4.3 BIOLOGICAL RESOURCES

4.3.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact biological resources. Following an overview of the biological resources setting in **Subsection 4.3.2** and the relevant regulatory setting in **Subsection 4.3.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.3.4**.

4.3.2 ENVIRONMENTAL SETTING

The project site is located in the Sodic Claypan Terraces subsection of the Great Valley ecological region (USDA, 1997). The Great Valley ecological region consists of nearly level to gently sloping alluvial fans in the lower west side of the Sacramento Valley. Streams in the Sodic Claypan Terraces subsection flow to the Sacramento River, which empties into the delta west of the San Francisco Bay. Climate in the vicinity of the project site is hot and subhumid. The average annual precipitation is 24.7 inches, the average annual maximum temperature is 75.5 degrees Fahrenheit (°F), and the average annual minimum temperature is 46.1°F (Western Regional Climate Center, 2009).

Wildlife Corridors

Wildlife corridors in the vicinity of the project site include the Pacific Flyway, a common route of bird migration that extends along the west coast of North America from Alaska to South American, and from the Eastern Pacific to the Great Basin, as well as a terrestrial wildlife corridor consisting of a narrow band of riparian woodland bordering Alamo Creek adjacent to the northern boundary of the project site.

Habitat Types

This section includes biological data obtained during a biological survey and wetland delineation conducted by AES on May 10, 2009 and from a biological resources report for a portion of the project site prepared by ESA in January 2009. Plant communities were classified based on *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986). The nomenclature described in the plant communities was based on the *Jepson Manual-Higher Plants of California* (Hickman, 1993). Terrestrial habitat types within the project site include: nonnative grassland, nonnative blackberry, agriculture, and ruderal/disturbed areas. Aquatic habitat types within the project site include: basins and roadside ditches. Dominant vegetation in each terrestrial habitat type and each aquatic habitat type is discussed below. A list of plant species observed within the project site is included in **Appendix E**. Photographs of representative habitat types are illustrated in **Figure 4.3-1**. Habitat types observed during the May 10, 2009 biological survey of the project site are summarized in **Table 4.3-1**, illustrated in **Figure 4.3-2**, and described in detail below. Surrounding habitats include both fallow and actively cultivated agricultural fields and ruderal areas.

PHOTO 1:
View to south of nonnative grassland in southern portion of the project site.

PHOTO 2:
View facing southeast of stormwater detension basin (Basin 1) in western portion of the project site.

PHOTO 3:
View facing northeast of emergency storage basin (Basin 2) in eastern portion of project site.

PHOTO 4:
View facing east of ruderal/disturbed area in the western portion of the picture.

PHOTO 5:
View facing south of biosolids lagoon located in eastern portion of the project site.

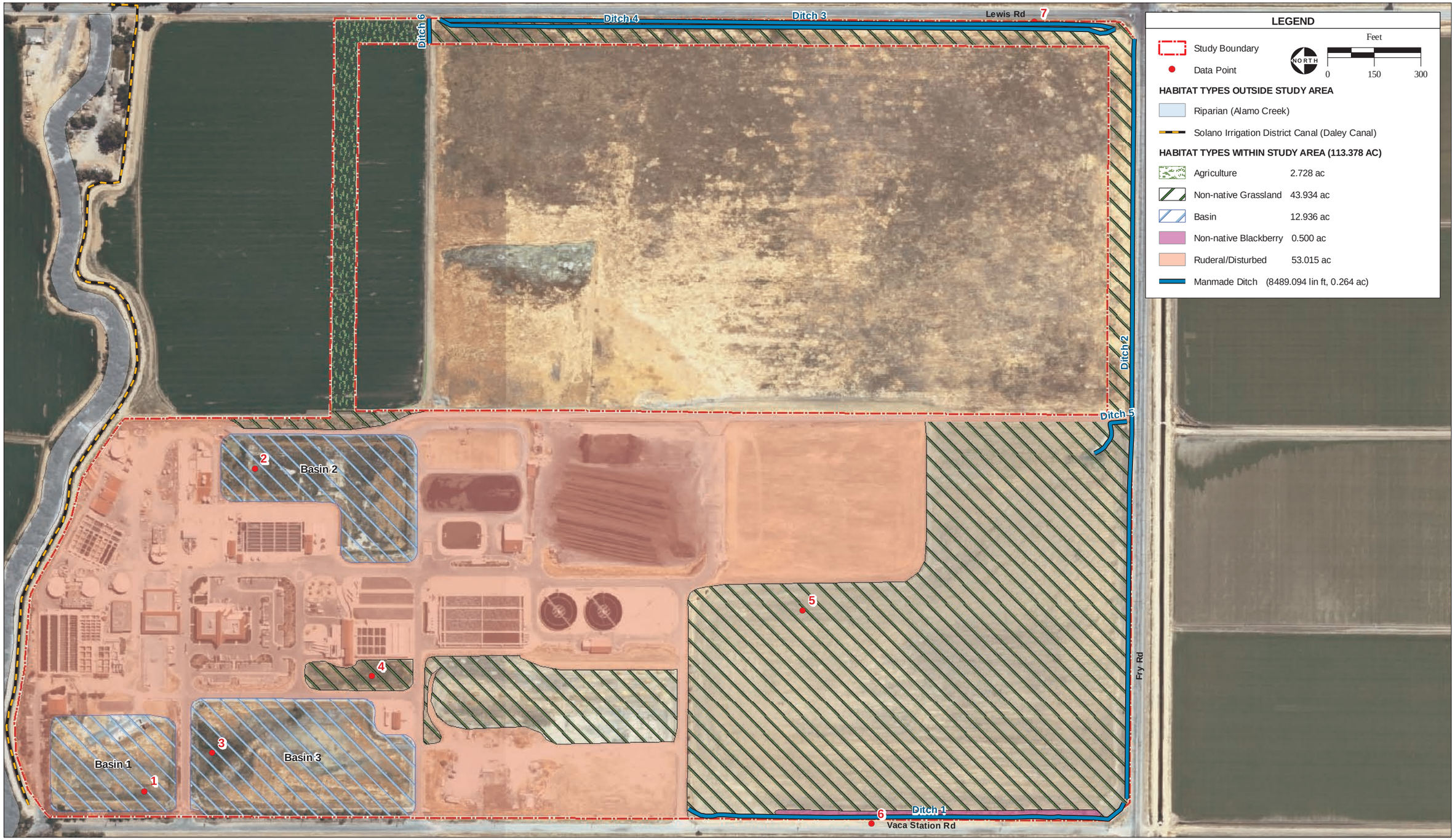
PHOTO 6:
View facing south of roadside ditch (Ditch 1) adjacent to Vaca Station Road.

PHOTO 7:
View facing north of roadside ditch (Ditch 2) adjacent to Fry Road.

PHOTO 8:
View facing north of roadside ditch (Ditch 3) adjacent to Lewis Road.

SOURCE: AES, 2009

Figure 4.3-1
Site Photographs



SOURCE: West Yost Associates, 2009; DigitalGlobe aerial photograph, 6/2007; AES 2009

Figure 4.3-2
Habitat Types, Wetland Features, and Other Waters

TABLE 4.3-1. PROJECT SITE HABITAT TYPES

Habitat Type	Acreage[1]
Terrestrial	
Nonnative Grassland	44.00
Nonnative Blackberry	0.50
Agricultural	2.73
Ruderal/Disturbed	53.02
Aquatic	
Basin	12.94
Roadside Ditch	0.21
Total	**113.40**

Source: AES, 2009.
[1]GIS calculations may not reflect exact acreage due to rounding.

Terrestrial Habitats

Nonnative Grassland

Nonnative grassland occurs within portions of the project site (**Figure 4.3-1**: **Photograph 1**). The nonnative grassland is disked annually in the late spring to reduce fire hazards (Faaborg, 2009). Dominant vegetation observed in the nonnative grassland includes: winter vetch (*Vicia villosa*), purple wild radish (*Raphanus sativus*), plantain (*Plantago lanceolata*), alfalfa (*Medicago polymorpha*), yellow star thistle (*Centaurea solstitialis*), field mustard (*Brassica rapa*), common groundsel (*Senecio vulgaris*), wild oat (*Avena fatua*), and ripgut grass (*Bromus diandrus*). Two ground squirrel burrows were observed within the nonnative annual grassland on the southwestern portion of the project site.

Nonnative Blackberry

Nonnative blackberry occurs adjacent to a roadside ditch on the southwestern portion of the project site and is comprised primarily of nonnative blackberry vegetation (*Rubus discolor*).

Agriculture

Agriculture occurs on the northeast side of the project site, within the proposed landscape buffer area. Sunflower (*Eriophyllum* sp.) was the crop observed growing within the project site (ESA, 2009).

Ruderal/Disturbed

Ruderal/disturbed areas include existing buildings and associated infrastructure, parking lots, graded areas, paved roads, concrete-lined aeration basins, polypropylene lined biosolid lagoons, paved bio-solid drying beds, and ornamental landscaping (**Figure 4.3-1**: **Photographs 4** and **5**). Existing ornamental landscaping within the project site includes ornamental trees and shrubs that have been planted around the existing administration building, parking lot, and access road. The two biosolid lagoons are devoid of

vegetation and function as storage for liquid sludge produced at the EWWTP prior to completion of the biosolid dewatering process.

Aquatic Habitats

Basin

Three existing manmade basins occur within the northern portion of the project site (Basins 1, 2, and 3) (**Figure 4.3-1**: **Photographs 2** and **3**). The unlined basins are manmade, engineered, and constructed fully in uplands. Dominant obligate and/or facultative vegetation observed in the basins include prickly lettuce (*Lactuca serriola*), rough cocklebur (*Xanthium strumarium*), broad-leaf cattail (*Typha latifolia*), Italian ryegrass (*Lolium multiflorum*), and curly dock (*Rumex crispus*). Portions of the three manmade basins contained ponded water in low spots during the May 10, 2009 biological survey.

Roadside Ditches

Three roadside ditches occur along the perimeter of the project site (**Figure 4.3-1**: **Photographs 6**, **7** and **8**). Features observed along the bed and banks of the roadside ditches include approximately 1.5-foot wide defined bed and banks and distinct drainage patterns. Although the hydric soils necessary to meet the criteria of wetland features are not present, the features are considered roadside ditches because they contain defined beds and banks, in accordance with the U.S. Army Corps of Engineers (USACE) regulations identified in 33 CFR Part 328. The three roadside ditches receive water via direct precipitation during rain events and from runoff from Vaca Station Road, Fry Road, Lewis Road, and adjacent nonnative grassland and agricultural areas. These roadside ditches do not connect to potentially jurisdictional features through surface flow and drain only uplands.

Waters of the U.S.

Definition

Waters of the U.S. are defined as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands; or
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use degradation of which could affect interstate or foreign commerce including any such waters (40 CFR 230.3).

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR 230.41). Wetlands that meet these criteria during only a portion of the growing season are classified as seasonal wetlands.

Wetlands and Other Waters of the U.S. Delineation

AES conducted a formal delineation of waters of the U.S. for the project site on May 10, 2009. The purpose of the delineation was to identify whether wetlands and other waters of the U.S., as defined by the USACE under Section 404 of the Clean Water Act (CWA), occur within the project site.

Prior to conducting the May 10, 2009 delineation of the project site, the following sources were reviewed: the Elmira quad and street maps (USGS, 1980; StreetMap World, 2008); color aerial photography in the vicinity of the project site (West Yost Associates, 2009; DigitalGlobe, 2007); soil survey maps and unit descriptions (NRCS, 2001-2007; 2007); hydric soil information (NRCS, 2009); and the U.S. Fish and Wildlife Service (USFWS) Wetlands Online Mapper (USFWS, 2009b). The Wetlands Online Mapper identifies the northwest portion of the project site as Palustrine, Unconsolidated Bottom, Artificially Flooded, Permanently Flooded (PUBKH) (USFWS, 2009b).

All wetland and water features identified within the project site were assessed to determine whether these features would potentially be subject to USACE jurisdiction under Section 404 of the CWA. Wetland features in the project site include the three existing man-made basins and roadside ditches. **Figure 4.3-2** illustrates wetland features by acreages and paired data points within the project site. Photographs of wetland features are provided in **Figure 4.3-1**.

The three basins within the project site do not have a significant federal nexus to a waters of the U.S. The three basins are engineered features that were dug wholly in uplands, receive artificial hydrology, and serve no connectivity for fish and wildlife species. Six roadside ditches occur within the project site. RGL 07-01 (2007) states that ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water are generally not waters of the U.S. because they are not tributaries and/or they do not have a significant nexus to downstream traditional navigable waters. In accordance with RGL 07-01, the roadside ditches are not likely to be considered jurisdiction by the USACE because they were dug wholly in uplands.

In conclusion, no potentially jurisdictional features were identified within the project site. The detailed methodology and results of this study are discussed within the Wetland Delineation Report included as **Appendix F** (AES, 2009). On November 3, 2009, representatives of the USACE conducted a site visit with AES and City representatives to review the results of the delineation (**Appendix F**). The delineation report was subsequently revised to incorporate recommendations provided by the USACE. The revised Wetland Delineation Report is provided as **Appendix F** of the Draft EIR. The results are considered preliminary until the USACE verifies the findings.

Special-Status Species

For the purposes of this EIR, special-status has been defined to include those species that meet the definitions of rare, threatened, or endangered plants or animals under the California Environmental Quality Act (CEQA) (CEQA Guidelines Section 15380) including species that are:

- Listed as endangered or threatened under the ESA (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the CESA (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050); or
- Designated as species of special concern to the California Department of Fish and Game (CDFG).

A list of regionally occurring special-status plants and wildlife was compiled based on: a review of pertinent literature; a USFWS list, updated January 29, 2009, of federally listed special-status species with the potential to occur on or be affected by projects on the Elmira U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle (quad) (USFWS, 2009a); a CDFG California Natural Diversity Database (CNDDB) query, dated May 30, 2009, of special-status species known to occur on the Elmira quad and the eight surrounding quads (CDFG, 2003); a CNDDB map of known occurrences of special-status species documented within five miles of the project site (**Figure 4.3-3**); and a California Native Plant Society (CNPS) query, viewed August 17, 2009, of special-status species known to occur on the Elmira quad and the eight surrounding quads (CNPS, 2009). The USFWS list and the CNDDB and CNPS queries are included within **Appendix G**.

AES conducted a biological survey of the project site on May 10, 2009, a botanical inventory within the project site on March 9, 2010, and a burrowing owl survey in the vicinity of the project site on March 9, 2010. The botanical inventory was conducted in accordance with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG Protocols) (CDFG, 2009). All species observed within the project site were documented during the botanical inventory. The burrowing owl survey was conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995).

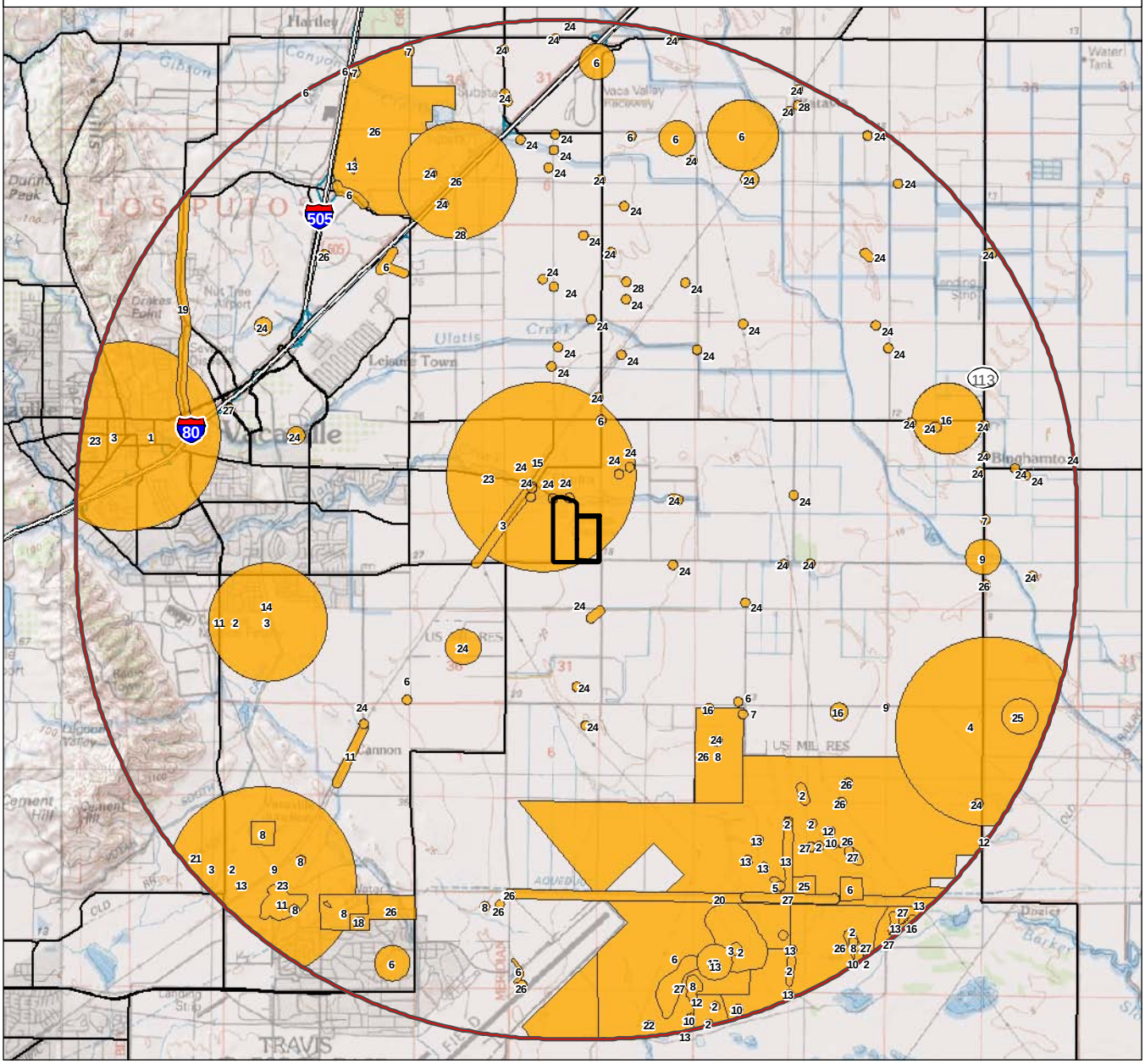
The potential for each of the regionally occurring special-status species to occur in the project site was subsequently evaluated based on the results of the ~~biological~~ field surveys, review of reported occurrences of special-status species within five miles of the project site (**Figure 4.3-3**), and review of biological documentation pertaining to the project site including the *Biological Resources Report for the Easterly WWTP Biosolids Drying Bed #2 Project* (ESA, 2009) and the *Draft Solano Multispecies Habitat Conservation Plan: Final Administrative Draft* (Draft Solano HCP; LSA, 2009). A discussion of the distribution and habitat requirements for each species and an evaluation of the potential for each species to occur in the project site are included in **Appendix H**. Species that have no potential to occur in the project site are not discussed further. In addition, potentially occurring plants having a documented blooming period at the time of the May 10, 2009 biological survey, but were not observed, are not discussed further.

SPECIAL STATUS SPECIES DATA

5-Mile Radius | Property Boundary | Special Status Species Occurence Areas

Feet
0 4,500 9,000

1 - adobe-lily
2 - alkali milk-vetch
3 - Baker's navarretia
4 - Blennosperma vernal pool andrenid bee
5 - Boggs Lake hedge-hyssop
6 - burrowing owl
7 - California linderiella
8 - California tiger salamander
9 - Carquinez goldenbush
10 - Conservancy fairy shrimp
11 - Contra Costa goldfields
12 - Delta green ground beetle
13 - dwarf downingia
14 - heartscale
15 - legenere
16 - midvalley fairy shrimp
17 - Northern Claypan Vernal Pool
18 - northwestern pond turtle
19 - recurved larkspur
20 - Ricksecker's water scavenger beetle
21 - San Joaquin spearscale
22 - San Joaquin Valley Orcutt grass
23 - showy rancheria clover
24 - Swainson's hawk
25 - Valley Needlegrass Grassland
26 - vernal pool fairy shrimp
27 - vernal pool tadpole shrimp
28 - white-tailed kite



SOURCE: "Lodi, CA" USGS 100k Topographic Quadrangle, Mt. Diablo Baseline & Meridian; California Natural Divesity Database, 7/2009; AES 2009

Figure 4.3-3

CNDDB 5-Mile Radius Map

Hispid Bird's-Beak (*Cordylanthus mollis* ssp. *hispidus*)

Federal Status – None
State Status – None
Other – CNPS List 1B

Hispid bird's-beak is an annual parasitic herb that occurs in meadows and seeps, playas, and valley and foothill grassland habitats, especially on alkaline soils, from 1 to 155 meters. The blooming period is from June through September. The known range includes Alameda, Fresno, Kern, Merced, Placer, and Solano counties (CNPS, 2009). There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). Although the nonnative grassland is disked annually, it still provides habitat for this species. This species was not observed during the May 10, 2009 biological survey. The biological survey was conducted outside of its evident and identifiable blooming period for this species. Hispid bird's-beak has the potential to occur within the project site.

Adobe Lily (*Fritillaria pluriflora*)

Federal Status – None
State Status – None
Other – CNPS List 1B

Adobe lily is a bulbous perennial herb found in valley and foothill grassland, cismontane woodland, and chaparral communities from 60 to 705 meters. The blooming period is from February to April (CDFG, 2003). The known range includes Butte, Colusa, Glenn, Lake, Napa, Solano, Tehama, and Yolo counties (CNPS, 2009). There is one CNDDB record (CNDDB occurrence number 26) within five miles of the project site. The record is from 1913 and is approximately 3.5 miles west of the project site (CDFG, 2003). The record states that field work is needed in order to verify that the previously documented occurrence exists. Although the nonnative grassland is disked annually, it still provides habitat for this species. This species was not observed during the May 10, 2009 biological survey. The biological survey was conducted outside of its evident and identifiable blooming period for this species. This species was not observed during the March 9, 2010 botanical inventory. The botanical inventory was conducted within the evident and identifiable blooming period for this species. Adobe lily ~~has the potential to~~ does not occur within the project site.

Robust Monardella (*Monardella villosa* ssp. *globosa*)

Federal Status – None
State Status – None
Other – CNPS List 1B

Robust monardella is a perennial herb found in broadleaf upland forest openings, chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats from 100 to 915 meters. The blooming period is from June through July, and occasionally through August. The known range includes

Alameda, Contra Costa, Humboldt, Lake, Mendocino, Napa, Santa Clara, Santa Cruz, San Mateo, and Sonoma Counties (CNPS, 2009).

There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). Although the nonnative grassland is disked annually, it still provides habitat for this species. This species was not observed during the May 10, 2009 biological survey. The biological survey was conducted outside of its evident and identifiable blooming period for this species. Robust monardella has the potential to occur within the project site.

Central Valley Steelhead (*Oncorhynchus mykiss*)

Federal Status – Threatened
State Status – None
Other – None

The Central Valley steelhead Evolutionary Significant Unit (ESU) spawns and hatches in the freshwater streams where they were born. The juveniles remain in the freshwater environment for one to two years prior to migrating into the ocean. When sexual maturity is reached, they migrate back to their natal streams to spawn. The Central Valley steelhead ESU begins freshwater migrations between August and October. This ESU has an average lifespan of six to seven years; it does not usually die immediately after spawning, and is capable of spawning several times throughout its lifetime (Moyle, 2002). The range of this ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, and two artificial propagation programs. The range includes portions of Amador, Alameda, Butte, Calaveras Contra Costa, Colusa, Glenn, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba, counties (CDFG, 2003). The Central Valley steelhead belongs within the Salmonidae family. This family thrives in well oxygenated waters that have temperatures below a maximum of 22°C.

Alamo Creek is identified within the *Water Quality Control Plan* (Basin Plan) *for the California Regional Water Quality Control Board: Central Valley Region Fourth Edition* (2006). In April 2005, the RWQCB adopted a Basin Plan amendment de-designating Old Alamo Creek for cold water fisheries, fish spawning, and municipal and domestic water supply from its headwaters to the confluence of New Alamo Creek, effective August 2006. New Alamo Creek has been designated as having the following beneficial uses: cold water fisheries, fish spawning, and municipal and domestic water supply.

There are no CNDDB records for this species within five miles of the project site. The project site occurs within the Central Valley steelhead ESU as defined by the National Marine Fisheries Service (NMFS) (CalFish, 2009). The project site does not contain habitat for this species. The winter steelhead distribution is shown to occur within Old Alamo Creek (CalFish, 2009), however, the April 2005 Basin Plan amendment states that Old Alamo Creek does not contain cold water temperatures required by steelhead. Old Alamo Creek to the north of the project site provides potential migration habitat, but not spawning habitat for this species. This species has the potential to occur within Old Alamo Creek.

Central Valley Spring-Run Chinook Salmon (*Oncorhynchus tshawytscha*)

Federal Status – Threatened
State Status – Threatened
Other – None

Central Valley spring-run Chinook salmon ESU are the largest and most abundant salmonids that occur in California. Central Valley spring-run Chinook salmon are anadromous. Central Valley spring-run Chinook die after a single spawning event. Central Valley spring-run Chinook exhibit a stream-type and the ocean-type life history. The stream-type Central Valley spring-run Chinook typically migrate upstream before reaching sexual maturity during the spring and summer months. They achieve sexual maturity in the freshwater environment. Hatched juveniles reside in spawning streams for at least one year before returning to marine habitats. The ocean-type Central Valley spring-run Chinook are sexually mature before migration to the freshwater environment and they spawn shortly after arrival during the summer and fall months. Hatched juveniles remain in the freshwater environment for a relatively short time period that ranges from three to twelve months, before entering the marine environment. All of the currently recognized Chinook ESUs within California demonstrate slight variations of these two life history themes. Central Valley spring-run Chinook exhibit the typical stream-type life history cycle. They enter the freshwater environment as immature fish. Migration begins during the months of March through September, with peak migration occurring from May to June. Spawning typically occurs from August through October and juveniles tend to emerge from November through March. Juveniles reside in the freshwater environment for approximately three to fifteen months and eventually migrate toward the marine environment (Moyle, 2002). The range of this ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries, including the Feather River, and the Feather River Hatchery spring-run Chinook program. The range includes portions of Butte, Colusa, Contra Costa, Glenn, Napa, Nevada, Placer, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, and Yuba counties. The range of this ESU is synonymous with the range of the Sacramento River winter-run Chinook ESU.

There are no CNDDB records for this species within five miles of the project site. The project site occurs within the Central Valley spring-run Chinook ESU as defined by NMFS (CalFish, 2009). The project site does not contain habitat for this species. The nearest probable range of Central Valley spring-run Chinook salmon occurs in Cache Slough, which occurs downstream from Old Alamo Creek (CalFish, 2009). This species has the potential to occur within Cache Slough downstream from Old Alamo Creek.

Sacramento River Winter-Run Chinook Salmon (Oncorhynchus tshawytscha)

Federal Status – Endangered
State Status – Endangered
Other – None

The Sacramento River winter-run Chinook ESU is unique because it is thought to be an intermediate species, displaying characteristics of both stream- and ocean-type Chinook life history cycles. Winter-run

Chinook are a unique species to the Sacramento River. They typically migrate into freshwater in December through July and spawn in the early summer. This species is sexually immature during this migratory period and it resides in the freshwater environment for several months. During this freshwater residency, sexual maturity is attained. The life history strategy of this species is dependent upon the cool summer water temperatures of the upper Sacramento watershed. Hydro-modification has resulted in reductions of the amount of traditional spawning grounds available for this species. Hatched juveniles remain in freshwater streams for approximately five to ten months. After this period, young Chinook remain in estuaries for an indeterminate amount of time and eventually migrate out to the ocean; which is why they are thought to exhibit characteristics of both generalized life history cycles (Moyle, 2002). The Sacramento River winter-run Chinook ESU currently includes all naturally spawned populations of winter-run Chinook in the Sacramento River and its tributaries, as well as two artificial propagation programs. The range includes portions of Butte, Colusa, Contra Costa, Glenn, Napa, Nevada, Placer, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, and Yuba counties (and is synonymous with the range of the Central Valley spring-run Chinook ESU) (Moyle, 2002).

There are no CNDDB records for this species within five miles of the project site. The project site occurs within the Sacramento River winter-run Chinook ESU as defined by NMFS (CalFish, 2009). The project site does not contain habitat for this species. The nearest probable range of Sacramento River winter-run Chinook occurs in Cache Slough, which occurs downstream from Old Alamo Creek (CalFish, 2009). This species has the potential to occur within Cache Slough downstream from Old Alamo Creek.

Western Pond Turtle (*Actinemys marmorata*; WPT)

Federal Status – None
State Status – Species of Concern

Western Pond Turtles (WPT) are found in permanent ponds, lakes, streams, irrigation ditches, permanent pools, and intermittent streams. WPT requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. WPT are found from 0 to 1,430 meters (Stebbins, 2003). WPT are known throughout California west of the Sierra-Cascade crest, absent from desert regions except along the Mohave River and its tributaries (Stebbins, 2003).

WPT is a covered species associated with the riparian, streams, and marsh communities within the Draft Solano HCP. The project site does not contain these habitats. There is one CNDDB record for WPT within five miles of the project site (occurrence number: 380). The record is from 2008 and is approximately 4.3 miles southwest of the project site. One turtle was observed within a seasonal pond. The three EWWTP basins within the project site provides habitat for this species. This species was not observed during the May 10, 2009 biological survey. WPT has the potential to occur within the project site.

Giant Garter Snake (*Thamnophis gigas*; GGS)

Federal Status – Threatened
State Status – Threatened

Habitat requirements for giant garter snake (GGS) consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter (CaliforniaHerps.com, 2009). This species is highly aquatic and is active during the day and at night in hot weather.

GGS inhabit small mammal burrows and other soil crevices above prevailing flood elevations throughout the winter dormancy period. GGS typically select burrows with sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September.

The project site does not occur within any areas currently identified as having high value habitat for the GGS under the Draft Solano HCP. The project site does not occur within the Mid-Valley recovery unit for GGS (LSA, 2007). There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). Only three known occurrences are known in Solano County. The three records are confined to the eastern portion of Solano County (LSA, 2007) (**Figure 4.3-4)**. The project site occurs outside of the known geographical range for GGS. The agricultural land does not provide~~s~~ potential upland habitat for this species because GGS does not inhabit crops that are not flood irrigated. It is unlikely that GGS utilize the EWWTP basins as aquatic habitats because ponded water is not consistently present. ~~However, t~~The irrigation canal and Alamo Creek north of the northern boundary of the project site provide potential aquatic habitat for this species; ~~.~~ however, these features are outside of the known range for GGS and are separated from the project site by paved areas. Although the project site provides marginal aquatic habitat within the EWWTP's basins, the project site is geographically isolated from the three known GGS populations (**Figure 4.3-4**) through habitat fragmentation. No GGS were observed during the May 10, 2009 biological survey. This species is unlikely to ~~has the potential to~~ utilize aquatic habitat within the ~~agricultural area~~ EWWTP's basins ~~within the project site as upland habitat~~because the project site is geographically isolated from GGS's existing range.

Tricolored Blackbird (*Agelaius tricolor*)

Federal Status – None
State Status – Species of Concern

Tricolored blackbirds nest in large flocks, with greater than 50 breeding pairs, in dense vegetation near water or by emergent wetlands. Nesting sites are typically associated with cattails, tules, willows, blackberry, and wild rose. Nests can be built a few centimeters above the ground or from water level to two meters high. Nesting typically occurs from April to July, though it may extend later into the year.

Within the Sacramento Valley, breeding has been observed as late as October and November. During the non-breeding season, they can be found foraging in open habitats such as croplands and grassy fields (ICE, 2009).

Tricolored blackbird is a covered species associated with the riparian, streams, and marsh communities within the Draft Solano HCP. The project site does not contain these habitats. There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). Suitable vegetation within the basins do not provide a large enough area to support 50 breeding pairs of tricolored blackbirds; therefore, the project site does not provide nesting habitat for this species. The riparian habitat surrounding Alamo Creek outside the northern boundary of the project site provides potential nesting habitat for this species. The nonnative grassland habitat within the project site provides foraging habitat for this species. This species has the potential to forage within the project site.

Short-Eared Owl (*Asio flammeus*)

Federal Status – None
State Status – Species of Concern

Short-eared owls are ground-nesting species found in open areas with few trees, such as marshes, annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. The nests are usually located on dry sites with enough vegetation to conceal incubating females. Short-eared owls are known to breed sparsely in northeast (Klamanth Basin, Modoc Plateau, Great Basin) south to southern Lassen County. They are uncommon and irregular breeders in the southern portion of Sacramento Valley near San Francisco Bay, and south in interior and coastal valleys to Monterey County. Some breeding is concentrated in Solano County just north and east of San Francisco (NatureServe, 2009).

There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). The nonnative grassland and agricultural land provides potential nesting and foraging habitat for the short-eared owl. No short-eared owls or their sign were observed during the May 10, 2009 biological survey. This species has the potential to nest and forage within the project site.

Burrowing Owl *(Athene cunicularia)*

Federal Status – None
State Status – Species of Concern

Burrowing owls occur in suitable habitat throughout California, except in northwestern coastal forests and on high mountains. Suitable habitat consists of open grasslands, especially prairie, plains, savanna, and in open areas including vacant lots and spoils piles near human habitat. Nesting and roosting occurs in burrows dug by mammals (such as ground squirrels), but may also occur in pipes, culverts, and nest boxes. Occupied nests can be identified by the lining of feathers, pellets, debris, and grass. Burrowing owls search for prey on the ground or on low perches such as fence posts or dirt mounds. Burrowing

owls are diurnal, crepuscular, and nocturnal, depending on time of year. Burrowing owls nest from March to August (CDFG, 2005).

The project site is within an area identified in the Draft Solano HCP as an Irrigated Agriculture Conservation Area for burrowing owl. The nearest CNDDB record is from 2005 (occurrence number: 962) and is approximately 0.8 miles north of the project site (**Figure 4.3-3**). A burrowing owl was observed feeding nearby a burrow at the top of a drainage ditch adjacent to a fallow field. The project site provides potential habitat for burrowing owls within the nonnative grassland. Two ground squirrel burrows were observed within the nonnative annual grassland on the southwestern portion of the project site. No burrowing owls or their sign were observed during the May 10, 2009 or March 9, 2010 biological surveys of the project site. Burrowing owls have the potential to occur within the project site.

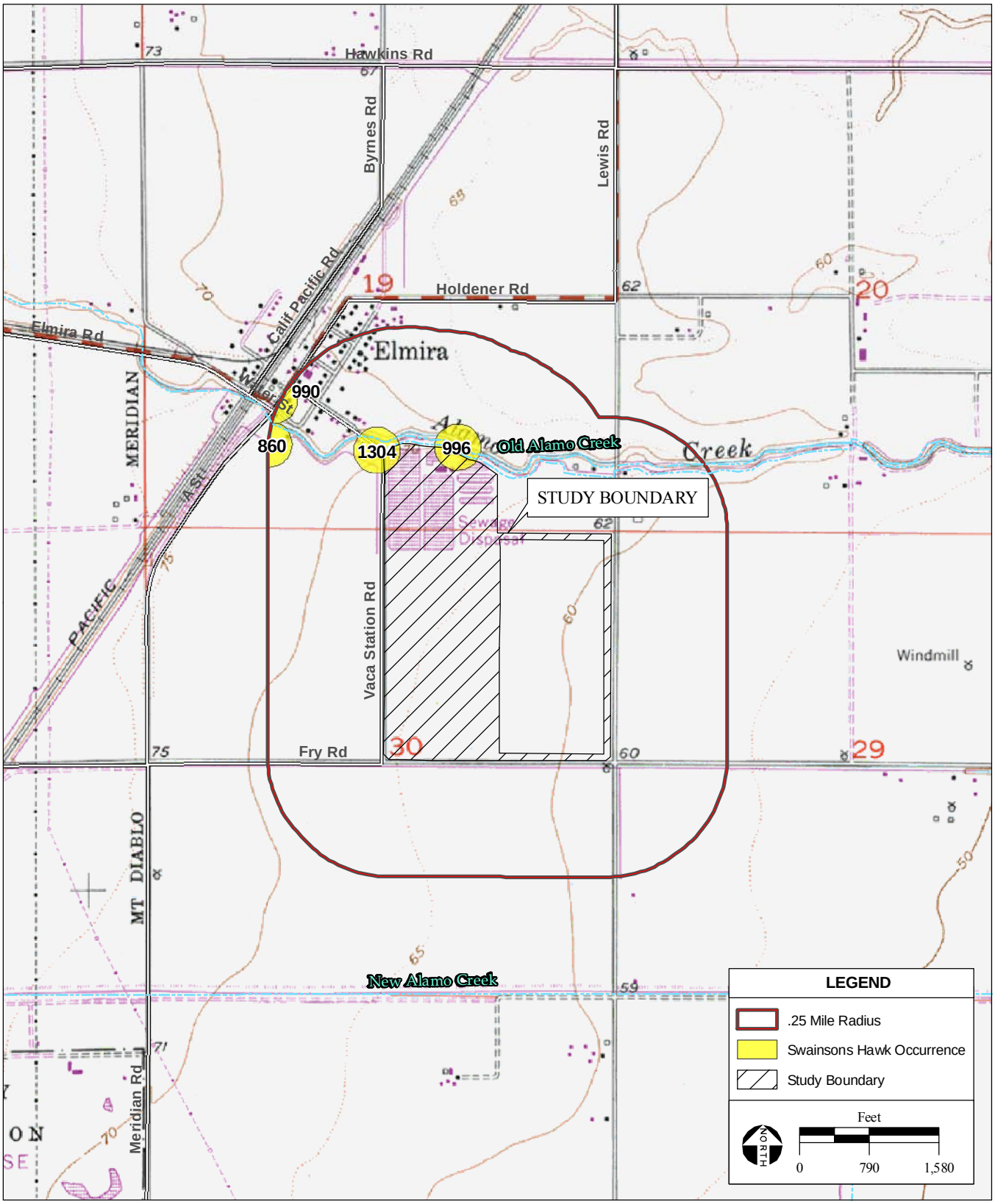
Swainson's Hawk (*Buteo swainsoni*)

Federal Status – None
State Status – Threatened

Swainson's hawks are nesting raptors that arrive to their breeding grounds in the Central Valley in early March. Swainson's hawk often nest peripherally to Valley riparian systems and utilize lone trees or groves of trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees, ranging in height from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (County of Sacramento, 2007). A breeding pair immediately constructs nests and lays eggs from mid- to late-April. The young hatch in mid-May and remain near the nest. The young depend on the adults for approximately four weeks after fledging until they permanently leave the breeding territory. Swainson's hawks nest from February 15 through September 15. Suitable foraging habitat nearby nesting sites is critical for fledgling success (CDFG, 1994).

The CDFG considers whether a Proposed Project will adversely affect suitable foraging habitat within a ten-mile radius of a Swainson's hawk nest that has been active within the last five years. Suitable Swainson's hawk foraging habitat includes alfalfa, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, rice land (when not flooded), and cereal grain crops (including corn after harvest) (CDFG, 1994).

The project site is within an area identified in the Draft Solano HCP as an Irrigated Agriculture Conservation Area for Swainson's hawk. This area encompasses all of the irrigated, non-irrigated, and some grassland habitat in the northeastern and eastern portions of the Draft Solano HCP, and contains the majority of known Swainson's hawk records. Two CNDDB records for Swainson's hawk (CNDDB occurrence numbers 996 and 1304) are mapped in the riparian area of Old Alamo Creek north of the project site. Occurrence number 996 is from 2005 and states that a nest was observed on a willow between the irrigation canal and Alamo Creek. The irrigation canal and Alamo Creek occur outside the northern boundary of the project site. Occurrence number 1304 is from 2005 and states that a nest was observed on a blue gum eucalyptus along Vaca Station Road (CDFG, 2003). A CNDDB map of Swainson's hawk occurrences within a quarter-mile of the project site is illustrated in **Figure 4.3-5**.



SOURCE: "Elmira, CA" USGS 7.5 Minute Topographic Quadrangle, T6N R1E, Section 19, Mt. Diablo Baseline & Meridian; California Natural Diversity Database, 7/2009; AES 2009

Figure 4.3-5

Quarter Mile Radius Map for Swainson's Hawk Records

Trees within landscape buffer along the northwestern border of the project site adjacent to Vaca Station Road could provide potential nesting sites for Swainson's hawk; however, ornamental trees throughout the project site are not large enough to provide suitable nesting habitat for Swainson's hawk. The Freemont cottonwood and willow trees within the riparian habitat surrounding Alamo Creek outside the northern boundary of the project site provide potential nesting habitat for this species. The agricultural habitat within the project site provides suitable foraging habitat for this species. Additionally, nonnative grassland occurring along the perimeter of the project site proposed to be developed as a landscape buffer may be considered suitable foraging habitat for Swainson's hawk; however, due to the proximity to adjacent roads and the high level of disturbance and human activity, these areas are considered to provide marginal to low quality foraging habitat. This species has a low potential to nest within the project site. This species has the potential to nest in the riparian habitat surrounding Alamo Creek outside the northern boundary of the project site. This species has the potential to forage within the project site.

Mountain Plover (Charadrius montanus)

Federal Status – None
State Status – Species of Concern

Mountain plovers nest in high plains/shortgrass prairie and desert tablelands and sagebrush/blue grama habitats. Mountain plover breeds from northern Montana south to Arizona, eastern Utah, central New Mexico, western Texas, and western Oklahoma, with a couple nesting records in northern Mexico. This species winters in short-grass plains and fields, plowed fields, sandy deserts, and heavily grazed native rangelands in southern California. During the nonbreeding season, mountain plovers range from central California, southern Arizona, central and near-coastal Texas south to southern Baja California and the northern mainland of Mexico. Most of the global population winters in California, with fewer in Arizona, Texas, and Mexico; the remaining wintering grounds of significance are in the San Joaquin, Sacramento, and Imperial valleys of California (NatureServe, 2009).

There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). The project site does not occur within the geographical range for nesting habitat for this species. The nonnative grassland habitat within the project site provides wintering habitat for this species. This species has the potential to winter within the project site.

Northern Harrier (*Circus cyaneus*)

Federal Status – None
State Status – Species of Concern

Northern harriers occur year-round in the Central Valley, along the coast, in the Sierra Nevada, and in northeastern California. They winter throughout California in suitable habitat including meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and very occasionally in wooded areas. Suitable foraging habitat consists of open areas, such as grassland or agricultural fields, where they can fly close to the ground. Northern harriers roost on the ground in tall grasses or emergent wetland species including cattails. Nesting habitat occurs predominately in marshes or

emergent wetlands or along rivers or lakes, and occasionally in grasslands, grain fields, or on sagebrush flats. Nesting season occurs from April to September (CDFG, 2005).

There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). The nonnative grassland provides nesting habitat for this species. The nonnative grassland and agricultural habitats within the project site provides foraging habitat for this species. This species has the potential to forage and nest within the project site.

White-Tailed Kite *(Elanus leucurus)*

Federal Status – None
State Status – Fully Protected

White-tailed kites are year-round residents in coastal and valley lowlands. White-tailed kites forage in open grasslands, meadows, agricultural fields, and emergent wetlands. Nesting occurs in dense stands of oaks, willow, or other deciduous trees from February through October (CDFG, 2003).

The nearest CNDDB record is from 2001 (occurrence number: 58) and is approximately 2.3 miles north of the project site. Two young were observed in a nest in an orange tree of an orchard (CDFG, 2003). The Freemont cottonwood and willow trees within the riparian habitat that surround Alamo Creek outside the northern boundary of the project site provide potential nesting habitat for this species. The nonnative grassland and agricultural habitats within the project site provides foraging habitat for this species. This species has the potential to forage within the project site.

Western Red Bat (*Lasiurus blossevillii*)

Federal Status – None
State Status – Species of Special Concern
Other – None

The western red bat is found throughout California, west of the Sierra Nevada and Cascade crest and deserts, from Shasta County south to Mexico. This species roosts in forests and woodlands from sea level to mixed conifer forests. Roosts are commonly solitary in trees near streams, fields, or urban areas. Edges or habitat mosaics with water are the most suitable habitats. This species is migratory. In California, the western red bat will migrate short distances between summer and winter ranges and can be found in unusual habitats during this time. Hibernation takes place during the coolest months when temperatures drop below 68 °F. Young are born from late May through early July (CDFG, 2009).

There are no CNDDB records for this species within five miles of the project site (CDFG, 2003). The riparian habitat surrounding Alamo Creek outside the northern boundary of the project site and the ornamental trees within the project site provide potential roosting habitat for this species. This species has the potential to roost within the project site.

Migratory Birds and Bird of Prey

Migratory birds and other birds of prey, protected under 50 CFR 10 of the Migratory Bird Treaty Act (MBTA), have the potential to nest in the trees and shrubs within the nonnative grassland, nonnative blackberry, ruderal/disturbed, and basin habitats. No migratory birds or other birds of prey were observed nesting during the May 10, 2009 survey of the project site.

4.3.3 REGULATORY CONTEXT

Federal

Waters of the U.S.

Section 301 of the Federal Water Pollution Control Act and Amendments of 1972 (CWA) prohibits the discharge of pollutants, including dredged or fill material, into waters of the U.S. without a Section 404 permit from the USACE (33 U.S.C. 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act of 1899 prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from the USACE (33 U.S.C. 403). State Water Quality Certification may be required by the Regional Water Quality Control Board before other permits are issued.

Federal Endangered Species Act (ESA) of 1973

The USFWS and the National Marine Fisheries Service (NMFS) enforce the provisions of the federal Endangered Species Act (ESA). The USFWS administers ESA for all terrestrial species. The NMFS administers ESA for marine fish species, including anadromous salmonids. Section 9 (§1538) prohibits the "taking" of a listed species by anyone, including private individuals, and state and local agencies. Threatened and endangered species on the federal list (50 CFR Sections 17.11 and 17.12) are protected from take, defined as direct or indirect harm. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need for consultation under Section 7 of the ESA for federal agencies. Under Section 7 of the ESA, all federal agencies are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or modify their critical habitat. Therefore, project-related impacts to these species, or their habitats, would be considered significant and require mitigation.

Section 10(a)(1)(b) of the ESA allows non-federal entities, under consultation with the USFWS and the NMFS, to obtain incidental take permits for federal listed wildlife. Section 10 (a)(1)(b) is not required for federal listed plants. Under Section 10 of the ESA, the applicant for an incidental take permit is required to submit a "conservation plan" to the USFWS or the NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under the ESA have come to be known as habitat conservation plans (HCPs).

Migratory Bird Treaty Act (MBTA)

Migratory birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, abandonment of nestlings, or forced fledging would be considered take under federal law. As such, project-related disturbances must be reduced or eliminated during the nesting cycle. There are over 800 species listed in the MBTA including common species observed within the project site such as the Brewer's blackbird (*Euphagus cyanocephalus*) and northern mockingbird (*Mimus polyglottos*).

State

California Endangered Species Act (CESA)

The CESA declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. The CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission.

The CESA authorizes that "Private entities may take plant or wildlife species listed as endangered or threatened under the ESA and the CESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the ESA, if the CDFG certifies that the incidental take statement or incidental take permit is consistent with the CESA (Fish & Game Code § 2080.1[a]).

California Environmental Quality Act (CEQA)

Section 15380(b) of the CEQA *Guidelines* provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Section 15380 defines "endangered" species of plants, fish, or wildlife as those whose survival and reproduction in the wild are in immediate jeopardy and "rare" species as those who are in such low numbers that they could become endangered if their environment worsens. Therefore, a project will normally have a significant affect on the environment if it will substantially affect a rare or endangered species or the habitat of the species. The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

Fish and Game Code of California

The California Fish and Game Code defines take (Section 86) and prohibits taking of a species listed as threatened or endangered under the California Endangered Species Act (CESA) (California Fish and Game Code Section 2080), or otherwise fully protected (California Fish and Game Code Sections 3511, 4700, and 5050) Section 2081(b) and (c) of the CESA allows CDFG to issue an incidental take permit for a state listed threatened and endangered species if specific criteria outlined in Title 14 CCR, Sections

783.4(a), (b) and CDFG Code Section 2081(b) are met. The CDFG Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. If a project is planned in an area where a species or specified bird occurs, an applicant must design the project to avoid all take; the CDFG cannot provide take authorization under the CESA.

Native Plant Protection Act of 1977

Native Plant Protection Act of 1977 and implementing regulations in Section 1900 et seq. of the Fish and Game Code designates rare and endangered plants, and provides specific protection measures for identified populations. The CDFG administers the Native Plant Protection Act.

Local

City of Vacaville General Plan (1990) and Amendments Adopted to Date

The City of Vacaville (City) General Plan (General Plan) seeks to preserve and enhance creeks and their associated vegetation. Riparian woodland and associated undergrowth serve as habitat and cover for wildlife and also as a retardant for creek erosion. The General Plan's conservation strategy focuses on the protection of natural areas, particularly riparian corridors, wildlife and vegetation. The City protects habitats for three special-status plants and nine special-status wildlife.

The following General Plan guiding and implementation policies associated within biological resources are applicable to the Proposed Project.

Guiding Policies

8.1-G 1 Preserve and enhance Vacaville's creeks for their value in providing visual amenity, drainage, and wildlife habitat.

8.1-G 4 Preserve and protect water resource areas, including the Alamo, Encinosa, Gibson, and Ulatis Creek watersheds.

8.2-G 1 Protect natural environments in recognition of their importance as wildlife habitats and visual amenities.

8.2-G 2 Manage open space in a manner consistent with wildlife protection.

Implementing Policies

8.1-I 2 Continue to impose creek setback standards on new development.

8.1-I 5 Protect existing stream channels by requiring buffering or landscaped setbacks and storm runoff interception.

8.2-I 1 Require preservation or, where preservation is not possible, replacement of riparian

vegetation.

8.2-I 2 Minimize removal of woodland habitat.

8.2-I 3 Provide wildlife corridors, where feasible, to enable free movement of animals and minimize wildlife-urban conflicts.

8.2-I 4 Continue to implement the City's existing regulations which protect mature trees and existing natural non-agricultural trees.

8.2-I 6 Identify areas of wetlands at the earliest possible stage of development application processing. Policies to protect and preserve wetland habitats shall be contained in the Resource Management section of applicable Policy Plans.

Final Administrative Draft Solano Habitat Conservation Plan (2009)

The Draft Solano Habitat Conservation Plan (HCP) has been prepared to establish a framework for complying with state and federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the Plan Participants within Solano County over the next 30 years. The Draft Solano HCP is currently an administrative draft, and until it is adopted, the recommendations are requirements are preliminary. The City of Vacaville is one of the six Plan Participants identified within the biological opinion issued in March 1999 for the Solano Project Water Service Contract Renewal between the Bureau of Reclamation and Solano County. The Bureau of Reclamation, Solano County Water Agency (SCWA), and other agencies have agreed to implement conservation measures to ensure the protection of threatened and endangered species and their habitat within the Solano Project contract service area. As such, the agencies have prepared the Draft Solano HCP. The Draft Solano HCP is intended to support the issuance of a Section 10(a)1(B) "incidental take permit" under the ESA for activities associated with future water use in the Solano Project contract service area. The Draft Solano HCP is currently an administrative draft.

The project site occurs within Zone 2 of the Draft Solano HCP. The Draft Solano HCP addresses the following special-status species that could occur in the vicinity of the project site: western pond turtle, giant garter snake, tricolored blackbird, western burrowing owl, and Swainson's hawk.

The purpose of the Solano Draft HCP is to promote the conservation of biological diversity and the preservation of endangered species and their habitats consistent with the recognition of private property rights; provide for a healthy economic environment to citizens, agriculture, and industries; and allow for the ongoing maintenance and operation of public and private facilities in Solano County.

The following Draft Solano HCP principles associated within biological resources are applicable to the Proposed Project.

- Reduce conflicts between listed species and economic development, agriculture, and other land use activities to promote conservation of biological diversity and, to the maximum extent practicable, contribute to the recovery of plant and animal species addressed in the Draft Solano HCP.

- Streamline the local, state, and federal regulatory processes to provide a consistent and predictable treatment of actions requiring discretionary approvals from participating agencies for obtaining incidental take permits and other required authorization for modifications to natural communities and other habitats in a manner that is consistent with the conservation of covered species and existing regulations.
- Lessen or avoid site specific and cumulative effects of development on covered species by replacing project-by-project mitigation with comprehensive, long-term strategies for conserving, protecting, and maintaining viable populations of covered species and natural habitats.
- Promote the conservation and preservation of the covered species and their habitats upon with they depend for the benefit of current residents and future generations.
- Promote retention and establishment of open space buffers and green belts consistent with the goals of local governments in order to: provide habitat linkages; separate designated urban areas; minimize the loss, fragmentation, and degradation of natural habitats; protect and enhance important habitats for covered species; and provide movement corridors and connectivity between the various habitat associations or eco-region in the Solano County.
- Foster the continuation of land uses (e.g., agriculture and open space recreation) that are compatible with the protection of important habitats for covered species and, to the maximum extent practicable, maintain existing agricultural values on those lands that are affected by the Draft Solano HCP.
- Comply with conservation regulations regarding the protection of air, water, and biological resources as well as other state- and federally-mandated laws and programs.

4.3.4 Impacts and Mitigation Measures

Method of Analysis

Analysis of potential project impacts to biological resources is based on the May 10, 2009 biological survey and delineation of the project site and surrounding survey area and a review of: a USFWS list of species with the potential to occur on or be affected by projects on the Elmira quad (USFWS, 2009a); CNDDB and CNPS queries of special-status species known to occur on the Elmira quad and surrounding eight quads (CDFG, 2003; CNPS, 2009); a CNDDB query of special-status species known to occur within five miles of the project site; a *Biological Resources Report for the Easterly WWTP Biosolids Drying Bed #2 Project* (ESA, 2009); and the Draft Solano HCP.

Thresholds of Significance

Criteria for determining the significance of impacts to biological resources have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds. Impacts to biological resources would be considered significant if the Proposed Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG, 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 the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local 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
- Have the potential to degrade the quality of the environment, substantially reduce the habitat of 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 reduce the number or restrict the range of a rare or endangered plant or animal.

Project Specific Impacts and Mitigation Measures

Impact

4.3-1 Grading and construction activities associated with the Proposed Project, including the installation of the landscape buffer, would result in removal of nonnative grassland, which provides potential habitat for hispid bird's-beak , ~~, adobe lily,~~ and robust monardella.

Hispid bird's-beak , ~~, adobe lily,~~ and robust monardella were not observed during biological survey or botanical inventory of the project site; however, the surveys were ~~was~~ conducted outside their blooming periods. Although unlikely, these species have the potential to occur within the nonnative grassland even though it is disked annually. Development of the Proposed Project would result in the conversion of 10.73 acres of nonnative grassland, which provides marginal habitat for these species. Loss of any potential habitat for hispid bird's-beak , ~~, adobe lily,~~ and robust monardella would be considered a significant impact. Implementation of the following mitigation measures would reduce potential impacts (i.e., loss of potential habitat) to special-status plant species to a less-than-significant level. If special-status plant species are observed within the project site during the floristic surveys yet to be conducted, implementation of the additional recommended mitigation measures would reduce any potential impacts to special-status plant species to a less-than-significant level. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.3-1a**. Focused botanical surveys shall be conducted during the blooming periods for hispid bird's-beak (June through September) , ~~, adobe lily (February through April),~~ and robust monardella (June through July) prior to commencement of construction activities within the nonnative grassland. A letter report shall be submitted to the City within 30 days following the preconstruction survey to document the results. Should no species be observed, then no additional mitigation is required.

Mitigation Measure 4.3-1b. Should hispid bird's-beak~~, adobe lily,~~ and/or robust monardella be observed during the focused botanical survey, the biologist shall contact the City within one day following the preconstruction survey to report the findings. A 50~~ten~~-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.

Mitigation Measure 4.3-1c. Should avoidance of the special-status plant be infeasible, then the CDFG shall be notified at least ten days prior to commencement of ground-breaking activities to provide the CDFG the opportunity to transplant the species from the project site. An additional letter report shall be submitted to the City within 30 days to document the results.

Mitigation Measure 4.3-1d. Should the CDFG not intend to transplant the species offsite within ten days prior to commencement of ground-breaking activities, the City shall salvage and relocate plants within the same type of habitat onsite and develop a mitigation and monitoring plan. The City shall monitor the species for five years and submit and annual monitoring report to the CDFG.

Impact

4.3-2 Discharge of treated water from the project site into Old Alamo Creek would result in impacts to water quality for fish and other wildlife species.

The Proposed Project would result in treatment process upgrades at the EWWTP to improve the quality of effluent discharged to Old Alamo Creek to meet the requirements of the 2008 NPDES permit (refer to **Section 3.3.3**) . These improvements are needed to meet requirements for beneficial uses of downstream water resources identified within the Basin Plan. The Proposed Project would increase the quality of effluent discharged from the EWWTP to Old Alamo Creek, which would thereby improve habitat quality for fish and wildlife species in the creek and downstream water resources, including Cache Slough, which provides potential habitat for special status fish species. This is considered a beneficial impact. **Beneficial Impact.**

Impact

4.3-3 Construction activities associated with the lining of the Basins 2 and 3 would result in the temporary disturbance of potential aquatic habitat for western pond turtle.

Western pond turtle (WPT) have the potential to occur within Basins 2 and 3 of the project site during temporary periods when the basins hold ponded water. Construction activities associated with installation of the concrete liner have the potential to temporarily disturb WPT that may be utilizing the detention basins as aquatic habitat. This is considered a potentially significant impact. Permanent habitat would not be impacted as the concrete lined basins would continue to function as potential aquatic habitat for WPT. The project site is not within the area addressed by

the Draft Solano HCP conservation strategy for WPT. The following measures have been recommended to ensure that WPT are not impacted during construction activities. After mitigation, impacts would be considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.3-3a. A preconstruction survey shall be conducted by a qualified biologist prior to commencement of construction activities within Basins 2 and 3.

Mitigation Measure 4.3-3b. A qualified biologist shall conduct a safety awareness training for crew members prior to commencement of construction activities Basins 2 and 3.

Mitigation Measure 4.3-3c. A qualified biologist shall monitor construction activities that occur within Basins 2 and 3. Should a WPT be found, construction shall halt until the biologist translocates the turtle or until the turtle leaves the construction site.

Mitigation Measure 4.3-3d. A letter report shall be submitted to the City within 30 days following the preconstruction survey and monitoring activities to document the results.

Impact

4.3-4 Construction activities associated with the lining of Basins 2 and 3 would result in the temporary disturbance of potential aquatic habitat for giant garter snake.

The project site does not occur within the known geographic range for giant garter snake (GGS) (**Figure 4.3-4**) but provides potential aquatic habitat. The Proposed Project would result in the concrete lining of Basins 2 and 3 on the project site that provide potential aquatic habitat for GGS. Construction activities associated with installation of the concrete liner have the potential to temporarily disturb GGS that may be utilizing Basins 2 and 3 as aquatic habitat. This is considered a potentially significant impact. Permanent habitat would not be impacted as the concrete lined basins would continue to function as potential aquatic habitat for GGS. The project site is not within the conservation area addressed within the Draft Solano HCP conservation strategy for GGS. Despite the absence of known GGS occurrences in the proximity of the project site, the following mitigation is recommended as precautionary measures to avoid temporary impacts to GGS. After mitigation, impacts would be considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.3-4a. Construction personnel shall receive USFWS-approved worker environmental awareness training prior to commencing work within Basins 2 and 3. This training instructs workers to recognize GGS and their habitat(s).

Mitigation Measure 4.3-4b. Twenty-four hours prior to construction activities within Basins 2 and 3, the project site will be surveyed for GGS. Survey of the project site will

be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until GGS leaves the construction site on its own. Any sightings and any incidental take will be immediately reported to the USFWS and the CDFG.

Mitigation Measure 4.3-4c. A letter report shall be submitted to the City within 30 days following the preconstruction survey to document the results.

Impact

4.3-5 Grading and construction activities associated with the Proposed Project would result in the removal of potential nesting habitat for burrowing owls.

Burrowing owls or their nests were not observed within the project site during May 10, 2009 and March 9, 2010 ~~biological~~ surveys of the project site. Although unlikely, burrowing owls have the potential to nest or winter within the nonnative grassland even though it is disked annually. Potential disruption of burrowing owls from construction activities could result in the abandonment or loss of active nests through burrow destruction. This is considered a potentially significant impact. In the event that the Draft Solano HCP is adopted prior to the approval of the Proposed Project, the City shall comply with the mitigation measures identified therein, as required under Mitigation Option 1 below. If the Draft HCP has not been adopted prior to project approval, the City may choose to comply with the mitigation measures identified under Option 2, in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995). The mitigation measures identified under Option 2 would reduce the potential impacts to burrowing owls through the avoidance of any active burrowing owl nests, the safe exclusion of burrowing owls from any burrows to be destroyed prior to construction of the Proposed Project, and the passive relocation of nesting birds and purchase of additional burrowing owl habitat should occupied burrows be discovered on the project site. After implementation of mitigation identified under Option 1 or Option 2 below, impacts would be considered less than significant. **Less than Significant with Mitigation**.

Mitigation Option 1 – Draft Solano HCP IS Adopted Prior to Project Approval

Mitigation Measure 4.3-5a. The City shall submit a pre-application package to the SCWA to determine conservation measure requirements for burrowing owl in accordance with Section 10 of the Draft Solano HCP. The preapplication package includes, but is not limited to, the preparation of a biological resources assessment that documents biological communities, dates and results of surveys conducted, known occurrences of all species covered within the Draft Solano HCP within one mile of the project site, burrowing owl habitat covered by the Draft Solano HCP that occurs within the project, and a justification of impacts. The SCWA will determine the appropriate avoidance, minimization, and compensation measures for the Proposed Project.

Mitigation Option 2 - Draft Solano HCP Not Adopted Prior to Project Approval

Mitigation Measure 4.3-5b. June 2010 Survey for Nesting Burrowing Owls.
A qualified biologist shall conduct an additional nesting season survey for burrowing owl in the vicinity of the project site. (This survey may be conducted in conjunction with bloom period surveys for special status plant species in June 2010.) In accordance with the CDFG burrowing owl survey protocol, the survey area will extend 500-feet from construction areas (CDFG, 1995) where legally permitted. The biologist will use binoculars to visually determine whether burrowing owls occur beyond the construction areas if access is denied on adjacent properties. A letter report documenting survey methods and findings shall be submitted to the City and the CDFG in accordance with *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995) within 30 days following the survey, In the event that burrowing owl nests are detected on the project site during the June 2010 survey, the City may conduct an additional survey during the non-breeding wintering season (September through January 31) and collapse unoccupied burrows or otherwise obstruct their entrances to prevent owls from entering and nesting.

Mitigation Measure 4.3-5c. Pre-construction Measures

1. A qualified biologist shall conduct a preconstruction survey within 30 days prior to construction activities occurring within potential ~~nesting or wintering~~ habitat for burrowing owl, including the nonnative grassland areas that occur within the project site. In accordance with the CDFG burrowing owl survey protocol, the survey area will extend 500-feet from construction areas (CDFG, 1995) where legally permitted. The biologist will use binoculars to visually determine whether burrowing owls occur beyond the construction areas if access is denied on adjacent properties. If no burrowing owls or their sign are detected in the vicinity of the project site during the preconstruction survey, a letter report documenting survey methods and findings shall be submitted to the City and the CDFG in accordance with *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995) within 30 days following the survey, and no further mitigation is required.

~~**Mitigation Measure 4.3-5c.** If unoccupied burrows are detected during the non-breeding season (September through January 31), the City shall be contacted within one day following the preconstruction survey to report the findings. The City shall collapse the unoccupied burrows, or otherwise obstruct their entrances to prevent owls from entering and nesting in the burrows.~~

~~**Mitigation Measure 4.3-5**~~**ed.**

2. If occupied burrowing owl burrows are detected during the pre-construction survey, impacts on burrows shall be avoided by providing a buffer of 160 feet during the non-breeding season (September 1 through January 31) or 250 feet during the breeding season (February 1 through August 31). The size of the buffer area may be adjusted if a qualified biologist or the CDFG determine the burrowing owl would not likely be affected by the Proposed Project. Project activities shall not commence within the

buffer area until a qualified biologist confirms that the burrow is no longer occupied. If the burrow is occupied by a nesting pair, a minimum of 7.5 acres of foraging habitat contiguous to the burrow shall be maintained until the breeding season is finished.

~~**Mitigation Measure 4.3-5ef.**~~

3. If impacts to occupied burrows are unavoidable, onsite passive relocation techniques approved by the CDFG shall be used to encourage burrowing owls to move to alternative burrows outside of the project site. No occupied burrows shall be disturbed during the nesting season unless a qualified biologist verifies through non-invasive methods that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Mitigation for foraging habitat for relocated burrowing owl pairs shall follow the guidelines provided in *the California Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium, 1993).: ~~The mitigation for foraging habitat for relocated pairs range from 7.5 to 19.5 acres per pair.~~

    - Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.
    - Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.
    - Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.

Impact

4.3-6 Construction activities have the potential to result in the disturbance of nesting habitat for Swainson's hawk.

Although unlikely, Swainson's hawk has the potential to nest within the project site in the ornamental landscape trees along Vacaville Station Road. Swainson's hawk is more likely to nest within the riparian vegetation along Old Alamo Creek outside the northern boundary of the project site (**Figure 4.3-5**). Construction activities would result in disturbance of potential Swainson's hawk nest sites through temporary increases in ambient noise levels and increased human activity on the project site. Potential disruption of nesting Swainson's hawk during construction of the Proposed Project could result in the abandonment of active nests. This is considered a potentially significant impact. The mitigation measures identified below would ensure that impacts to nesting Swainson's hawks are reduced to less than significant levels through identification and avoidance of active nests. These measures comply with the *State Fish and Game Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG, 1994) as they relate to the Proposed Project. After mitigation, impacts would be considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.3-6a. Prior to any construction activities that occur between March 1 and September 15, a qualified biologist shall conduct surveys for nesting Swainson's hawk in the project site and within 0.25 miles of construction activities where legally permitted. The biologist will use binoculars visually determine whether Swainson's hawk nests occur beyond the 0.25-mile survey area if access is denied on adjacent properties. If no active Swainson's hawk nests are identified on or within 0.25 miles of construction activities, a letter report summarizing the survey results shall be submitted to the City within 30 days following the survey, and no further mitigation for nesting habitat is required.

Mitigation Measure 4.3-6b. If active Swainson's hawk nests are found within 0.25 miles of construction activities, the biologist shall contact the City within one day following the preconstruction survey to report the findings.

~~A qualified biologist shall monitor all activities that occur within the buffer zone established through consultation with the CDFG.~~ Construction activities include heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-related activities that could cause nest abandonment or forced fledging within 0.25 miles of a nest site between March 1 and September 15.~~, or until August 15 if a Management Authorization or Biological Opinion is obtained from the CDFG for the project.~~ Should an active nest be present within 0.25 miles of construction areas, then the CDFG shall be consulted to establish an appropriate noise buffer, develop take avoidance measures, and implement a monitoring and reporting program prior to any construction activities occurring within 0.25 miles of the nest. The monitoring program would require that a qualified biologist shall monitor all activities that occur within the established buffer zone to ensure that disruption of the nest or forced fledging does not occur. Should the biologist determine that the construction activities are disturbing the nest, then the biologist shall halt construction activities until the CDFG is consulted. The construction activities shall not commence until the CDFG determines that construction activities would not result in abandonment of the nest site. If the CDFG determines that take may occur, the applicant would be required to obtain a CESA take permit. Should the biologist determine that the nest has not been disturbed during construction activities within the buffer zone, then a letter report summarizing the survey results shall be submitted to the City and the CDFG and no further mitigation for nesting habitat is required.

Mitigation Measure 4.3-6c. If the biologist determines that the nest site is abandoned and the nestlings are still alive, the City shall fund the recovery of hacking of the nestlings. A letter report summarizing the survey results shall be submitted to the City and the CDFG within 30 days to report the findings.

Impact

4.3-7 Construction activities for the Proposed Project would result in the potential removal of Swainson's hawk foraging habitat.

The CDFG considers five or more vacant acres within ten miles of an active nest to be significant foraging habitat for Swainson's hawk, the conversion of which to urban uses is considered a significant impact. The project site occurs within one mile of active Swainson's hawk nests documented within the last five years (**Figure 4-3.5**). The project would convert approximately 10.65 acres of non-native grassland; however due to the small acreage of land converted, the linear nature of the land to be converted, and the highly disturbed quality of the habitat due to its proximity to existing roadways and urban areas, conversion of this land is not considered a potentially significant impact to Swainson's hawk foraging habitat. The project would directly convert up to 2.86 acres of agricultural land that is considered to provide suitable foraging habitat for Swainson's hawk. The measures identified under **Mitigation Measure 4.3-7b** comply with the *State Fish and Game Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG, 1994) as they relate to the Proposed Project. Implementation of **Mitigation Measure 4.3-7b** would reduce the loss of foraging habitat within the agricultural land to less than significant. ~~However, due to the small size of this area (less than 5 acres), CDFG would not consider this a potentially significant impact that would require mitigation.~~ Additionally, although not proposed as mitigation, the proposed landscape buffer around the perimeter of the site would result in the addition of trees, creating suitable nesting ~~habitat~~ opportunities for Swainson's hawk in proximity to higher quality foraging areas in nearby agricultural fields. Implementation of **Mitigation Measure 4.3-7a** would require that the City comply with the conservation requirements of the Solano County HCP, should that document be adopted prior to project implementation. This potential impact is considered less than significant with mitigation. **Less than Significant with Mitigation**.

Mitigation Option 1 – Draft Solano HCP IS Adopted Prior to Project Approval

Mitigation Measure 4.3-7a. In the event the Draft Solano HCP is adopted prior to approval of the Proposed Project, the City shall comply with the conservation measures identified therein. This will require that City shall submit a pre-application package to the SCWA to determine conservation measure requirements for Swainson's hawk in accordance with Section 10 of the Draft Solano HCP. The pre-application package would include, but is not limited to, the preparation of a biological resources assessment that documents biological communities, dates and results of surveys conducted, known occurrences of all species covered within the Draft Solano HCP within one mile of the project site, Swainson's hawk habitat covered by the Draft Solano HCP that occurs within the project, and a justification of impacts. The SCWA will determine the appropriate avoidance, minimization, and compensation measures for the Proposed Project.

Mitigation Option 2 – Draft Solano HCP is NOT Adopted Prior to Project Approval

Mitigation Measure 4.3-7b. The City shall purchase credits to off-set the loss of 2.86 acres of agricultural land considered suitable Swainson's Hawk foraging habitat at a one-to-one ratio at an approved CDFG mitigation bank.

Impact

4.3-8 Grading and construction activities have the potential to result in the disturbance of nesting habitat for migratory birds and other birds of prey, including the short-eared owl and northern harrier, and disturbance of roosting habitat for the Western red bat.

Nesting habitat for migratory birds and other birds of prey, protected under the MBTA, including the short-eared owl and northern harrier, may include trees, the nonnative grassland, and/or infrastructure associated with the ruderal/disturbed areas within the project site and vicinity. Roosting habitat for the Western red bat may include trees and/or infrastructure associated with the ruderal/disturbed areas within the project site and vicinity. Potential disruption of nesting migratory birds and other birds of prey during construction could result in nest abandonment or mortality. Likewise, increased human activity and traffic, elevated noise levels, and operation of machinery could also impact birds and the western red bats if their nests or roosts are located within the vicinity of development areas. These impacts are considered significant. After mitigation, impacts would be considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measures 4.3-8a. A pre-construction survey shall be conducted by a qualified biologist for Western red bat roosting sites within the project site no more than 30 days prior to commencement of construction activities. If construction begins during the nesting season for birds of prey and migratory birds (between February 1 and October 1), a preconstruction bird survey for nesting sites shall be conducted concurrently with the western bat survey. The qualified biologist shall document and submit the results of the preconstruction survey in a letter to the CDFG and the City within 30 days following the survey. The letter shall include: a description of the methodology including dates of field visits, the names of survey personnel, and a list of references cited and persons contacted; and a map showing the location(s) of any bird nests or roost sites observed on the project site. If no active nests or roosts are identified during the preconstruction survey, then no further mitigation is required.

Mitigation Measures 4.3-8b. If any active nests are identified during the preconstruction survey within the project site, a buffer zone will be established around the nests. A qualified biologist will monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist will delimit the buffer zone with construction tape or pin flags within 250 feet of the active nest and maintain the buffer zone until the end of the breeding season or until the young have fledged. Guidance from the CDFG will be requested if establishing a 250-foot buffer zone is

impractical. Guidance from the CDFG will be requested if the nestlings within the active nest appear disturbed.

Mitigation Measures 4.3-8c. If any Western red bats are found to occur within any of the infrastructure slated to be demolished, then demolition of the infrastructure shall not commence until the biologist can assure that the bats have vacated the structure.

Mitigation Measures 4.3-8d. If unavoidable impacts to bat roosting sites are identified, these impacts will be mitigated through the installation of roosting boxes on the project site. Five roosting boxes shall be created for every roosting structure destroyed. The results shall be documented in a letter report and submitted to the CDFG and the City within 30 days following the completion of the mitigation.

Impact

4.3-9 The Proposed Project could impact federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

As discussed within the results of the wetland delineation included within **Appendix F**, no potentially jurisdictional wetlands or other waters of the U.S. were identified within the project site. The delineation was submitted to the USACE in August 2009. The results are considered preliminary until the USACE verifies the findings. Should the USACE concur, no impacts to federally protected wetlands would occur as a result of the Proposed Project. In the event that the USACE determines that there are potentially jurisdictional waters of the U.S. and/or wetlands on the project site that would be impacted by the Proposed Project, the City would be required to obtain permits from the USACE pursuant to Section 404 of the CWA. Conditions of the Section 404 permit would require that Best Management Practices are implemented to ensure that no pollutants will be discharged into jurisdictional waters. Therefore, this impact would be considered less than significant. **Less than Significant.**

Impact

4.3-10 The Proposed Project could interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The project site is within the Pacific Flyway. The Proposed Project will not significantly impede migration along the Pacific Flyway or impact the riparian woodland terrestrial wildlife bordering Alamo Creek outside of the Proposed Project construction area. Therefore, no impacts to wildlife corridors would occur. **No Impact.**

Impact

4.3-11 The Proposed Project could conflict with local policies or ordinances protecting biological resources, or conflict with the provisions of the Draft Solano HCP should it be adopted prior to the approval of the Proposed Project.

The Proposed Project is consistent with and will not impact the long-term conservation goals contained in the City's General Plan and the Draft Solano HCP. **No Impact.**

Cumulative Impacts and Mitigation Measures

Impact

4.3-12 Development of the Proposed Project would contribute to the cumulative loss of special-status wildlife species or their habitat in the region.

Cumulative projects in the vicinity of the project site, including growth resulting from build-out of the City's General Plan and proposed development of the power plant adjacent to the project site, are anticipated to permanently remove plant and wildlife resources, which could affect special-status species and their habitat, nesting and foraging habitat for resident and migratory birds, and/or local policies or ordinances protecting biological resources. The primary effects of the Proposed Project, when considered with other projects in the region, would be the cumulative direct loss of sensitive or special-status wildlife species and their habitat, loss of migratory birds, and conflicts with local plans or policies protecting biological resources. As development in the City continues, sensitive plant and wildlife species native to the region and their habitat, including those species listed under CESA and ESA and those individuals identified by state and federal resources agencies as species of concern, fully protected, or sensitive will be lost through conversion of existing open space to urban development. Although mobile species may have the ability to adapt to modifications to their environment by relocating, less mobile species may be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem would dwindle and those remaining natural areas may not able to support additional plant or animal populations above their current carrying capacities. The conversion of plant and wildlife habitat on a regional level as a result of cumulative development would potentially result in a regional significant cumulative impact on special-status species and their habitats.

Development of the Proposed Project would contribute to a loss of regional biological resources through the incremental conversion of habitat for special-status species to human use, and thus limit the availability and accessibility of remaining natural habitats to regional wildlife. Although the project site contains highly disturbed plant and wildlife habitat and is isolated from other areas of similar habitat by urban development, the City would implement mitigation measures specifically designed to avoid, reduce, or mitigate potential impacts to special-status species and their habitat. With these measures, the project's contribution to regional impacts to biological

resources would be less than cumulatively considerable. Therefore, after mitigation, impacts would be considered less than significant. **Less than Significant with Mitigation**.

> **Mitigation Measures 4.3-12.** Implement **Mitigation Measures 4.3-1** and **Mitigation Measures 4.3-3** through **4.3-8**.