoreline of San Francisco Bay as defined above in item (a) and a line 100 feet landward of and parallel with that line; provided that the commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

BCDC is authorized to issue or deny permits for any filling of the Bay. Section 66605 of the McAteer-Petris Act allows the Commission to authorize Bay fill only for water-oriented uses, and minor fill to improve shoreline appearance or public access. Furthermore, the McAteer-Petris Act requires that the fill only should be authorized if there is no feasible upland location, the fill is the minimum amount necessary, the fill minimizes harmful effects to the Bay, and the public benefits clearly exceed its detriments.

The extent of BCDC jurisdiction over the Project Site is discussed in the section regarding the Suisun Marsh Protection Plan in Section 3.3.

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents. The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until CEQA compliance has been achieved, usually through the CEQA Lead Agency providing documentation by preparing a negative declaration or EIR.

California Department of Fish and Wildlife - Lake and Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically mentioned in the Fish and Game Code provisions governing Lake and Streambed Alteration Agreement, but CDFW often asserts jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Department of Fish and Wildlife - Fish and Game Code Section 3503, 3503.5 and 3513

The State of California also incorporates the protection of nongame birds and birds of prey, including their nests, in Sections 3503, 3503.5, and 3513 of the California Fish and Game Code. Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. In December of 2018, California issued new guidance specifying that state law includes "a prohibition on incidental take of migratory birds, notwithstanding any federal reinterpretation of the Migratory Bird Treaty Act" by the Department of Interior.

California Department of Fish and Wildlife - Sensitive Plant Communities

CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities, as well as special status species (including species of special concern), is kept by CDFW as part of the CNDDB. All known occurrences of sensitive habitats are mapped onto 7.5minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDB. Sensitive plant

communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife - Species of Special Concern

CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of "Species of Special Concern" developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife - Fully Protected Animal Species

The classification of Fully Protected was an effort by the California Legislature in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Protection of Fully Protected species is described in four sections of the Fish & Game Code that lists fully protected species (Fish &Game Code §§ 3511, 4700, 5050, and 5515). These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of Fully Protected species when activities are proposed in areas inhabited by these species, except pursuant to an approved Natural Community Conservation Plan. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Permits may be issued for the take of Fully Protected bird species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

LOCAL POLICIES AND REGULATIONS

City of Suisun City General Plan

In addition to federal and state laws and regulations, the Open Space and Conservation Element of the City of Suisun City General Plan (May 2015) includes the following goals, objectives, policies, and programs to provide for a variety of open spaces and resource conservation, and relevant to the proposed Project (additional detail for each of the City's General Plan Programs listed below is available within the City of Suisun City General Plan (May 2015).

- Goal OSC-1 Protect wildlife habitat and movement corridors through the preservation of open space.
  - Objective OSC-1 Increase the number of new developments that preserve and integrate drainages and other wildlife movement into site plans.
    - Policy OSC-1.1 The City will require biological resources investigations for proposed developments that could adversely affect potential wildlife movement corridors to determine the value and importance of such corridors to daily and/or seasonal movement and dispersal of local wildlife and identify measures to minimize and avoid adverse effects on wildlife movement. Wildlife movement corridors include marshlands, waterways, and other types of corridors that provide for movement and dispersal.

- Policy OSC-1.2 New developments in areas with waterways, riparian habitats, and stands of mature trees shall preserve and incorporate those features into project site planning and design, to the greatest extent feasible.

- Policy OSC-1.3 New developments shall be designed to protect and preserve natural watercourses and drainage channels to the maximum extent feasible.

- Policy OSC-1.4 New development shall preserve and incorporate into site planning natural drainages that could support riparian habitat.

- Policy OSC-1.5 New developments shall avoid placing any temporary or permanent barriers within wildlife movement corridors, if they are determined to exist on-site.

- Policy OSC-1.6 New developments shall be designed to avoid fragmentation or disruption of the Jepson Prairie-Suisun Marsh corridor and the City will ensure that land use change in areas near this corridor does not interrupt natural wildlife movement or migration through this area.

- Policy OSC-1.7 New developments shall be designed to preserve fish and wildlife habitats along Suisun Slough and tributary watercourses to the maximum extent feasible.

- Policy OSC-1.8 Roads, water lines, sewer lines, drainage facilities, and other public facilities constructed to serve development shall be located and designed to avoid substantial impacts to stream courses, associated riparian areas, and wetlands, to the greatest practical extent.

- Policy OSC-1.9 The City will support cooperative restoration, development, and promotion of natural resources with other public agencies with an interest in Suisun City's water and wildlife assets.

    - Program OSC-1.1 Preservation through Site Planning and Design
    - Program OSC-1.2 Wetlands and Riparian Buffers
    - Program OSC-1.3 Biological Resources Review for New Developments
    - Program OSC-1.4 Habitat Conservation Areas
    - Program OSC-1.5 Riparian Habitat Management Plan
    - Program OSC-1.6 Wetlands Delineation and Permit Requirements

- Goal OSC-2 Ensure consistency with Solano Multispecies Habitat Conservation Plan.

    - Objective OSC-2 New development in the Planning Area supports the conservation objectives of the Solano Multispecies HCP.

        - Policy OSC-2.1 The City will coordinate environmental review and mitigation requirements with the Solano Multispecies HCP.

        - Policy OSC-2.2 The City will support the use of mitigation fees from the Solano Multispecies HCP to fund preservation and restoration elements of the City's conservation and open space strategy.

  - Policy OSC-2.3 The City will require that new developments comply with relevant conservation measures detailed within the Conservation Strategy chapter of the Solano Multi-Species HCP, as applicable.

- Goal OSC-3: Protect and improve the qualities and amenities of the Suisun Marsh as a natural habitat.
  - Objective OSC-2 Enhance and not detract from the habitat values provided in the Suisun March. .
    - Policy OSC-3.1 The City will support efforts to preserve lands within the Primary Management Area of the Suisun Marsh Protection Plan as open space for appropriate agriculture, wildlife habitat, and limited outdoor recreation compatible with the objectives of the Suisun Marsh Protection Plan.
    - Policy OSC-3.4 New developments shall control debris, sediment, and the rate and dispersal of runoff before drainage into watercourses and Suisun Marsh through the incorporation of erosion control measures.
    - Policy OSC-3.5 New developments adjacent to watercourses, Suisun Slough, and Suisun Marsh shall include buffer areas, as needed, to avoid flood hazards, protect water quality, and preserve habitat for wildlife.

Solano County General Plan

The proposed Managed Open Space area of the Project Site that is south of the California Northern Railroad and Cordelia Road, is within unincorporated Solano County and not proposed for annexation. Therefore, Solano County policies are summarized below for context.

The Resources chapter of the Solano County General Plan identifies goals, policies, and implementation measures that will be used by the County in day-to-day decision making to protect natural, cultural, and open space resources. The Biological Resources section of the Resources chapter addresses biological resources and the actions that the County can take to maintain, protect, and preserve the County's biological resources that include a wide range of species and natural communities. Priority habitat areas are mapped in the Solano County General Plan, and these were used to create the Resource Conservation Overlay. The Overlay indicates general locations of priority habitat, provides both opportunities and restrictions regarding the use of the underlying properties, and identifies these areas as high priority targets for future management of biological resources. The proposed Managed Open Space area of the Project Site is within the Resource Conservation Overlay Area.

The following includes the Solano County General Plan policies regarding biological resources that may be relevant to the proposed Project.

- 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.
- RS.P-2: Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.

- RS.P-3: Focus conservation and protection efforts on high-priority habitat areas depicted in Figure RS-1 [of the Solano County General Plan (2008)].

- RS.P-4: Together with property owners and federal and state agencies, identify feasible and economically viable methods of protecting and enhancing natural habitats and biological resources.

- 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.

- RS.P-6: Protect oak woodlands and heritage trees and encourage the planting of native tree species in new developments and along road rights-of-way.

Suisun Marsh Protection Plan

Development and use of the Suisun Marsh is regulated under State law. In 1976, the California legislature passed the Suisun Marsh Preservation Act because of the need to protect the marsh from potential residential, commercial, and industrial developments and the need to preserve the marsh for future generations. The Act directs BCDC and CDFW to prepare the Suisun Marsh Protection Plan to "preserve the integrity and assure continued wildlife use" of the Suisun Marsh.

The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh aquatic and wildlife habitats and to assure retention of upland areas adjacent to the Marsh in uses compatible with its protection. Policies of the Suisun Marsh Protection Plan include activities that may conflict with their own stated objectives, but are seen as important as long as they are managed, such as increased public recreational uses, agriculture, and duck hunting.

The Suisun Marsh Protection Plan divides Suisun Marsh into two zones: the Primary Management Area and the Secondary Management Area. The Primary Management Area encompasses 89,000 acres of tidal marsh, managed wetlands, adjacent grasslands and waterways over most of which BCDC has jurisdiction. The Secondary Management Area encompasses approximately 22,500 acres of buffer. Solano County administers the local protection program while BCDC represents the State's interest and also serves as the land use permitting agency for major projects in the Primary Management Area. Figure 6 of Appendix C shows the Suisun Marsh Protection Plan Primary and Secondary Management Areas within the Project Site boundary.

Details regarding habitat protections required within both the Primary and Secondary Suisun Marsh Management Areas are described in the sections below.

Suisun Marsh Primary Management Area. In the Primary Management Area, the protection of environmental values and existing uses is the primary consideration. Urban development is precluded and other uses such as oil and gas exploration and construction and operations of utilities and other facilities are highly regulated by BCDC. Nevertheless, these activities are not permitted if they conflict with the protection of the Suisun Marsh's values, and other practicable alternatives are available.

Within the Primary Management Area "… land and water areas should be managed so as to achieve the following objectives:

- Preservation and enhancement of Marsh habitat.
- Provision of habitat attractive to waterfowl.
- Improvement of water distribution and levee systems.
- Encouragement of agricultural and grazing practices consistent with wildlife use, waterfowl hunting, and elimination of mosquito breeding.
- Restoration of historic wetlands."

BCDC has jurisdiction over most of the Primary Management Area and serves as the land-use permitting agency for major projects in the Primary Management Area.

Suisun Marsh Secondary Management Area. The Secondary Management Area encompasses approximately 22,500 acres of "significant buffer lands", including upland grasslands and agricultural lands, surrounding the Primary Management Area of the Suisun Marsh. Activities within the Secondary Management Area are also severely restricted to activities that will not adversely impact the Marsh. The function of the Secondary Management Area is to act as a buffer area protecting the Marsh habitats within the Primary Management Area from adverse impacts of urban development. The Secondary Management Area also serves as a transitional zone that is used by Suisun Marsh wildlife particularly when the wetlands are flooded and during periods of high hunting pressure in the Suisun Marsh. Goals of the Secondary Management Area include:

- Returning historical marshes that have been converted for urban land use practices back to their original wetland status.
- Maintaining and enhancing Marsh-related wildlife habitats in the Secondary Management Area by planting or encouraging valuable wildlife food or cover plant species.
- Supporting existing agricultural land uses consistent with the protection of the Suisun Marsh, such as grazing and grain production.
- Establishing local runoff, erosion, and sediment control ordinances over the watershed of the Suisun Marsh to prevent or minimize earth disturbance, erosion, water pollution, and hazards to public safety.

The Secondary Management Area's function as a buffer and transitional zone to protect the Marsh is the prime consideration in building and land-use restrictions over the area. The Suisun Marsh Protection Plan disfavors urban development and encourages protection of existing grazing and agricultural practices. It also tolerates existing commercial ventures, provided they do not cause adverse impacts on Suisun Marsh. These potential impacts, whether from an existing or proposed use, include direct, quantifiable effects such as degradation of water quality, to less quantifiable impacts such as the intrusion of domestic pets.

Solano County, which has jurisdiction over the Secondary Management Area, assesses compatibility of a proposed land use according to the policies defined in the Suisun Marsh Protection Plan and further detailed in Solano County's Local Protection Program. New commercial ventures in the Secondary Management Area are not prohibited, but it is required that such ventures be compatible with the Local Protection Program. Solano

County authorizes land use and development through a rigorous permitting process. When considering a permit, there are three principal concerns:

- That the construction should not be disruptive to the ecosystem.
- That the new development should not "have lasting effects on wildlife by forming barriers and obstacles to their movements and flight patterns."
- That the process or development itself should not "stimulate urban development by providing services that are a prerequisite for such development."

Any development within the Secondary Management Area must be authorized through the Marsh Development Permit process. Application for a Marsh Development Permit must be obtained by and filed with the Solano County Planning Department. In order for the Zoning Administrator or Planning Commission to grant a Marsh Development Permit, it must be demonstrated in the application that the proposed development shall be consistent with the policies defined in the Suisun Marsh Local Protection Program, which outlines Solano County's strategies for following policies defined in the Suisun Marsh Protection Plan for the Secondary Management Area.

Suisun Marsh Agency Responsibilities. Rather than give one agency responsibility over the Suisun Marsh, the Suisun Marsh Protection Plan allows for control by multiple agencies that must maintain practices compatible with the policies of the Suisun Marsh Protection Plan. Local government agencies with jurisdiction over an area of the Marsh retain administrative control, including permit authority, and shoulder responsibility for day-to-day implementation of the Suisun Marsh Protection Plan. For guidance, those agencies reference a "local protection program" that outlines how that area should conform to the Suisun Marsh Protection Plan.

Besides administrating its own lands in the Marsh, the State maintains an oversight role, which is carried out by BCDC. The State's principal oversight duties are twofold: 1) "to ensure to the maximum extent feasible that existing uses of the Marsh continue," and 2) to ensure "that further development in the watershed does not adversely affect water quality." The means of oversight include a permit system for development in the Primary Management Area, appellate review over local decisions that "significantly affect the Marsh," and certification of the Local Protection Program.

Solano County is responsible for preparing and administering Solano County's Local Protection Program and also has permit authority in the Secondary Management Area. Solano County refers to a regulatory document called the "Solano County Policies and Regulations Governing the Suisun Marsh" for guidelines and policies concerning land use activities in the Secondary Management Area. Solano County also refers to the County General Plan to determine marsh protection policies and land use designations.

Suisun City, Fairfield, and Benicia have permit authority in the region of the Secondary Management Area that falls within the cities' boundaries. They reference their local protection programs and general plans to determine policies concerning land designations and land use activities within the Secondary Management Area.

The Fish and Game Commission and CDFW maintain ultimate authority and responsibility for management of the fish and wildlife resources of the Marsh. CDFW manages lands acquired with State funds that are intended for wildlife habitat and recreational use. Because of the daily presence of its employees in the Marsh, and the ground-

level understanding that comes from this presence, CDFW also has significant influence and responsibility over the general management of the Marsh. This includes review of the Local Protection Program, consultation on wildlife and water management and appeals, the development of Marsh programs, and the authority to inspect and report on the Marsh.

The Suisun Resource Conservation District (District) is empowered to regulate water management practices of private lands in the Marsh. Local agencies retain the responsibilities of day-to-day water management, and those agencies retain the power to enter into agreements with landowners. In instances where the District is unable to regulate water-management practices, then the appropriate State or special purpose district assumes those responsibilities. The State Water Resources Control Board sets salinity standards for water in the Marsh, while the Department of Water Resources administers any alternative freshwater source necessary to the Marsh.

The State Lands Commission advises the BCDC on State land title and ownership questions and resolves ownership disputes. It also carries out Suisun Marsh Protection Plan management recommendations on lands under its stewardship.

The State is also authorized to acquire fee interests where appropriate, and to offer advice, data, and staff support to local agencies to help with implementation of the Suisun Marsh Protection Plan. It also is encouraged to collaborate with non-profit corporations such as the Trust for Public Lands to make timely land purchases for inclusion in the Suisun Marsh public lands.

The Suisun Marsh Protection Plan requires the continuation and expansion of research investigating how to better manage the Marsh. Federal and State agencies and the Solano County Mosquito Abatement District have the responsibility for conducting this research.

BCDC, which has jurisdiction over the Primary Management Area, determines acceptance of permit applications based on whether the proposed land and water uses will be compatible with the maintenance and improvement of wildlife habitat and water quality in the Suisun Marsh. BCDC generally cannot authorize urban uses, such as houses, industries, roads, businesses, and offices within the Primary Management Area. It is necessary to obtain authorization from BCDC before undertaking any of the following activities within the Commission's jurisdiction:

- Placing solid material, pilings, floating structures, boat docks, or other fill.
- Dredging or other extraction of material.
- Making a substantial change in use of a structure or an area.
- Undertaking most types of development including some subdivisions of property.

In addition to having permit authority over potential development projects in the Primary Management Area, BCDC also regulates currently existing agricultural practices. This type of land use is supported provided it is compatible with management goals. Intensive agricultural activities involving removal or persistent plowing of natural vegetation and maintenance of fallow land during part of the year is not permitted.

Suisun Marsh Management Area Designations within the Project Site. Cordelia Avenue defines the northern boundary of the area regulated by the Suisun Marsh Protection Plan. All areas north of Cordelia Road on the west and east sides of Pennsylvania Avenue are located outside (north of) the jurisdictional area and not subject to the land use regulations of the Suisun Marsh Protection Plan.

The entire area south of Cordelia Road and the California Northern Railroad is situated within the jurisdictional area of the Suisun Marsh Protection Plan, with the majority of this area located within the Primary Management Area. A small area in the western portion of this area is located within the Secondary Management Area. Areas south of Cordelia Road are therefore subject to the regulations and land use restrictions of the Suisun Marsh Protection Plan. The portion of the Project Site within the Primary Management Area is under the jurisdiction and permitting authority of BCDC. Permitted development projects are typically restricted to the construction or maintenance of duck hunting club or wildlife viewing facilities, maintenance of levees, existing railways, roads, utilities, and buildings, gas and oil exploration, and construction and operation of natural gas wells. Residential or commercial development projects are generally not permitted in this area.

The small area located within the Secondary management area is under the jurisdiction and permitting authority of Solano County. This area is zoned by the County as MP (Marsh Preservation District). A single primary residence is an allowed use on MP zoned lands. Other limited developments such as certain types of agricultural operations, hunting clubs or preserves, gas and oil exploration, and construction and operation of natural gas wells can also be permitted. Any proposed development project is authorized through the Marsh Development Permit and must conform to Solano County's General Plan and Suisun Marsh Local Protection Program.

Solano Habitat Conservation Plan Volume I (Public Draft – Dated 2012)

In March 1999, the USFWS, in accordance with Section 7 of the federal Endangered Species Act of 1973 (as amended), issued a Biological Opinion regarding the Solano Project Water Service Contract Renewal between the Bureau of Reclamation and the Solano County Water Agency (SCWA). The contract provides for continued delivery of Solano Project water throughout the SCWA contract service area. SCWA delivers Solano Project water in accordance with its eight Member Agency contracts, which includes the City of Suisun City. The Bureau of Reclamation, SCWA, and the member agencies have agreed to implement conservation measures to ensure the protection of threatened and endangered species and their habitat within the SCWA contract service area. As a condition of the Biological Opinion, SCWA and its member agencies are required to prepare a Habitat Conservation Plan, per Section 10(a)1(B) of the Federal Endangered Species Act, in order to obtain authorization for incidental take of listed species that may be impacted by activities associated with future water use in the Solano Project contract service area. The Solano Multispecies Habitat Conservation Plan (SMHCP) was drafted in 2002; it SMHCP has not yet been adopted and currently there are no proposals to update and adopt this conservation plan in the foreseeable future.

The SMHCP establishes a framework for complying with State and Federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. It will account for all activities undertaken by or under the permitting authority and control of the SMHCP participants within Solano County, of which Suisun City is a plan participant.

Thirty-six species are proposed to be covered under the SMHCP. The purpose of the SMHCP is to promote conservation of biological diversity consistent with the recognition of private property rights, providing for a healthy economic environment for the citizens, agriculture, and industries, and on-going maintenance and operation of public and private facilities in Solano County.

The Solano HCP includes the proposed Development Area of the Project Site, in Zone 1 "Urban Zone." This zone is defined as the existing and identified potential urban Development Areas within the member agency cities of

Vacaville, Fairfield, Suisun City, Rio Vista, Dixon and Vallejo. The remainder of the Project Site is within Zone 3. Covered activities within this zone are primarily related to implementation of the SMHCP conservation measures (i.e., management, enhancement, habitat restoration/construction, monitoring, scientific collection, and associated compatible activities on designated reserves, mitigation sites/banks, and open space lands and adjacent lands) and non-agricultural activities carried out under the authority of or participation by the SMHCP Participants on lands outside of the designated urban boundaries (communication towers, water supply reservoirs, recreational facilities management).

The Solano HCP has been in draft form since approximately 2002 and has gone through several iterations, most recently revised in 2012. However, the SMHCP is still not approved for use, and there is no indication it will be approved in the foreseeable future. If the SMHCP does get approved prior to all permits and approvals for the Highway 12 Logistics Center, the project applicant would consider the use of the SMHCP and/or incorporating mitigation measures suggested in the SMHCP.

4.3.3 Environmental Impacts and Mitigation Measures

Methodology

This section analyzes potential direct and indirect, temporary and permanent, and cumulative impacts to biological resources that have the potential to be affected by implementation of the proposed Project.

Direct impacts are caused by the Project and occur at the same time and place. Direct permanent impacts refer to the permanent physical loss of a biological resource typically due to clearing and grading associated with project implementation (e.g., permanent loss of vegetation/wildlife habitat, injury/mortality of individual plants or wildlife, permanent interference with wildlife movement or habitat connectivity). Temporary impacts refer to a temporary loss of biological resources that would generally occur for a short period (e.g., up to approximately 1 year) and would normally be reversible (e.g., temporary removal of vegetation after which revegetation would occur).

Indirect impacts are reasonably foreseeable Project effects on adjacent biological resources outside the direct disturbance zone that may occur typically during construction, such as from dust, noise, vibration, increased human activity, and pollutants. Indirect impacts also include project-related effects that could occur later in time, such as changes to hydrology, introduction of invasive species, operations-related dust and noise that persist after construction is complete.

Cumulative impacts result from the combined effect of several projects; it is evaluated as the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Potential impacts on biological resources resulting from implementation of the proposed Project were determined through use of the data obtained through habitat reconnaissance, field observation, and literature sources, as detailed above in the “Environmental Setting,” as well as consideration of the rules, regulations, and plans in place for the purposes of environmental protections, as detailed in the “Regulatory Framework” section above.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW;
- have a substantial adverse effect on federally protected waters of the United States, including wetlands, as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

ISSUES NOT DISCUSSED FURTHER

The "Impact Analysis" section will not further analyze the proposed Project against thresholds of significance for which no significant impacts have been identified based on technical studies conducted within and in the vicinity of the proposed Project Site (HBG 2006; HBG 2021; Vollmar 2006; Helm 2021; AWE 2006). Therefore, the following issues are not discussed further in the impact analysis.

Monarch Butterfly

No trees are present on the Project Site so there is no possibility for the presence of a monarch butterfly overwintering site at the Project Site. Several biologists, including most recently HBG, have studied the site or portions of the site, and none have reported the presence of milkweed plants of the genus Asclepias that serve as the larval host plant for monarchs. No suitable habitat for monarch butterflies is found on the Project Site. Therefore, **no impacts** to monarch butterflies would result from construction of the proposed Project and no mitigation is warranted.

Delta Green Ground Beetle

This species may occasionally be found in association with nearby smaller vernal pools, hog wallows, or grassy swales, particularly during wet years. However, it is believed that the beetle is probably only transient at these

smaller pools, as it disperses between the larger playa lakes, rather than a resident breeder. During dry or drought years, annual grasses and other weedy plants increase in numbers at the small vernal pools, thereby rendering habitat conditions unsuitable for the beetle. Due to the (1) lack of suitable habitat on the Project Site; (2) the distance between the Project Site and the nearest known occurrence of delta green ground beetle within playa lake complexes at the Jepson Prairie, and (3) that the Project Site is not located within designated Critical Habitat, construction of the proposed Project would have **no impact** to the delta green ground beetle and no mitigation is warranted.

Western Bumble Bee

Currently, this species is largely confined to high elevation sites and a small number of records on the northern California coast. No CNDDB records from within nearly the last 50 years are located within 5 miles from the Project Site. This species is not expected to occur in the vicinity of the project in Solano County; therefore, **no impacts** to western bumble bee are anticipated from construction of the proposed Project and no mitigation is warranted.

California Tiger Salamander & Critical Habitat, Central Population

The entire Project Site, which includes the 93.4-acre Development Area, is within the 5,699-acre Critical Habitat designated as the Jepson Prairie Unit. The Jepson Prairie Unit represents the northwestern portion of the species' distribution and represents the southern end of Solano-Colusa vernal pool region in Solano County. According to the final rule, this unit contains all three of the primary constituent elements and four extant occurrences of the species in one aggregation. The primary constituent elements required for the Central population of CTS are: (1) standing bodies of fresh water (including natural and manmade (e.g., stock)) ponds, vernal pools, and other ephemeral or permanent water bodies which typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall; (2) upland habitats adjacent and accessible to and from breeding ponds that contain small mammal burrows or other underground habitat that CTS depend upon for food, shelter, and protection from the elements and predation; and (3) accessible upland dispersal habitat between occupied locations that allow for movement between such sites.

Although within Critical Habitat designated as the Jepson Prairie Unit, the Project Site does not contain all the physical or biological features (i.e., primary constituent elements) essential to conservation of the species. The Project Site supports only one of the three primary constituent elements required for habitat to be considered critical habitat for California tiger salamander. The Project Site does support vernal pools that become inundated during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall. However, the Project Site does not have upland habitats that are adjacent to or accessible from breeding ponds as there are no breeding ponds onsite or within the dispersal distance of the species; and uplands onsite lack necessary underground refugia. Furthermore, the site is not accessible to California tiger salamander from more distant breeding sites due to barriers to movement of individuals. Further discussion and rationale is provided below.

In 2006 Vollmar Consulting conducted a California tiger salamander site assessment and aquatic survey. The site assessment and aquatic surveys followed the guidelines described in the CDFW and USFWS Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. Aquatic survey results were negative, and the site assessment concluded the closest California tiger salamander occurrence to the project area is located approximately 5 miles southeast, in the Potrero Hills area, well beyond the 1.3-mile observed maximum dispersal distance known for the species. It also concluded

significant barriers to migration occurred between the Project Site and known California tiger salamander occurrences which include roadways, residential, commercial, and industrial development, and large tidal channels. Additionally, the majority of the Project Site is within the 100-year floodplain and no mammal burrows were observed on-site. Furthermore, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect CTS.

It is clear that the Project Site does not support California tiger salamander based upon (1) the 2006 Vollmar Consulting California tiger salamander site assessment accompanied by aquatic surveys with negative results for California tiger salamander, (2) the aquatic surveys conducted by May Consulting in 2000 and Helm Biological in 2021 which did not detect California tiger salamander, (3) the water in vernal pools in the northern portion of the site was clear to moderately clear which is not consistent with California tiger salamander preference for turbid waters, and all of the pools in the southern portion of the project area were too shallow to support breeding by California tiger salamander, (4) the Project Site is surrounded by significant barriers to known California tiger salamander breeding ponds that are nearly 5 miles from the Project Site, making the Project Site inaccessible to California tiger salamander from known occurrences, and (5) the Project Site lies within the 100-year floodplain that is not conducive to presence of California tiger salamander. Because the site does not support California tiger salamander breeding, foraging or dispersal habitat and lacks the required primary constituent elements of critical habitat for reasons described above, **no impacts** to California tiger salamander or designated critical habitat for this species would result from construction of the proposed Project and no mitigation is warranted.

Western Spadefoot Toad

The nearest recorded occurrences of this species to the Project Site are more than 20 miles away to the east and south. Dip-net surveys conducted for California tiger salamander by Vollmar Consulting in 2006 and dip-net surveys conducted for vernal pool fairy shrimp 2006 by Area West Environmental and 2021 by Helm Biological did not detect western spadefoot toads. Based on the nearest recorded occurrence being over 20 miles from the Project Site, and dip-net surveys for other species did not turn up this species, the proposed Project would have no impacts to the western spadefoot toad. Therefore, **no impacts** to western spadefoot toad would result from construction of the proposed Project and no mitigation is warranted.

Special Status Vernal Pool Crustaceans

As described in Section 4.8.2.1 of this Draft EIR, Hydrology and Water Quality, one wet and two dry season surveys were conducted for special status vernal pool crustaceans (vernal pool tadpole shrimp, vernal pool fairy shrimp) between 2000 and 2005. The wet season survey was conducted in 2000 and the dry season surveys were conducted in the late fall of 2002 and late fall of 2005. The results of all three surveys were negative for federally-listed large branchiopods and for non-listed special-status branchiopods.

In 2006, Area West Environmental conducted dry and wet season sampling for federally-listed large branchiopods (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [L*epidurus packardi*]) vernal pool. Surveys generally followed USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. Survey results were negative for federally-listed large branchiopods for non-listed special-status branchiopods. Also noted in the report were negative findings for California tiger salamander and California red-legged frog.

New surveys were conducted by Helm Biological Consulting that included dry season surveys in 2020 and wet season surveys in 2021. These surveys, which followed USFWS's (2017) Survey Guidelines for Listed Large Branchiopods, were also negative for the presence of federally-listed large vernal pool brachiopods for non-listed special-status branchiopods. According to Helm Biological Consulting's report for the 2021 wet season surveys, "the majority of potential listed large branchiopod habitat found on-site was marginal and largely consisted of palustrine emergent wetlands hydrologically connected with estuarine intertidal wetlands located along the southern and eastern boundaries of the Project Site. Fish (e.g., smelt [Osmeridae]) were observed within one of the sampled habitats (W-54) and likely occur in more habitats during higher rainfall years. Additionally, portions of one habitat (W-19) receive agricultural runoff. Therefore, the sampled habitats would not historically or presently be considered ideal habitat for listed large branchiopods."

Despite the lack of vernal pool crustaceans on the Project Site as demonstrated by multiple protocol surveys conducted between 2000 and 2021, the seasonal wetlands within the Project Site provide suitable (albeit marginal) habitat conditions for these vernal pool crustaceans. Approximately 38 acres of unoccupied suitable habitats for vernal pool crustaceans would be impacted (filled) as a result of project construction, but overall habitat conditions suitable for vernal pools crustaceans throughout the Project Site would remain because mitigation for wetland losses (see Impact 4.3-15 and Mitigation Measures 4.3-15 below) includes creation of 38 acres of wetlands (including vernal pools) to achieve no net loss of these habitats. In addition, approximately 107.2 acres of seasonal wetlands (including vernal pools) will be preserved within the Managed Open Space area.

Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the Project Site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed Development Area and area of proposed wetland establishment within the Managed Open Space area are located outside of Critical Habitat Unit 2 for the Suisun thistle. The nearest point of the proposed Development Area is approximately 1,300 feet from, and the nearest created/established wetland is proposed approximately 300 feet from Critical Habitat Unit 2. Furthermore, surveys have not detected any occurrences of the Suisun thistle within the Development Area or Managed Open Space area. Therefore, **no impacts** to Critical Habitat for Suisun thistle would result from construction of the proposed Project and no mitigation is warranted.

IMPACT ANALYSIS

Special Status Plant Species

Construction of the proposed Development Area would result in direct impacts to federally listed endangered and CNPS List 1B.1 Contra Costa goldfields, and three CNPS List 1B.2 species: alkali milk-vetch, saline clover, and Suisun Marsh aster. Additional impacts to 38 acres of marginal habitat for Contra Costa goldfields could result from grading for wetland creation in the proposed Managed Open Space area of the Project Site.

Impact 4.3-1 Contra Costa Goldfields & Critical Habitat. *Development of the proposed Project would directly impact an estimated 183 to 231 individual Contra Costa goldfields plants over an approximately 0.03-acre area of occupied habitat for Contra Costa goldfields, would directly impact 38.0 acres of marginal habitat for Contra Costa goldfields, and may indirectly impact occupied Contra Costa goldfields habitat in proposed Managed Open Space area as a result of mitigation wetland grading. The proposed Project also would impact 93.4 acres of Critical Habitat Subunit 5G. These impacts would be* ***potentially significant.***

Based on special status plant surveys conducted for the Project in 2000 to 2005 and 2021 to 2022, more than 8 million individual Contra Costa goldfields, over an 18.4-acre area, may be present within the Project Site. Within the proposed Development Area of the Project Site, an approximately 0.03-acre area occupied by an estimated 183 to 231 individual Contra Costa goldfields would be directly impacted by the proposed Project. This total impact represents less than 0.1 percent of both the known population of Contra Costa goldfields and known occupied area estimated within the entirety of Project Site. Because this is an annual species for which the population numbers fluctuate in any given year, the actual direct impact to individuals may differ at the time of project construction; however, because we estimated the potential impact to be the maximum number of individuals observed throughout the six years of plant surveys since 2000, including one very wet survey year in 2005, it is likely that the true impact will be similar or less than identified herein. Appendix C, Figure 12 shows the location of the four special-status plant species subject to direct construction impacts.

Additional impacts to Contra Costa goldfields could result from the placement of fill material within 38 acres of unoccupied potential habitat for Contra Costa goldfields within the Managed Open Space area south of Cordelia Road and Cordelia Street for the creation of mitigation wetlands. These 38 acres are composed of seasonally saturated annual grassland, alkali seasonal wetland, and vernal pool vegetation. This 38-acre area is currently unoccupied by Contra Costa goldfields, and plant surveys conducted in six of the past 20 years have not detected this species in this area. As discussed in Section 4.3.1 under "Contra Costa Goldfields" under "Special Status Plant Species," above, the Sycamore silty clay loam saline soil type present within these 38 acres of unoccupied wetland habitat may have a reduced potential to support Contra Costa goldfields compared to Pescadero silty clay loam soils, where the vast majority of the Contra Costa goldfields population occurs within the Project Site. Therefore, the loss of 38 acres of unoccupied wetland habitats suitable for Contra Costa goldfields within the Managed Open Space area of the Project Site would represent a loss of relatively lower quality habitat for this species.

The portion of the population of Contra Costa goldfields on the Project Site where the vast majority of individuals have been documented, on Pescadero silty clay loam soils, is located outside the proposed Development Area and would not be directly impacted by the proposed Project. However, implementation of the proposed Managed Open Space area of the Project would require grading near this area of occupied Contra Costa goldfields habitat in the southwestern portion of the Project Site to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Therefore, creation/establishment of 38 acres of wetlands within Managed Open Space has potential to alter the hydrology within adjacent occupied Contra Costa goldfields habitat, potentially rendering it unsuitable for Contra Costa goldfields occupancy. Vehicles or pedestrians entering occupied Contra Costa goldfields habitat during construction could also adversely affect Contra Costa goldfields habitat. Construction activities could also harm Contra Costa goldfields populations by spreading non-native invasive plant species already present in the Project area or introducing new species via unwashed construction vehicles and equipment. The proposed Project would result in the development of 93.4 acres of designated critical habitat for Contra Costa goldfields (i.e., the entire proposed Development Area), of which an estimated 0.03 acre are occupied by the species; this represents approximately 13 percent of the 737-acre Critical Habitat Subunit 5B. The majority of the proposed Development Area is nearly level grazed natural lands and largely lacks the surface micro topography to support the physical and biological features necessary for critical habitat for this species. However, 254.3 acres of designated Critical Habitat for this species (5 percent of Subunit 5G) is located within proposed Managed Open Space area, proposed for preservation, and which includes an approximately 8.5-acre broad terrace with undulating mound/basin topography that characterizes the key elements of critical habitat for this species.

Direct impacts to an estimated 0.03-acre area occupied by approximately 183 to 231 individual Contra Costa goldfields, loss of 38 acres of unoccupied presumed lower quality Contra Costa goldfields habitat, and potential indirect impacts associated with wetland grading in the proposed Managed Open Space area of the Project Site would be **potentially significant.**

Mitigation Measure 4.3-1a: Establish New Contra Costa goldfields Habitat and Populations

The Project applicant shall establish/create a minimum of 0.03 acre (1:1 ratio) of Contra Costa goldfields habitat with the performance standard of supporting a minimum of 183 individual Contra Costa goldfields plants at least 2 out of the 10 years of the monitoring period. Establishing new populations of Contra Costa goldfields shall be done in consultation with USFWS and CDFW and with approval from these agencies and may be accomplished by collecting seed from extant populations and salvaging seed and topsoil from occupied Contra Costa goldfields habitat within the proposed Development Area. As described in the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C), the new Contra Costa goldfields populations would be established in the 38-acre wetland creation/establishment area within the proposed Managed Open Space area of the Project Site, adjacent to the existing large population within the Pescadero silty clay loam soil type. A plan for collecting seed and establishing new populations shall be coordinated with the USFWS during the ESA Section 7 consultation process, as described in the Mitigation and Monitoring Plan.

Mitigation Measure 4.3-1b: Establish and Manage 38 Acres of Wetland Habitat

To ensure a no-net-loss of potential Contra Costa goldfields habitat the Project applicant shall establish/create 38 acres of in-kind, or higher quality, wetland habitat that is suitable for Contra Costa Goldfields within the proposed Managed Open Space area of the Project Site, prior to or concurrent with project construction. The established/created wetlands shall be implemented, and performance standards shall be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C). Management actions to be implemented to manage, protect, and enhance wetlands and associated rare plant populations shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created wetlands shall continue in perpetuity as described in the Mitigation and Monitoring Plan. Prior to site mobilization the project applicant shall secure approval of detailed construction plans for wetland mitigation in the Managed Open Space area from USFWS, CDFW, RWQCB, and BCDC.

If additional wetland mitigation is required by the USFWS, CDFW, RWQCB, or BCDC to compensate for impacts on unoccupied habitat for Contra Costa Goldfields or if success criteria for created wetlands cannot be fully attained with onsite wetland mitigation, the Project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the Project Site and which supports existing populations of Contra Costa goldfields. The North Suisun Mitigation Bank and Goldfields Conservation Bank currently service the proposed Project Site. Purchase of preservation credits may be used to accomplish this compensation; the ratio of credits purchased to habitat impacted shall be approved by USFWS and CDFW. If no mitigation banks that service the proposed Development Area are available, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-

Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 4.3-1c: Preserve and Manage Contra Costa goldfields Habitat

The Project applicant shall preserve and manage the Contra Costa goldfields occupied habitat in the proposed Managed Open Space area as described in the Mitigation and Monitoring Plan. The Managed Open Space area contains an approximately 17-acre area in the southwestern area of the Project Site that currently supports from 8,000 to 7.7 million individual Contra Costa goldfields plants within the Pescadero silty clay loam soil, a 2.4-acre area of occupied habitat currently supporting 267 individual plants in the northern area east of Pennsylvania Road, approximately 107.2 acres of existing unoccupied seasonal wetlands similar to the 38-acres of unoccupied wetland habitat that would be impacted, and 38 acres of the wetland creation/establishment area, all of which will be preserved within the Managed Open Space area. To ensure a no-net-loss of CCG Critical Habitat, a minimum of 93.4 acres CCG Critical Habitat Subunit 5G shall be preserved and managed within proposed Managed Open Space area. Management actions to be implemented to manage, protect, and enhance Contra Costa goldfields occupied habitat shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created Contra Costa goldfields habitat shall continue in perpetuity as described in the Mitigation and Monitoring Plan (Attachment 7 to Appendix C).

Mitigation Measure 4.3-1d: Install Construction Fencing

To avoid direct or indirect impacts to occupied Contra Costa goldfields habitat during grading activities within the proposed Managed Open Space area of the Project Site, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied Contra Costa goldfields habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the Contra Costa goldfields populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measures 4.3-1e Limit Introduction and Spread of Invasive Species

To reduce and limit the spread of invasive nonnative plant species on the Project Site from invasive or noxious weeds, construction vehicles and equipment shall be cleaned inside and out before arrival at the Project Site; debris will be properly disposed of. Exterior cleaning shall consist of pressure washing vehicles and equipment, with close attention paid to the tracks, feet, and/or tires and on all elements of the undercarriage. Vehicle cabs shall be swept out, and refuse shall be disposed at an approved off-site location. If vehicles are driven in areas of invasive or noxious weeds already present in portions of the Project Site, vehicles shall be cleaned before moving from infested areas to areas that are weed-free.

Significance after Mitigation

Implementation of these mitigation measures would offset permanent impacts to occupied Contra Costa goldfields habitat and would ensure that Contra Costa goldfields occupied habitat, which supports 99 percent of the Contra Costa goldfields within the Project Site, is preserved and managed for Contra Costa goldfields in perpetuity. The measures described above would ensure no-net loss of potential Contra Costa goldfields habitat area, Contra Costa goldfields Critical Habitat, or threat to the recovery of Contra Costa goldfields. This mitigation will reduce potential impacts to Contra Costa goldfields to a **less-than-significant** level.

Impact 4.3-2 Alkali Milk-Vetch. *Development of the proposed Project would directly impact and estimated 12 individual alkali milk-vetch plants over an approximately 0.02-acre area, and 16.3 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch and may indirectly affect occupied alkali milk-vetch habitat in the proposed Managed Open Space area as a result of mitigation wetland grading. Therefore, this impact would be* ***potentially significant.***

Based on special status plant surveys conducted for the Project in 2000 to 2005 and 2021 to 2022, this species was found in seven occurrence areas within the proposed Development Area and two occurrences (approximately 250-300 individuals over approximately 0.01 acre) within Managed Open Space area south of Cordelia Street. An estimated 12 individual alkali milk-vetch plants would be directly impacted over a 0.02-acre area by the proposed Development Area (in Planning Areas 1 and 2). In addition, the proposed Development Area would impact 16.3 acres of seasonally saturated annual grassland habitat constituting suitable habitat for alkali milk-vetch.

Implementation of the proposed Managed Open Space area of the Project Site would require grading to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Grading to establish wetlands within close proximity to occupied alkali milk-vetch habitat could result alter the hydrology supporting the wetlands and adversely affect wetland habitat that supports alkali milk-vetch. In addition, vehicles or pedestrians could enter habitat supporting this species, resulting in direct and indirect impacts. Construction activities could also harm alkali milk-vetch populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-2a: Preserve and Establish Alkali Milk-Vetch Habitat

Within the proposed Managed Open Space area of the Project Site, the Project applicant shall (1) preserve the 0.01 acre of seasonally saturated annual grassland habitat occupied with approximately 250 alkali milk-vetch plants, and (2) establish/create the equivalent of 16.3 acres of seasonally saturated annual grassland habitat. Topsoil from occupied alkali milk-vetch habitat within the proposed Development Area shall be collected and used to inoculate the established/created seasonally saturated annual grassland.

Mitigation Measure 4.3-2b: Install Construction Fencing

To ensure no impacts to occupied alkali milk-vetch habitat occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, a non-disturbance buffer delineated by orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied alkali milk-vetch habitat. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect alkali milk-vetch populations from direct and indirect impacts. The contractor, in consultation with the

qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-2a and 4.3-2b would avoid and offset permanent impacts to occupied alkali milk-vetch habitat and ensure there is no-net loss of potential alkali milk-vetch habitat area. Implementation of Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to alkali milk-vetch to a **less-than-significant** level.

Impact 4.3-3 Saline Clover. *Development of the proposed Project would directly impact an estimated 465 individual saline clover plants over a 1.4-acre area, would directly impact 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support saline clover, and may indirectly affect occupied saline clover habitat in proposed Managed Open Space area as a result of mitigation wetland grading. These impacts would be* ***potentially significant.***

Based on special status plant surveys in 2000 to 2005 and 2021 to 2022, saline clover was observed at a total of 17 occurrences within the proposed Development Area, including sites within two large vernal pools within the proposed Development Area and in several areas of seasonally saturated annual grassland. An additional 42 occurrences (an estimated 6,335 individuals over 19,05 acres) of this species are present within the Managed Open Space area. An estimated 465 individual saline clover plants over a 1.4-acre area associated with the above-mentioned 17 occurrences would be direct impacted by construction of the proposed Project. In addition, the proposed Project would impact 14.1 acres of vernal pools and 16.3 acres of seasonally saturated annual grassland habitat suitable to support saline clover.

Implementation of the Mitigation and Monitoring Plan for the proposed Managed Open Space area of the Project Site would require grading to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Grading to establish wetlands within close proximity to occupied saline clover habitat could result in impacts from vehicles or pedestrians entering the habitat. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the Project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-3a: Preserve and Establish Saline Clover Habitat

Within the proposed Managed Open Space portion of the Project Site, the Project applicant shall (1) preserve 19.1 acres of saline clover habitat occupied with an estimated 6,335individual plants; and (2) establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of vernal pool and seasonally saturated annual grassland habitat within the proposed Managed Open Space area of the Project Site as mitigation for the loss of potential habitat for the Contra Costa goldfields will also serve as mitigation for the loss of potential saline clover habitat. Topsoil from occupied saline clover habitat within the proposed

Development Area of the Project Site shall be collected and used to inoculate the established/created vernal pools and seasonally saturated annual grassland.

Mitigation Measure 4.3-3b: Install Construction Fencing

To ensure no impact to occupied saline clover occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied saline clover habitat. The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect saline clover populations from direct and indirect impacts. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when Project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-3a and 4.3-3b would offset and avoid permanent impacts to occupied saline clover habitat and ensure there is no-net loss of potential saline clover habitat area. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would therefor reduce potential impacts to saline clover to **less than significant**.

Impact 4.3-4 Suisun Marsh Aster. *Development of the proposed Project could directly impact a few individual plants of Suisun Marsh aster if they occur at the location of the proposed stormwater culvert. This impact would be* ***potentially significant.***

No Suisun Marsh aster were observed within the proposed Development Area during special status plant surveys conducted in 2000 to 2005 and 2021 to 2022. Suisun Marsh aster was observed in more than 10 scattered locations throughout the Managed Open Space area, including along the perennial brackish marsh bordering the drainage ditch that traverses the northeastern portion of the Project Site and perennial brackish marsh habitat bordering slough banks south of Cordelia Street. Based on the current proposed Development Area footprint, a stormwater culvert would be constructed on the western bank of the slough channel covering approximately 0.002-acre area. Construction of the culvert could potentially impact the Suisun Marsh aster at the culvert's location.

Construction of a stormwater culvert could potentially impact a few individual Suisun Marsh aster plants within the impact footprint and adjacent areas. This impact would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-4a: Conduct Preconstruction Plant Survey and Implement Avoidance Measures

Plant surveys shall be conducted prior to the design of the stormwater culvert outfall to determine the location of Suisun Marsh aster plants in relation to the proposed outfall. If individual plants occur in the proposed location of the stormwater outfall culvert or in an area where impacts could occur to the plants, the location shall be modified to avoid directly or indirectly affecting the plants.

Mitigation Measure 4.3-4b: Mitigate for Impacts on Suisun Marsh Aster

If impacts to individual plants are unavoidable, even with modifications to the Project design, the Project applicant shall establish/create a minimum of 0.002 acres (1:1 ratio) of Suisun Marsh aster habitat in the proposed Managed Open Space portion of the Project site. The performance standard for this mitigation shall be supporting the same or greater number of plants impacted for at least 2 out of the 10 years of the monitoring period. This mitigation measure for establishing new Suisun Marsh aster plants shall be incorporated into the Preliminary Mitigation and Monitoring Plan provided in Appendix C, Attachment 7.

Significance after Mitigation

Implementation of these Mitigation Measures 4.3-4a would avoid and minimize impacts to Suisun Marsh aster. If impacts to individual plants are unavoidable, Mitigation Measure 4.3-4b would offset permanent impacts to occupied Suisun Marsh aster by establishing new populations at a 1:1 ratio in proposed Managed Open Space area of the Project Site. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These measures would ensure no-net loss of occupied or potential Suisun Marsh aster habitat area, thus reducing potential impacts to a **less-than-significant** level.

Impact 4.3-5: Long-styled sand-spurrey plants. *Development of the proposed Project would directly impact long-styled sand-spurrey plants and would remove 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support the species. This impact would be* ***potentially significant.***

Several plants of long-styled sand-spurrey were observed growing in the seasonally saturated annual grassland north of Cordelia road and west of Pennsylvania Avenue in the proposed Development Area. Construction of the Project would eliminate these several plants and 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support the species. This impact would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-5a: Preserve and Establish Long-Styled Sand-Spurrey Habitat

Within the proposed Managed Open Space area of the Project Site, the Project applicant shall establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat within the proposed Managed Open Space area as part of the Mitigation and Monitoring Plan to mitigate for elimination of long-styled sand-spurrey habitat. Collection of topsoil within the proposed Development Area within occupied habitat for alkali milk-vetch and saline clover and use of the soil to inoculate established/created seasonally saturated grassland (Mitigation Measures 4.3-2a and 4.3-3a) shall be accomplished such that soil will also contain seeds for long-styled sand-spurrey.

Mitigation Measure 4.3-5b: Install Construction Fencing

The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall install construction fencing to clearly demarcate the boundaries of a non-disturbance buffer to protect Contra Costa goldfields, alkali milk-vetch, and saline clover populations, if found in the Managed Open Space area within 100 feet from the Project disturbance footprint.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-5a and 4.3-5b would offset and avoid permanent impacts to occupied long-styled sand-spurrey habitat and would ensure there is no-net loss of potential habitat for the species. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would therefore reduce potential impacts to long-styled sand-spurrey to **less than significant**.

SPECIAL STATUS WILDLIFE SPECIES

Impact 4.3-6 Crotch Bumble Bee. *Project construction could result in direct impacts to underground nest or queen overwintering sites and removal of 92.0 acres of upland and seasonal wetland habitat that could serve as potential foraging habitat for the Crotch bumble bee, if present onsite during construction. Therefore, this impact would be* ***potentially significant.***

Crotch Bumble Bee

While several plant species that could provide suitable nectar and pollen sources for the Crotch bumble bee are present within the Project Site, this species was not observed in the Project Site during a focused habitat survey of burrows and nectar resources conducted during spring 2023. The nearest CNDDB occurrence for this species (from 2014) is approximately 4 miles northwest from the Project Site. Furthermore, seasonal surface and subsurface soil saturation throughout much of the Project Site limits the potential for burrowing rodents on the Project Site which provide potential near surface underground nest and overwintering sites for bumble bees. Therefore, this species is unlikely to occur in the Project Site; however, it is unknown whether the species could establish nests or overwintering sites in upland areas before project implementation.

Ground disturbing construction resulting from the Project (including for construction of mitigation wetlands and enhanced upland refugia as mitigation within the Managed Open Space) could destroy nesting colonies or overwintering queens, if present in rodent burrows or in other ground surface features in upland areas of the Project Site. Permanent loss of upland annual grassland and seasonal aquatic resources from the Project Site could reduce available floral food resources for this species within the Project Site.

The potential destruction of nests sites or queen overwintering sites and loss of adjacent foraging habitat could reduce local populations of this rare bumble bee species and would be considered a **potentially significant** impact.

Mitigation Measure 4.3-6a: Avoid, Minimize, and Mitigate for Impacts on Crotch Bumble Bee

Prior to construction, a qualified biologist shall conduct focused surveys for the Crotch bumble bee in potential habitat within the Project Site during the Crotch bumble bee worker flight period (March-September, preferably near the peak in July). Surveys shall follow the *USFWS-approved Survey Protocols for the Rusty Patched Bumble Bee (Bombus affinis)* (USFWS 2019). During the survey, the qualified biologist shall flag inactive small mammal burrows and other potential nest or overwintering sites. If the Crotch bumble bee is detected, a site-specific Crotch's Bumble Bee Avoidance and Minimization Plan shall be prepared in coordination with CDFW and implemented. The Plan shall include a description of onsite habitat, potential nest and overwintering sites present, recommendations for avoidance and minimization (such as unoccupied burrow avoidance buffers), potential identification of methods to evaluate potential nest sites for use (e.g., burrow scoping or emergence surveys), and compensatory mitigation for the loss of potential nest sites, such as incorporation of appropriate native

flower resources that would support this species throughout the flight period and promote development of queens (i.e., perennial plants) into the Mitigation and Monitoring Plan for the Managed Open Space area, and/or reducing use of harmful pesticides within the Managed Open Space Area.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-6a would avoid and minimize impacts to Crotch bumble bee and would therefore reduce potential impacts to **less than significant**.

Impact 4.3-7 Northern Harrier and Short-Eared Owl. *Grading or vegetation removal associated with construction of the proposed Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space area, could result in disruption of northern harrier or short-eared owl nesting. This impact would be* ***potentially significant.***

Northern harriers and short-eared owls have not been documented nesting on the Project Site, but suitable nesting habitat for the northern harrier occurs within the non-native grasslands and seasonal wetlands and swales found within the Project Site. Northern harrier individuals were observed foraging over the Project Site during the summer (breeding season) during site reconnaissance of the property by HBG. Suitable breeding habitat for short-eared owl also occurs on the Project Site, particularly in the eastern portion of the Annexation Area east of Pennsylvania Avenue and in the area south of Cordelia Road. If a northern harrier or short-eared owl were found to be nesting on the Project Site during the construction period, potential impacts to either of these species from the proposed Project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Disturbances to nest sites for these special status species are possible either during grading or vegetation removal for project construction within the proposed Development Area of the Project Site or from grading required for creation of mitigation wetlands and enhanced upland refugia within the proposed Managed Open Space area in the southern portion of the Project Site. Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or abandonment of eggs or young) would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code and would be a **potentially significant** impact**.**

Mitigation Measure 4.3-7a: Preconstruction Nesting Survey

A qualified biologist shall conduct a preconstruction nesting survey for northern harrier and short-eared owl if construction is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance by walking transects through all suitable habitat (grassland, seasonal wetlands and swales) within the proposed Development Area and the proposed Managed Open Space area of the Project Site.

Mitigation Measure 4.3-7b: Implement Non-Disturbance Buffers

If an active northern harrier or short-eared owl nest is detected during the surveys, the nest site shall be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer shall be extended onto the Project Site and demarcated where it intersects the Project Site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that northern harriers or short-eared owls may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified

raptor biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-7a and 4.3-7b would avoid disturbing a northern harrier or short-eared owl active nest through implementation of preconstruction nesting surveys and non-disturbance buffers, as needed, thus reducing potential impacts to **less than significant**.

Impact 4.3-8 Swainson's Hawk. *Project construction would result in the loss of 92.0 acres of Swainson's hawk foraging habitat. Construction activities could disturb nesting Swainson's hawk if individuals of this species were found to be nesting within one-half mile of Project construction activities. Therefore, this impact would be* ***potentially significant.***

Twenty Swainson's hawk nesting records are within 10 miles from the Project Site and a known nest site for this species was located approximately 1.4 miles west of the Project Site in 2022. Therefore, development of the Project would permanently remove approximately 92.01 acres of non-native grasslands, seasonal wetlands and swales that provide suitable foraging habitat for Swainson's hawks. While establishment of mitigation wetlands within the Managed Open Space area would additionally convert 38 acres of grassland foraging habitat to seasonal wetlands, these areas would be expected to retain foraging habitat value for Swainson's hawk after wetland re-establishment.

No nesting habitat would be directly affected by the proposed Project because no trees occur on the Project Site, and no large trees capable of supporting nesting by Swainson's hawk occur in the immediate Project vicinity. Trees adjacent to the site include trees within the off-site riparian habitat of Ledgewood Creek, but none of these trees appeared to be of suitable size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within one-half mile of the site could support nesting by the species. If Swainson's hawks were found to be nesting near Project construction during the nesting season, potential impacts to this species could occur, including disturbance to nesting birds, nest abandonment and possible mortality of eggs or nestlings. These impacts would be **potentially significant.**

Mitigation Measure 4.3-8a: Preserve Swainson's Hawk Foraging Habitat

To offset impacts to 92.0 acres of Swainson's hawk foraging habitat, the Project applicant shall provide habitat preservation at a location that will provide foraging habitat value to Swainson's hawks consistent with CDFW guidance as set forth in the *1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California*. CDFW 1994 guidance provides that mitigation lands should be provided if an active nest is located within a 10-mile radius of the Project Site, mitigation habitat value shall be equal to or higher than what currently occurs on the Project Site, and at a minimum of 1:1 ratio. Currently, the Project proposes 393.2 acres of Managed Open Space area, of which 205.4 acres consists of annual grasslands and seasonal wetlands considered suitable foraging habitat, shall be preserved and protected in perpetuity by deed restriction or a conservation easement that would provide more than the minimum 1:1 compensation acreage for Swainson's hawk foraging habitat. Furthermore, the project proposes that the preserved 205.39 acres of Swainson's hawk foraging habitat would be enhanced by grazing the Managed Open Space area to control the buildup of thatch.

If additional Swainson's hawk foraging habitat mitigation is required by the CDFW, the Project applicant shall purchase mitigation credits from an approved Swainson's hawk mitigation bank which services the

Project Site, or preserve suitable foraging habitat offsite at an approved CDFW location so as to satisfy the additional CDFW requirement to offset the permanent loss of foraging habitat.

Mitigation Measure 4.3-8b: Preconstruction Nesting Surveys

Preconstruction surveys for Swainson's hawk shall be conducted prior to initiation of Project construction activities. Surveys shall follow CDFW guidelines for conducting surveys for Swainson's hawk (SHTAC 2000). These preconstruction surveys shall include investigation of all potential nesting trees within a one-half-mile radius around all Project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. If no nesting Swainson's hawk are found during the first two required survey periods (Survey Period II and III) starting March 20 and extending to April 20, then project construction may commence. If during the third survey period (June 10 to July 30) Swainson's hawks are found to be nesting in the Project vicinity and construction has commenced, the Project applicant shall consult CDFW to determine whether the nesting Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the Project Site and setbacks can be reduced or whether additional measures are needed to avoid adversely affecting nesting activities.

Mitigation Measure 4.3-8c: Implement Nest Buffer

If Swainson's hawks are found to be nesting within 0.25 miles of Project construction, a non-disturbance buffer shall be established to keep all construction activities a minimum of 0.25 miles from the nest site (CDFW 1994). The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified biologist.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-8a through 4.3-8c would compensate for the loss of Swainson's hawk foraging habitat and would avoid adverse effects on Swainson's hawks nesting near the Project Site. These measures would reduce potential impacts on Swainson's hawks to **less than significant**.

Impact 4.3-9 Burrowing Owl. Construction of the Project, including the proposed Development Area or for creation of wetlands within the proposed Managed Open Space area, could impact burrowing owls if found to be present in or near areas of construction. The impact is **potentially significant.**

No burrowing owls or their burrows have been observed on the site by HBG wildlife biologists or other biologists studying the site over a 20-year period. The nearest record of burrowing owl in the CNDDB is a 2006 report of an occupied burrow off the site adjacent to Cordelia Road. Portions of the on-site grasslands are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present, but much of the site consists of wetlands that have saturated soils during at least a portion of the year that would not be conducive to creation of ground squirrel dens nor occupation by burrowing owl. The species could occur along levee banks and other raised areas that do not become saturated during the winter and spring. Future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels. Disturbances to either nesting or wintering burrowing owl could occur during grading or vegetation removal within the proposed Development Area of the Project Site or from grading required for creation of mitigation wetlands or enhanced upland refugia within the proposed Managed Open Space area of the Project Site. Loss of active burrowing owl burrows or disturbances to nesting or wintering burrowing owl would be **potentially significant.**

Mitigation Measure 4.3-9a: Preconstruction Burrowing Owl Nesting Survey

A pre-construction survey for burrowing owls shall be conducted in suitable habitat prior to any ground-disturbance for construction of the Project at the proposed Development Area of the Project Site, and off-site improvement areas, and for construction of mitigation wetlands within the proposed Managed Open Space area of the Project Site. The pre-construction survey shall be conducted by a qualified raptor biologist following CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) survey methods to establish the status of burrowing owl on the Project Site.

Mitigation Measure 4.3-9b: Avoid Impacts to Occupied Burrows

If preconstruction surveys determine that burrowing owls occupy the Project Site during the non-breeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone in consultation with CDFW. During the non-breeding season, if a qualified raptor biologist determines in consultation with CDFW that an occupied burrow(s) may be impacted even with implementation of non-disturbance buffers, the Project applicant shall consult CDFW to determine if a passive relocation effort and implementation of a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW guidelines (CDFG 2012) is appropriate to avoid impacts. Implementation of such a Burrowing Owl Exclusion Plan would likely require habitat mitigation consistent with the requirements of the 2012 CDFW Staff Report.

If burrowing owls are found to be present on the Project Site or off-site improvement areas during the breeding season (February 1 to August 31), the Project applicant shall consult CDFW and implement the CDFW-recommended avoidance protocol (CDFG 2012) whereby occupied burrows will be avoided with a no-disturbance buffer during the breeding season.

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing an active burrowing owl nest and avoid harming a burrowing owl during the nonbreeding season. These measures would reduce potential impacts to burrowing owls to **less than significant**.

Impact 4.3-10 California Black Rail. *Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space portion of the Project Site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present. This impact would be* ***potentially significant.***

The CNDDB contains records of California black rail south of the site in marsh habitat bordering Suisun Bay and associated sloughs. These rails may occur along slough channels with dense perennial marsh habitat in the southern portion of the Project Site closest to Suisun Marsh and within the perennial marsh habitat on the eastern portion of the annexation area that provides low to medium quality foraging and nesting habitat for the species. No habitat for this species is found within the proposed Development Area of the Project Site; therefore, no direct impacts to California black rail would result from construction of the proposed Project.

Mitigation wetlands and areas of enhanced upland refugia are proposed to be constructed within the proposed Managed Open Space area of the Project Site, both within the eastern portion of the Annexation Area and within the proposed Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh (see Appendix C, Figure 17). Though the created wetlands and enhanced upland refugia are proposed to be

constructed in uplands, some proposed locations for wetland creation are close enough to areas of marsh habitat that disturbances to nesting California black rail, if present, are possible. Although no direct impacts to the marsh habitat of California black rail would occur, if a California black rail was nesting in or near the work area for wetland construction, an individual could be disturbed by the operation of equipment and the activities of work crews conducting construction activities at that site. Such indirect disturbance could cause individuals to disperse, could result in harassment, harm or even mortality, or could cause individuals to remain more susceptible to predation during high tide events. Noise and other disturbances could disrupt nesting and breeding activity, as well as behaviors associated with foraging and other essential activities engaged in by the species. Construction activity near nests could cause nest abandonment, reduced care for young or eggs, or increased dispersal with subsequent potential increases in predation. Therefore, this impact would be **potentially significant.**

Mitigation Measure 4.3-10: Preconstruction Nesting Surveys

If construction work is proposed during the black rail nesting season (February 1 through August 31) pre-construction surveys for nesting California black rail shall be conducted in suitable habitat within 700 feet of the work area to determine if setbacks are warranted to protect nesting California black rail from indirect impacts. Surveys shall be conducted using the methodology described in *Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges* (Wood et al. 2017), or a variation thereof as approved by CDFW. If the surveys detect the presence of a California black rail nest, or the activity center of vocalizing California black rails, a non-disturbance buffer or other appropriate avoidance measures shall be established in consultation with CDFW.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-10 would avoid disturbance of nesting California black rail, thus reducing potential impacts to **less than significant**.

Impact 4.3-11 Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. *Grading or vegetation removal associated with construction of the Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space area of the Project Site, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of are present. This impact would be* ***potentially significant.***

Direct and indirect impacts to nesting populations of state species of concern including loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or tricolored blackbird could occur through habitat removal or disturbance of potential nest sites during construction. Disturbances to nesting activities are possible either during grading or vegetation removal for construction of the Project, including within the proposed Development Area, or from grading for creation of mitigation wetlands or enhanced upland refugia within the proposed Managed Open Space area in the southern portion of the Project Site. Impacts on nesting birds, including these special status species, include visual or auditory disturbance from construction noise and human presence. These types of disturbance could result in nest abandonment or failure by deterring birds from preferred nest and foraging sites, and/or distracting adults from tending to their eggs or young. These impacts would be **potentially significant.**

Mitigation Measure 4.3-11: Preconstruction Nesting Surveys

If construction will occur during the nesting season (February 1 through August 31) in the proposed Development Area of the Project Site or for construction of mitigation wetlands within the proposed

Managed Open Space area of the Project Site, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to any ground-disturbance. Surveys shall be conducted by a qualified biologist to search for nesting of loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony. If the surveys find an active tricolored blackbird colony CDFW shall be consulted to develop an appropriate non-disturbance buffer. If nests of loggerhead shrike, Suisun song sparrow, or grasshopper sparrow are found, appropriate buffer zones determined by the qualified biologist shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. The buffer shall be marked with orange construction fencing. The size of buffer zones shall be determined per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-11 would avoid disturbing a nesting loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony, thus reducing potential impacts to **less than significant**.

Impact 4.3-12 Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew. *Direct and indirect impacts to salt marsh harvest mouse or Suisun shrew may occur as a result of construction or operation of the proposed Project. These impacts would be* ***potentially significant.***

The CNDDB reports that a salt marsh harvest mouse was trapped in the perennial brackish marsh near the proposed Development Area of the Project Site in the eastern portion of the Annexation Area in 1986. No habitat for salt marsh harvest mouse or Suisun shrew occurs within the proposed Development Area of the Project Site, but it is assumed that salt marsh harvest mouse and Suisun shrew could occur within suitable habitat in the eastern portion of the proposed Annexation Area or within the area south of Cordelia Road within the proposed Managed Open Space area of the Project Site.

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of brackish marsh. Where construction activities are to occur in upland habitat near brackish marshes in the proposed Development Area or the Managed Open Space area of the Project Site, direct construction impacts could occur to a wandering salt marsh harvest mouse or Suisun shrew in the adjacent upland areas. This risk is highest during extreme high tides when these species seek refugia in uplands. Construction for the proposed Project, especially in Planning Area 3, is anticipated to occur close to uplands bordering high marsh areas of the perennial brackish marsh at the east end of the Annexation Area. Grading to establish mitigation wetlands and to enhance upland refugia in the southern portion of the site may also impact salt marsh harvest mouse and Suisun shrew, that could occur in uplands adjacent to brackish marsh habitat, especially during extreme high tides.

Project operation could have indirect impacts on the salt marsh harvest mouse and/or Suisun shrew that may occur within in the eastern portion of the Annexation Area or near Suisun Marsh in the portion of the site south of Cordelia Road. Increased food availability associated with development could attract and support larger populations of small mammals such as rats, house mice, feral and domestic cats, and raccoons that could prey on salt marsh harvest mice or Suisun shrew. As predator populations associated with development increase, other predators forced out of developed areas could infiltrate harvest mouse or shrew habitat. In addition, development

within the proposed Development Area of the Project Site could provide additional habitat for crows and ravens that could prey on salt marsh harvest mice or Suisun shrew. If desirable food is available and suitable nesting habitat exists nearby, crows and ravens will breed in the area. The introduced industrial use would also bring more people and associated disturbances to the vicinity of the habitat for salt marsh harvest mouse and Suisun shrew.

Operational activities at the site including truck and other vehicle traffic and pedestrian activities could result in noise and other disturbances that could affect salt marsh harvest mouse, Suisun shrew and other wildlife species in the adjacent habitats within the Managed Open Space. An increase in the number of people within the development site has the potential to increase noise and other disturbances in the vicinity of the perennial marsh habitat. Night-lighting could spill over into the perennial marsh habitat or immediately surrounding uplands can be an additional disturbance to salt marsh harvest mouse, Suisun shrew, and other nocturnal species.

The construction and operation impacts described above would be **potentially significant.**

Mitigation 4.3-12a: Worker Environmental Awareness Training

All workers involved in the clearing of vegetation or other construction activities associated with construction of the proposed Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space portion of the Project Site, shall participate in a training session led by a qualified biologist prior to initiation of work. This training session shall include information on the ecology and identification of salt marsh harvest mouse and Suisun shrew. The training shall also include information related to the Endangered Species Act and penalties associated with harm done to an individual of a listed species and the need to stop work and inform the on-site biologist in the event of a potential sighting.

Mitigation Measure 4.3-12b

Where the Project footprint borders perennial marsh habitat suitable for this species (i.e., within 100 feet), work shall be scheduled to target the dry season to minimize the potential for wet weather, surface flooding, and high water tables in and adjacent work areas such that it might push salt marsh harvest mouse or Suisun shrew to seek refuge in the higher ground of the work areas.

Mitigation Measure 4.3-12c: Vegetation Removal and Installation of Exclusion Fencing

Proposed construction work areas in areas immediately adjacent to brackish marsh habitat shall be protected with exclusion fencing to ensure that individuals of salt marsh harvest mouse or Suisun shrew do not wander into the work area during the construction period. The fence shall be established in all areas subject to construction disturbance within 50 feet of brackish marsh habitat subsequent to removal of pickleweed and other vegetation as described below Exclusion fencing shall be made of a material that does not allow small mammals to pass through, such as a properly installed silt fence or other material (e.g., plastic or metal) so that the outside is too smooth to be climbed, and shall be buried at least 6 inches below the ground surface and extend a minimum of 2 feet above ground with stakes angling up and away from the work area so small mammals use the stakes to make their way over the fence and out of the work area rather than into it. The exclusion fence shall be installed on all three sides of the development associated with Planning Area 3 (e.g., Pennsylvania Avenue east to the perennial brackish marsh slough channel, south along the channel, and west back to Pennsylvania Avenue) and between areas of proposed

created mitigation wetlands and brackish marsh in the proposed Open Space Management Area. The final design and proposed location of the fencing shall be submitted to USFWS and CDFW for review and approval prior to installation.

Prior to installation of the exclusion fence described above, efforts shall be made to ensure that salt marsh harvest mouse and Suisun shrew are not present in areas of salt or brackish marsh or immediately adjacent uplands subject to potential impact from either the development or from construction of created mitigation wetlands within the proposed Open Space Management Area through vegetation removal. Prior to removal of vegetation, a qualified biologist will walk the work zone to ensure no nests of harvest mouse or Suisun shrew are present. Pickleweed and other vegetation shall be removed using hand tools such as weed-whackers from all construction areas within 50 feet of brackish marsh habitat. Immediately after vegetation removal is complete and no evidence of salt marsh harvest mouse or Suisun shrew presence is observed within the construction zone, the temporary exclusion fencing will be placed around the defined work area prior to the start of construction activities to prevent salt marsh harvest mouse or Suisun shrew from moving into construction areas. A biological monitor approved by USFWS and CDFW shall be present during vegetation clearing and installation of the exclusion fence. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measure 4.3-12d: Biological Construction Monitoring

A qualified biologist shall remain on-site during all work involving vegetation clearing and ground disturbance associated with construction of the Development Area (especially near Planning Area 3) or of mitigation wetlands within the Managed Open Space to help ensure that no salt marsh harvest mouse or Suisun shrew are harmed. The biological monitor shall check the integrity of the exclusion fence, search for salt marsh harvest mouse or Suisun shrew that may have wandered into the work area, and monitor construction to ensure impacts to the species do not occur. If a salt marsh harvest mouse is found on the site within the work area, construction should be halted until it appears that the individual has left the project area of its own volition. If a Suisun shrew is found in the work area, the individual should be relocated outside of the work area after coordination with CDFW regarding appropriate relocation methodologies.

Mitigation Measure 4.3-12e: Establish Setback of 50 feet

Establish a minimum of a 50-foot (average) setback from the proposed Development Area of the Project Site and the adjacent perennial brackish marsh that is suitable for salt marsh harvest mouse and Suisun shrew to minimize indirect impacts to salt marsh harvest mouse and Suisun shrew habitat from industrial uses introduced by the proposed Project. The 50-foot setback would begin at the edge of the perennial brackish marsh on the east side of the slough channel adjacent to Planning Area 3. The open channel of the slough and areas to the west are not suitable for these species; the open slough channel would also act as a movement barrier to the species.

Mitigation Measure 4.3-12f: Install Permanent Fencing

Install a permanent fence along the boundaries of the proposed Development Area of the Project Site adjacent to perennial brackish marsh slough channel, to prevent people from accessing potential salt marsh harvest mouse and Suisun shrew habitat.

Mitigation Measure 4.3-12g: Proper Waste Disposal

During operation of the proposed Project, appropriate waste disposal procedures shall be adopted and enforced for the industrial uses proposed (i.e., all garbage shall be placed in cans with lids) to avoid and minimize attracting predators such as crows and ravens.

Mitigation Measure 4.3-12h: Night Lighting Shielding

Night lighting shall be shielded and directed onto the proposed Development Area of the Project Site and away from marsh areas and immediately surrounding uplands.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-12a through 4.3-12h would prevent direct impacts on salt marsh harvest mouse and Suisun shrew during construction by excluding these species (if present) from the construction footprint in areas adjacent to suitable habitat; and would prevent direct and indirect impacts from Project operations through the establishment of a Development Area setback from suitable habitat and installation of a permanent perimeter fence to keep these species out of the Project Site, and establishment of proper waste management and light shielding to minimize indirect impacts on this species if present in nearby habitats. Collectively these mitigation measures would reduce the potential for direct and indirect impacts on salt marsh harvest mouse and Suisun shrew to **less than significant**.

Impact 4.3-13 Loss of Upland Refugia. *Proposed Project construction would permanently develop 54.2 acres of upland annual grassland, of which approximately 3 acres are directly adjacent to perennial marsh, and would convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the Project Site. This habitat loss and conversion could result in potential indirect impacts to salt marsh harvest mouse, the Suisun shrew, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events. This impact would be* ***potentially significant.***

Project construction would permanently develop 54.17 acres of upland annual grassland and would permanently convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the Project Site. Of the 54.17 acres of upland annual grassland to be developed, approximately 3 acres are within Planning Area 3 in close proximity to tidal marsh areas to the east. Upland grassland habitat loss and conversion in areas adjacent to tidal marsh could potentially result in indirect impacts to wildlife which rely on upland refugia habitat adjacent to the tidal marsh, such as for salt marsh harvest mouse and Suisun shrew. Suitable habitat for salt marsh harvest mouse and Suisun shrew can be found in brackish marsh areas of Suisun Marsh in the southern portion of the Project Site. If sea levels continue to rise beyond the 2050 predictions, upland refugia habitat with higher topographic elevations would become more critical adjacent to the tidal marsh. Permanent conversion of 38 acres of upland annual grassland (potential refugia) habitat would result from the construction of mitigation wetlands proposed in the proposed Managed Open Space area south of Cordelia Road to compensate for impacts to wetlands associated with proposed development of the Project Site. The *Permittee-Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Mitigation Management Plan for the*

Highway 12 Logistics Center (Mitigation and Monitoring Plan) for the proposed Managed Open Space portion of the Project Site includes details regarding placement of created wetlands in upland portions of the proposed Managed Open Space area away from marsh areas that provide habitat for salt marsh harvest mouse and Suisun shrew (see Figure 17 of Appendix C).

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of tidal marsh, and also use these areas as upland refugia during high tides. The upland annual grassland habitat within the proposed Managed Open Space portion of the Project Site is relatively flat but currently offers sufficient topography to provide upland refugia during high tides. The proposed construction of mitigation wetlands described above as part of the Mitigation and Monitoring Plan would convert approximately 38 acres of upland annual grasslands adjacent to tidal marsh areas to seasonal wetlands within the proposed Managed Open Space area of the Project Site. During the winter and early spring, portions of the 38 acres of constructed wetlands would be ponded for several days to several weeks at a time and therefore not available as upland refugia habitat.

The permanent loss and conversion of potential upland refugia habitat would be **potentially significant.**

Mitigation Measure 4.3-13: Create Upland Refugia in Managed Wetland

To offset potential loss of annual grassland upland refugia for salt marsh harvest mouse, Suisun shrew and any other species that need upland cover during high tide events, soil from the excavation of mitigation wetlands shall be used to raise the topographic elevation of portions of the remaining 60.2 acres of upland areas within the Managed Open Space area that are adjacent to the perennial brackish tidal marsh such that they would no longer become inundated and would serve as upland refugia during high tide events. Detailed design plans, including a Vegetation Planting Plan, for the upland refugia in the Managed Open Space shall be developed in consultation with USFWS.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-13 would enhance and provide additional upland refugia in the proposed Managed Open Space area of the Project Site for salt marsh harvest mouse, Suisun shrew, and any other species that need cover during high tide events and would reduce this potential impact to **less than significant**.

Impact 4.3-14 Nesting Birds. *The removal of vegetation during the February 1 to August 31 breeding season for the proposed Project could result in mortality of nesting avian species if they are present. Therefore, this impact would be* ***potentially significant.***

Nesting bird species protected by the federal Migratory Bird Treaty Act or California Fish and Game Code could be impacted during project construction. Work related to construction involving the removal of vegetation during the February 1 to August 31 breeding season of birds could result in mortality of nesting avian species (including eggs or young) if they are present.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Required setbacks to protect active nests from construction activity are typically about 500 feet or more for raptors and 250 feet for passerines (songbirds) and other bird species.

Habitats within the Project Site were shown to support a number of bird species during field surveys conducted by HBG over a period of 20 years. The on-site grasslands and seasonal wetlands provide suitable nesting substrate for a number of species. Many of the bird species documented on or near the site could possibly nest within the vegetation in the on-site grasslands or seasonal wetlands. If active nests were present in this vegetation during construction of the Project Site, including for creation of mitigation wetlands or enhanced upland refugia within proposed Managed Open Space area, direct or indirect impacts that cause nest abandonment or loss of nest productivity could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of construction activity; this could result in a violation of these regulations. Therefore, this impact would be **potentially significant.**

Mitigation Measure 4.3-14a: Preconstruction Nesting Surveys

If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 14 days prior to the onset of construction activity. Nesting bird surveys shall cover the Project footprint in addition to a 500-foot buffer beyond the boundaries of the footprint.

Mitigation Measure 4.3-14b: Nest Zone Buffers

If bird nests are found, appropriate non-disturbance buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Buffer zones shall be 500 feet for raptors and 250 feet for passerines, and other bird species. The size of the buffer zone may be modified per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-14a and 4.3-14b will avoid and minimize potential impacts during construction of the proposed Project on nesting avian species, thus reducing potential impacts to **less than significant**.

Impact 4.3-15 Special Status Fish Species. *Proposed Project construction activities could result in potential water quality impacts in Ledgewood Creek and other waterways and could adversely affect special status fish species. This impact would be* ***potentially significant.***

Fish species including the Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run and the spring run Chinook salmon and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough (south and east from the Project Site) and fish in Suisun slough could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur in the lower reach of Ledgewood Creek and slough channels within the Managed Open Space area. The lower reach of Ledgewood Creek and slough channels within the Managed Open Space area are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species.

The Project Site is located outside Ledgewood Creek and the slough channels, apart from construction associated with a stormwater outfall culvert located adjacent to PA-3 that may impact 0.002 acres of a slough channel categorized as a perennial brackish marsh. Off-site migration of soil from construction-related ground disturbance associated with the outfall culvert could lead to siltation in adjacent slough channels that could adversely impact special status fish species if present in the slough channels, such as covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature.

Implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and BMPs, would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. For example, silt fence and straw wattles would be installed per the SWPPP along portions of the Project Site to prevent water pollutants, including soil, from migrating off-site. In addition, vegetation would only be cleared from the permitted construction footprint; all cleared areas would be subject to soil stabilization requirements to prevent erosion and runoff.

This impact would be **potentially significant** without implementation of the SWPPP and associated BMPs to protect Ledgewood Creek and other adjacent aquatic resources from potential project-related effects from erosion, sedimentation and pollution.

Mitigation Measure 4.3-15a: Implement SWPPP and BMPs

The Project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges. The SWPPP shall provide guidance for measures to protect environmentally sensitive areas, and to prevent and minimize stormwater and non-stormwater discharges. Protective measures shall include the following, at a minimum:

a. Discharge of pollutants into storm drains or watercourses from vehicle and equipment cleaning will be prohibited.

b. Maintenance and refueling areas for equipment will be located a minimum of 50 feet from active stream channels in predesignated staging areas, except at an established commercial gas station or vehicle maintenance facility.

c. Spill containment kits will be maintained on-site at all times during construction operations and/or staging or fueling of equipment.

d. Dust control measures will include the use of water trucks and dust palliatives to control dust in excavation-and-fill areas, and to cover temporary stockpiles when weather conditions warrant such action.

e. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment.

f. Permanent erosion control measures, such as biofiltration strips and swales to receive stormwater discharges from the highway or other impervious surfaces, will be implemented to the maximum extent practicable.

g. Construction Site Management Practices. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:

- Routes and boundaries of roadwork will be clearly marked before initiation of construction or grading.
- All equipment will be maintained to prevent leaks of automotive fluids, such as gasoline, oils, or solvents, and a spill response plan will be prepared.
- Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is located at least 100 feet from wetlands and aquatic habitats.
- Before construction activities begin, the contractor, in consultation with a qualified biologist and in accordance with the project plans, will clearly demarcate environmentally sensitive areas adjacent to the project footprint. Temporary fencing will be installed along the perimeter of all environmentally sensitive areas that are to be avoided; will remain in place throughout the duration of construction and will be fully maintained and inspected daily when project activities are underway. Repairs to the fencing will be made within 24 hours of identifying the need for repair. After construction is completed, the fencing will be completely removed.
- Restrict Vehicles and Construction to Designated Work Areas. All construction equipment will be restricted to operating within the designated work areas, staging areas, and access routes. The limits of designated work areas and staging areas (i.e., project footprint) will be clearly marked before beginning construction.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-15a would avoid and minimize potential impacts during construction of the proposed Project to protect Ledgewood Creek and other adjacent aquatic resources from potential project-related effects from erosion, sedimentation, and pollution, thus reducing potential impacts to **less than significant**.

Riparian Habitat

Impact 4.3-16 Riparian Habitat. *Construction activities near the riparian corridor of Ledgewood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with proposed Project operation could also adversely affect wildlife in the riparian corridor. These impacts would be* ***potentially significant.***

No riparian habitat would be directly affected by the proposed Project. However, the western boundary of the proposed Development Area of the Project Site is immediately adjacent to the Ledgewood Creek riparian corridor. Construction activities could result in degradation of water quality and adjacent sensitive habitat areas and adversely affect wildlife activities through increased erosion and sedimentation, spills during vehicle

refueling, or disposal of food and trash. Project development and activities during Project operation could reduce the value of wildlife habitat in the riparian corridor and potentially disrupt wildlife activities and movement in the riparian zone. These impacts would be **potentially significant.**

Mitigation Measure 4.3-16a: Construction Best Management Practices

Construction activities shall be implemented using the following BMPs to protect Ledgewood Creek:

- Install temporary fencing during construction. The Project applicant shall install fencing along the boundary of the Riparian Corridor Protection Zone during construction in the vicinity of Ledgewood Creek. Fencing during construction will ensure that construction related ground-disturbances do not encroach into the minimum 50-foot Riparian Corridor Protection Zone referenced in Mitigation Measure 4.3-12b. The location of the fencing shall be marked in the field with stakes and flagging prior to installation and shown on the construction drawings. The construction specifications shall include clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities beyond the fence. Temporary construction fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the temporary fencing shall be completely removed.

- Vehicle Fueling and Maintenance. All fueling and maintenance of vehicles and other equipment as well as locations of staging areas shall occur at least 100 feet from the edge of the riparian area of Ledgewood Creek. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- Proper Waste Disposal. Food, trash, and other solid wastes shall be disposed of in contained, covered refuse containers and regularly removed from the construction site.

Mitigation Measure 4.3-16b: Riparian Corridor Protection Zone.

The Project applicant shall establish a riparian corridor buffer zone to be protected with permanent fencing upon completion of construction. The western boundary of the proposed Development Area of the Project Site and the permanent fence line adjacent to Ledgewood Creek shall be set back a minimum of 50 feet from the top of the bank or the outside edge of riparian vegetation, whichever distance is greater. Fencing details including the material, specifications, and location of the fence line shall be approved by CDFW prior to installation.

Significance after Mitigation

Mitigation Measure 4.3-16a requires BMPs to avoid direct and indirect impacts to Ledgewood Creek and its riparian habitat. Mitigation Measure 4.3-16b, which requires establishment of a riparian setback from Ledgewood Creek would serve to protect the riparian corridor from operational activities and environmental degradation facilitated by project development. These measures would reduce impacts to **less than significant**.

WETLANDS

Impact 4.3-17 Wetlands. *Grading activities would result in the permanent placement of fill material into 16.3 acres of Seasonally Saturated Annual Grassland; 14.1 acres of Vernal Pools; 7.4 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh. In addition, grading within the Managed Open Space to establish/create wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands. These impacts would be* ***potentially significant.***

Development of the proposed Project within the proposed Development Area would result in permanent impacts to 38 acres of wetlands considered Waters of the U.S and Waters of the State. The location of wetland impacts associated with the proposed Project within the proposed Development Area is shown in Attachment C, Figure 13, and the acreage of impacts to each wetland is summarized below in Table 4.3-5. Permanent loss of 16.33 acres of seasonally saturated annual grassland, 14.09 acres of vernal pools; 7.42 acres of alkali seasonal wetlands; and 0.002 acre of perennial brackish marsh would result from implementation of the proposed Project. Grading within the Managed Open Space area to create wetlands could also adversely affect the hydrology and water quality of existing adjacent wetlands. These wetland impacts would be **significant.**

Table 4.3-5. Impacted and Unimpacted Wetlands by Vegetation Community

Vegetation Community/Wetland Habitat Type	Total Wetland Acreage by Habitat Type	Unimpacted Wetlands (ac)	Impacted Wetlands (ac)
Seasonally Saturated Annual Grassland	78.88	62.55	16.33
Vernal Pool	19.76	5.67	14.09
Akali Seasonal Wetland	46.41	38.99	7.42
Perennial Brackish Marsh	176.27	176.27	<0.01 (0.002)
Project Site Totals	**321.32**	**283.45**	**37.84**

Impacts of this magnitude would typically require that the Project applicant apply for and obtain an Individual Permit from the San Francisco District of USACE for the placement of fill material within approximately 38 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. The application would require a plan to compensate for wetland losses, as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines. For the USACE permit to be valid, the project applicant would be required to apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over much of the Project Site and a BCDC permit would also be required.

Implement Mitigation Measure 4.3-13a: Implement SWPPP and BMPs (see Impact 4.3-13, above)

Mitigation Measure 4.3-17a: Secure Permits and Implement All Permit Conditions

The Project applicant shall coordinate with the San Francisco District USACE, the San Francisco Bay RWQCB, and the BCDC to obtain proper permits for the placement of fill material within approximately 38 acres of wetlands and implementation of the Mitigation and Monitoring Plan, which includes construction of mitigation wetlands in the Managed Open Space area of the Project Site within the Suisun Marsh primary and Secondary Management Areas. The Project applicant shall implement all conditions

required in these permits. The Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay RWQCB, San Francisco District USACE, and BCDC for review and permit conditioning as part of the permitting process with these agencies.

Mitigation Measure 4.3-17b: Wetland Establishment and Performance Monitoring

The Project applicant shall establish/create wetlands at a 1:1 ratio to include 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh concurrent with project construction. Performance standards for the established/created wetlands will be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C).

If the permits described above specify additional wetland mitigation beyond that described in the Mitigation and Monitoring Plan, the Project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available that service the proposed Development Area of the Project Site, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 4.3-17c: Avoid Impacts to Existing Wetlands in Managed Open Space

To ensure detailed construction plans will avoid potential indirect impacts to existing wetlands and special status plants and wildlife, the Project applicant shall obtain detailed topographic plans, at minimum of 0.5-foot contours, before implementing the proposed wetland creation activities described in Attachment 7 in Appendix C. This topographic information will be used to conduct a water balance study to determine if construction of the created wetlands in the proposed Managed Open Space could adversely affect ponding and/or soil saturation in adjacent existing wetlands. This study would supplement the "Adequate Hydrology Determination" presented in the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C). If it is determined there is an adverse effect on the hydrology of existing wetlands due to grading within the Managed Open Space area to establish/create wetlands that would reduce the extent of the wetlands, construction plans will be modified to avoid alterations to the hydrology of existing wetlands. If the revised plans result in a reduction in available acreage for wetland creation for mitigation, and the acreage of wetlands established needs to be reduced, the project applicant shall purchase wetland mitigation credits to offset the reduced acreage, and/or preserve land offsite, approved by the USFWS, that is suitable for preserving and creating/establishing wetland habitat. The mitigation credits shall be purchased from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available which service the proposed Development Area, the project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Currently, according to the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), there are banks with a service area that encompasses the Project Site with wetland preservation credits (e.g., Goldfields Conservation Bank) and establishment/creation credits (e.g., Elsie Gridley Mitigation Bank) available which may be suitable to off-set wetland impacts that cannot be mitigated on-site. In addition, according to RIBITS, there are mitigation banks with preservation and wetland creation credits with service areas that encompass the Solano-Colusa Vernal Pool Region.

Mitigation Measure 4.3-17d: Limit Staging Areas and Access Routes.

To avoid potential impacts to preserved wetlands during construction of the proposed Project, including the proposed Development Area and construction of mitigation wetlands of the proposed Managed Open Space area, the number of access routes, and number and size of staging areas shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly marked/flagged. These areas shall be outside of wetland areas and other sensitive areas proposed for preservation.

Mitigation Measure 4.3-17e. Implement Mitigation and Monitoring Plan

To compensate for loss of wetlands and impacts to rare plant populations the Project applicant shall implement an Agency-approved Mitigation and Monitoring Plan. A draft Mitigation and Monitoring Plan for the proposed Managed Open Space portion of the Project Site (Appendix C, Attachment 7), has been prepared in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board Procedures, and in accordance with the State Water Resources Control Board Implementation Guidance dated April 2020. The referenced Mitigation and Monitoring plan may be modified based on recommendations from the USACE, USFWS, and RWQCB during the permitting process. In summary, the Mitigation and Monitoring Plan shall:

- Establish within the Managed Open Space a minimum of 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh.

- Provide financial assurances to ensure a high level of confidence that the Mitigation and Monitoring Plan will be successfully completed, in accordance with applicable performance standards.

- Design ecological performance standards to assess whether the Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected conditions or function, and attaining any other applicable metrics such as acres, percent cover of native plants, structural patch richness, control of invasive plants, water depth etc.

- Monitor the site for a minimum of 10 years to determine if the Mitigation and Monitoring Plan is meeting the performance standards; and

- Assess the potential effects of changing weather patterns that are currently occurring, and that may occur due to climate change in the foreseeable future and how these changes may impact the long-term viability of the constructed wetlands. The purpose of this assessment is to locate and design the wetlands to avoid and minimize impacts from climate change and to develop adaptive management measures into the Mitigation and Monitoring Plan specifically to minimize these potential effects.

The Mitigation and Monitoring Plan shall include a site protection instrument (e.g., deed restriction or conservation easement[s]) that will restrict use of the proposed Managed Open Space area of the Project Site to offset impacts to wetlands and impacts to rare plants and shall include a long-term endowment funded by the proposed Project to manage the entire 393.2-acre Managed Open Space area in perpetuity and in accordance with the Mitigation and Monitoring Plans' Long-Term Management Plan (see Property Analysis Record in the Mitigation and Monitoring Plan, in Appendix C).

Significance after Mitigation

The proposed Project would protect 393.2 acres east of Pennsylvania Avenue and south of Cordelia Road; this area would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately 331.7 acres of this 393.2-acre Managed Open Space is currently within the Suisun Marsh Protection Plan jurisdiction. However, the proposed Managed Open Space area provides additional benefits to enhance the quality and diversity of Suisun Marsh wildlife habitats beyond that provided by the Suisun Marsh Protection Plan. The site protection instrument would create new freshwater wetlands and will provide a sanctuary for wildfowl during hunting season by excluding duck hunting, and foster implementation of Suisun March Protection Plan policies and goals such as managing agricultural lands to support waterfowl and enhancements of wildlife habitat. The Project would create a long-term endowment to provide funding to support regular site inspections, maintenance actions and sustained stewardship to:

- manage vegetation grazing practices to be compatible with wildlife habitat enhancement and rare plant protections
- implement invasive plant inspections and undertake remedial actions
- clean up dump sites and remove trash before it enters waterways
- prevent damage from homeless encampments
- maintain fences, gates, and signage

In addition, Managed Open Space area will include protection to approximately 51.5 acres to the Managed Open Space area which is not currently within the Suisun Marsh Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge to wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.7 acres is within the primary and Secondary Management Areas of the Suisun Marsh.

Implementation of the proposed Managed Open Space in accordance with Mitigation Measures 4.3-17a through 4.3-17e would therefore offset permanent impacts to the 16.33 acres of Seasonally Saturated Annual Grassland; 14.1 acres of Vernal Pools; 7.4 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh and ensure there is no-net loss of wetland area, thus reducing potential impacts to l**ess than significant**.

CONSERVATION AND PROTECTION PLANS

Impact 4.3-18 Conservation and Protection Plan Conflicts. *Because the proposed Project would not conflict with the provisions of any adopted habitat conservation plan, and because management of Project area that falls within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats, this impact would be* ***less than significant.***

The Solano Multispecies Habitat Conservation Plan (SMHCP) has been in draft form for approximately 20 years. The SMHCP has not yet been adopted and currently there are no proposals to adopt this conservation plan in the foreseeable future. Therefore, the proposed Project poses no conflict with an adopted conservation plan.

The proposed Project is consistent with the provisions and objectives of the Suisun Marsh Protection Plan. The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh wildlife habitats and to assure retention of upland areas adjacent to the Suisun Marsh in uses compatible with its protection. All portions of the Project Site that overlap with the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats. The project would bring additional funding and management oversight for 393.2 acres of the Suisun Marsh and adjacent uplands; as described in Appendix C, Attachment 7, a site protection instrument, and a long-term endowment fund would provide additional resources to augment management of 393.2 acres of proposed Managed Open Space area within the Project Site with the goal of protecting and enhancing wildlife habitat.

The public acquisition recommendations in the Suisun Marsh Protection Plan specify acquisition of lands within and adjacent to the marsh close to population centers like Suisun City so that these lands can be managed as wildlife habitat and provide refuge areas to protect wildfowl, especially during hunting season. Approximately 51.5 acres of the proposed Managed Open Space of the Project Site is currently outside of the Suisun Marsh Protection Plan's jurisdiction. The proposed Project would provide new protections for this area because it would be managed in perpetuity as wildlife habitat in the proposed Managed Open Space area and would provide refuge to wildfowl, consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.7 acres is within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan.

Because the proposed Project would not conflict with the provisions of any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, this impact would be **less than significant**.

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