*This section was prepared by RMC Water and Environment.*

# 3B.3 BIOLOGICAL RESOURCES – WATER

## 3B.3.1 AFFECTED ENVIRONMENT

As provided in Chapter 2, Alternatives, physical improvements proposed as part of the Off-site Water Facility Alternatives would be limited to Zone 4 of the "Water" Study Area. In this context, emphasis for the description of the affected environment for the "Water" Study Area is placed on Zone 4. No new facilities are proposed within Zones 1, 2, and 3 and, therefore, the description of the affected environment for biological resources for these areas is limited to those details necessary to support the discussion of potential operational-related effects of the Off-site Water Facility Alternatives. More specifically, the description of the affected environment for Zones 1 and 2 is focused on fishery resources within the Sacramento River and wetland resources within the NCMWC serviced area. The Freeport Regional Water Project EIR/EIS provides extensive detail regarding the terrestrial biological and fishery resources present within Zone 3, including portions of Zone 2 within the immediate vicinity of the Freeport Project intake, and is incorporated by reference into this EIR/EIS.

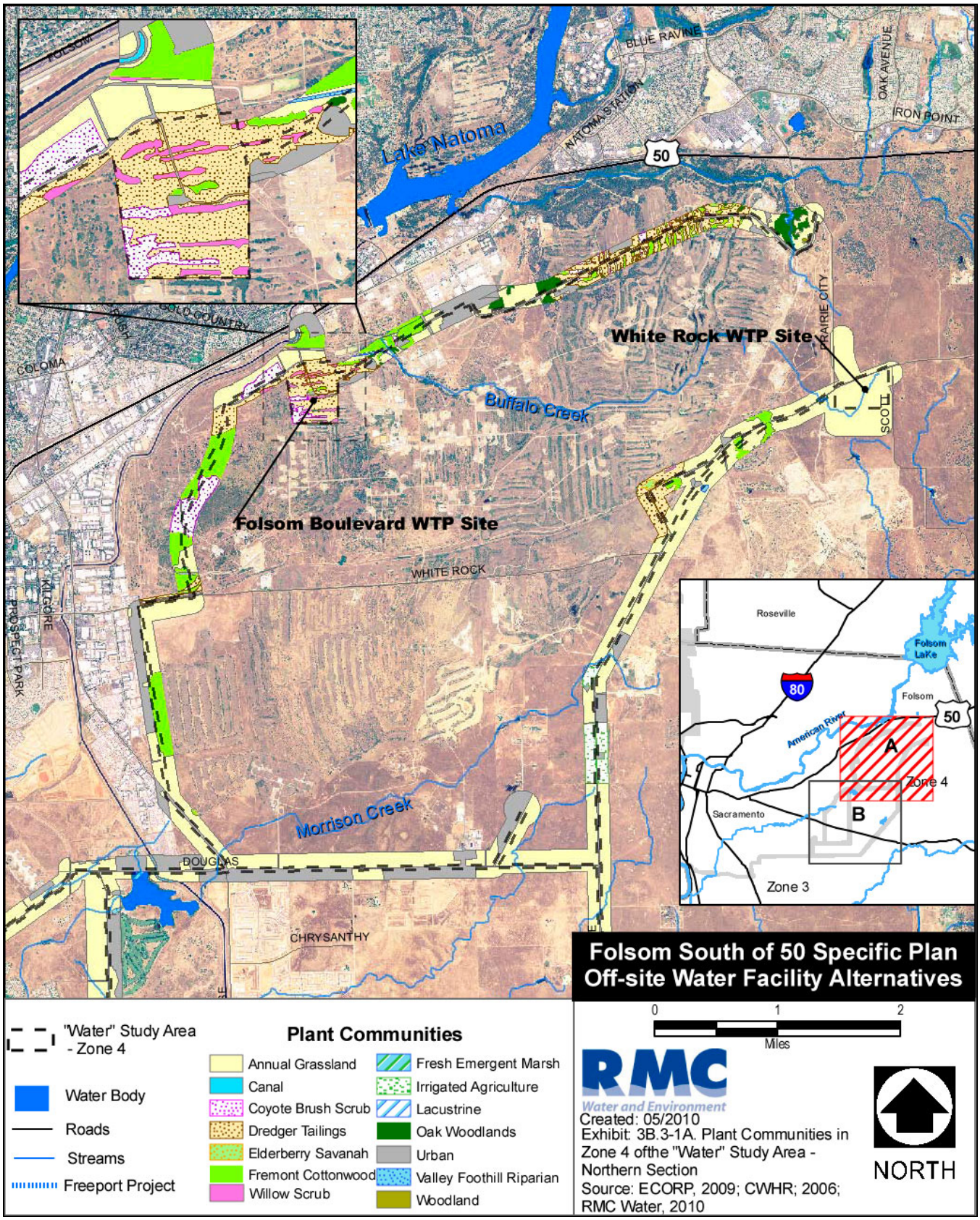
### PLANT COMMUNITIES IN ZONE 4 OF THE "WATER" STUDY AREA

The established vegetative communities within the "Water" Study Area and their associated habitat values are identified and described in this section using the California Department of Fish and Game's (DFG) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer 1988). As shown in Exhibits 3B.3-1A and 3B.3-1B, a majority of Zone 4 of the "Water" Study Area is comprised of urban or developed habitat, coyote scrub brush, annual grassland, dredge tailings, and, to a lesser extent, woodlands and savannah. Exhibit 3B.3-1A illustrates plant communities within the northern portion of the Zone 4 "Water" Study Area, including the two off-site WTP locations, while Exhibit 3B.3-1B depicts the plant communities within the southern portions of Zone 4. As shown in these two exhibits, sensitive plant communities documented within Zone 4 include Valley oak woodland, fresh emergent marsh, elderberry savannah, Valley foothill riparian, vernal pools, and seasonal and perennial wetlands.

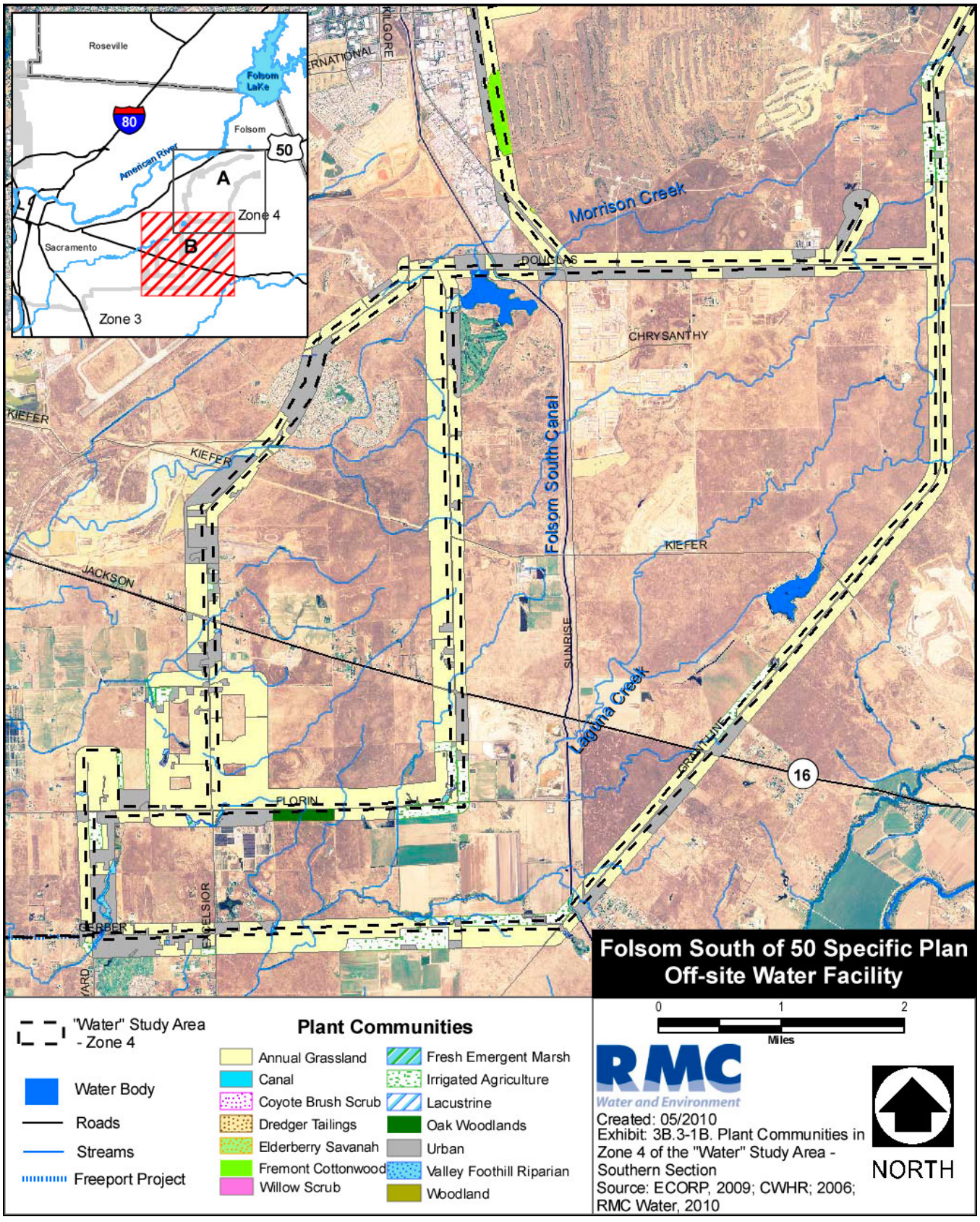
The Off-site Water Facility Alternatives conveyance alignment(s) are mostly located within existing and/or planned roadway rights-of-way for Kiefer Boulevard and Grant Line, White Rock, Douglas, Florin, Excelsior, and Eagles Nest Roads. These roadways cross through open annual grassland, mixed oak savanna, vernal pools, and riparian communities in close proximity to local waterways, including Morrison, Elder, Buffalo, and Laguna Creeks. As shown in Exhibits 3B.3-1A and 3B.3-1B riparian and wetland plant communities are extensive along the numerous drainages that traverse the "Water" Study Area.

The White Rock Water Treatment Plant (WTP) site is located within an undeveloped area, immediately south of White Rock Road and characterized by rolling annual grassland near the headwaters of Buffalo Creek (see Exhibit 3B.3-1A). This site is bordered by the Prairie City Off-Highway Vehicle (OHV) Area to the south. A perimeter reconnaissance-level survey of the subject property indicates the site is currently used for livestock grazing and consists primarily of annual grasslands with a small, seasonal drainage bisecting it diagonally from the northeast and numerous seasonal wetlands situated within the associated floodplain.

The Folsom Boulevard WTP site is located within an urbanized area, just south of Folsom Boulevard and is characterized by ruderal and urban habitats, dredge tailings containing sparse vegetation, a small patch of Fremont cottonwood, several narrow strips of willow scrub, and patches of coyote brush scrub along the western and southern perimeters (see Exhibit 3B.3-1A). Buffalo Creek meanders along the northern perimeter of the subject property. Areas adjacent and to the north are developed with various commercial and light industrial uses. Areas to the west of the Folsom Boulevard WTP site are planned for development in conjunction with the City of Rancho Cordova's planned Westborough Specific Plan area.




**Plant Communities within Northern Sections of Zone 4 of the "Water" Study Area** **Exhibit 3B.3-1A**




**Plant Communities within Southern Sections of Zone 4 of the "Water" Study Area** **Exhibit 3B.3-1B**

Plant communities found in Zone 4 of the "Water" Study Area are described in the following paragraphs. Acreage estimates in the following sections represent the total amount of each community type located within areas that could be affected by any of the Off-site Water Facility Alternatives. Acreage was calculated conservatively, assuming a 200-foot corridor for pipeline alignments.

## Upland Communities

### *Urban or Developed Environments*

Urban or developed environments comprise approximately 325.3 acres of Zone 4 of the "Water" Study Area and generally provide limited habitat for common wildlife species such as rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), and American crow (*Corvus brachyrhynchos*). Species occurring within this habitat type are typically common and well-adapted to an urban environment. Paved roadways are included as developed areas and provide minimal habitat for most wildlife species. Within the Off-site Water Facilities Study Area, urban or developed areas include paved surfaces and development within the City of Rancho Cordova and within unincorporated portions of Sacramento County along existing roadways, highways, and railroad easements (see Exhibit 3B.3-1).

### *Annual Grassland*

California annual grasslands are extensive throughout the "Water" Study Area covering approximately 671.1 acres and consist of open grasslands composed primarily of nonnative annual plant species which include wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Lolium multiflorum*), and ripgut brome (*Bromus diandrus*). Annual grassland communities may provide habitat for common species such as rock pigeon, house sparrow, mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*). Raptor species forage in annual grassland as well. Many of the annual grasslands support vernal pools, seasonal wetlands, and seasonal wetland swales (ECORP 2009).

Numerous elderberry shrubs (*Sambucus mexicana*) are also documented within this habitat type along White Rock Road and the planned Easton Valley Parkway.

### *Canal*

The Folsom South Canal (FSC) runs north-south through Zone 4 of the "Water" Study Area and is mapped as canal in Exhibit 3B.3-1. The FSC comprises 0.6 acres of Zone 4 and is characterized as a broad, trapezoidal, concrete-lined channel that is bordered by chain-link fence on both sites and supports no vegetation (ECORP 2009).

### *Coyote Brush Scrub*

The coyote brush scrub community is primarily found within the low-lying areas between mine tailings, encompassing approximately 18.5 acres within Zone 4; mainly within the Off-site Water Facility Alternative 4 corridor (see Exhibit 3B.3-1). This community is dominated by coyote brush (*Baccharis pilularis*) and other shrubs, such as blue elderberry, poison oak (*Toxicodendron diversilobum*), willow (*Salix* sp.), and hoary coffeeberry (*Rhamnus tomentella*). Invasive plant species that occur in this community include yellow star-thistle (*Centaurea solstitialis*) and milk thistle (*Silybum marianum*).

Common wildlife associated with this community in the project area includes Pacific gopher snake (*Pituophis catenifer*), California quail (*Callipepla californica*), deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), and gray fox (*Urocyon cinereoargenteus*).

Several seasonal wetlands and a few seasonal ponds also occur within the coyote brush scrub community (ECORP 2009).

### *Fremont-Cottonwood Woodland*

The Fremont cottonwood woodland and Fremont cottonwood-oak woodland communities occur scattered throughout the northern sections of Zone 4. They encompass a combined total of approximately 46.6 acres. Fremont cottonwood (*Populus fremontii*) dominates the former community, whereas Fremont cottonwood and various oak species (*Quercus* sp.) are co-dominants in the latter community. The understory of both communities consists of willows, coyote brush, poison oak, and annual grasses. In some areas, willows and elderberry shrubs also form part of the overstory.

Common wildlife species occurring in these communities include Pacific treefrog (*Hyla regilla*), racer (*Coluber constrictor*), Cooper's hawk (*Accipiter cooperii*), coyote (*Canis latrans*), and California vole (*Microtus californicus*). A few seasonal wetlands and seasonal ponds also occur within the cottonwood woodlands (ECORP 2009).

### *Willow Scrub*

The willow scrub community occurs only in a few low-lying areas between mine dredge tailings, encompassing approximately 5.5 acres in the north-central portion of Zone 4. It also mixes with Fremont cottonwood and oaks in other low-lying areas between mine tailings (see Exhibit 3B.3-1) (ECORP 2009). This community is dominated by dense shrub-type willows. Other shrubs and herbaceous vegetation associated with the community include coyote brush, blue elderberry, poison oak, rush (*Juncus* spp.), and non-native grasses.

Some common wildlife species that occur in willow scrub include mountain garter snake (*Thamnophis elegans*), mourning dove, dusky-footed woodrat (*Neotoma fuscipes*), and desert cottontail (*Sylvilagus audubonii*).

### *Dredge Tailings*

Dredge tailings occur throughout portions of Zone 4, north of Douglas Road, comprising approximately 83.2 acres, and are associated with historic mining activities. Vegetation within these areas varies both in terms of species composition and cover. This community includes those areas that remain almost entirely unvegetated; annual grasslands overlap with this mapping unit and include areas where a more uniform grassland has become established. A variety of plant communities have been documented in the lower-lying areas in-between the dredge tailings. These communities can range from rural vegetation to riparian woodlands.

### *Irrigated Agriculture*

Major agricultural uses in the study area are orchards, vineyards, and other row crops. This cover type includes approximately 39.0 acres within Zone 4 of the "Water" Study Area.

### *Elderberry Savanna*

Two small areas occupying approximately 0.3 acres in the southwest quadrant of the project site are dominated by elderberry savanna. This plant community is characterized by open stands of elderberry with an understory of annual grassland (ECORP 2009).

### *Oak and Foothill Woodlands*

Mixed oak woodlands occur within Zone 4 of the "Water" Study Area and include mostly interior live oak (*Quercus wislizenii*) and blue oak (*Quercus douglasii*), with pockets of foothill pine (*Pinus sabiniana*). Valley foothill woodlands are composed primarily of Fremont cottonwood, willow, coyote brush, and poison oak. Patches of shrubs, annual grasses, and forbs make up the understory of both the oak and pine woodlands. The foothill pine-oak woodland communities are a common natural community, encompassing approximately

8.6 acres in northern portions of Zone 4. Trees dominate these communities, and a variety of shrubs, annual grasses, and other herbaceous species form the understory.

Common wildlife species that use this habitat include California slender salamander (*Batrachoseps attenuatus*), western fence lizard (*Sceloporus occidentalis*), red-tailed hawk (*Buteo jamaicensis*), deer mouse, raccoon (*Procyon lotor*), and black-tailed deer (*Odocoileus hemionus*). Bird species in particular, and mammals such as striped skunk (*Mephitis mephitis*), woodrat (*Neotoma* sp.), and black-tailed deer (*Odocoileus* sp.), use woodlands for foraging, breeding, and cover. Species observed within this habitat include black phoebe (*Sayornis nigricans*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*).

Seasonal wetlands and seasonal ponds occur within the foothill pine-oak woodland habitat as well as two ephemeral drainages (ECORP 2009).

## Wetland Communities and Other Waters

### *Seasonal Wetlands and Seasonal Wetland Swales*

Seasonal wetland and seasonal wetland swale ecosystems can occur in basins or depressions at all elevations, aspects, and exposures, but they are most common on level to gently rolling topography (Mayer and Laudenslayer 1988). Pond turtles and amphibians such as frogs and salamanders may inhabit seasonal wetland habitat. Waterfowl, wading birds, and aerial insectivores such as flycatchers, swallows, swifts, and bats may forage in or over larger wetland habitats. Seasonal wetlands and seasonal wetland swales occur throughout Zone 4 of the "Water" Study Area, comprising approximately 7.8 acres and 4.9 acres, respectively, and are concentrated along streams or drainages and within depressions.

Seasonal wetlands are similar to vernal pools in that they are seasonally inundated or saturated during the winter and spring and become dry in the summer and fall. Seasonal wetlands occur in low-lying areas and are generally wet only during or following rainfall. They are distinguished from vernal pools in that they support a different flora generally composed of species not particularly unique or restricted in distribution. Common plant species in seasonal marshes in the project area include Mediterranean barley (*Hordeum marinum*), and annual rabbit-foot grass (*Polypogon monspeliensis*), knotgrass (*Paspalum distichum*), pale spikerush (*Eleocharis macrostachya*), Baltic rush (*Juncus balticus*), cattail (*Typha* sp.), umbrella nut-sedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), watercress (*Rorippa* sp.), and cocklebur (*Xanthium strumarium*).

Seasonal wetlands and seasonal wetland swales are known to support a variety of wildlife species, including Western pond turtle (*Clemmys marmorata*), branchiopods such as fairy (*Branchinecta lynchi*) and tadpole *(Lepidurus packardi*) shrimp, amphibians such as Pacific tree frogs and western toads, and birds including a variety of wading birds, shorebirds and waterfowl.

### *Vernal Pools*

Vernal pools are composed of seasonally flooded depressions underlain by a clay, rock, or mineral layer beneath the soil through which water cannot easily pass. These areas support plant species such as white meadowfoam (*Limnanthes alba*), Fremont's tidy-tips (*Layia fremontii*), and woolly marbles (*Psilocarphus brevissimus*). As previously indicated, vernal pool grasslands are extensive throughout the southern portions of Zone 4 of the "Water" Study Area; comprising approximately 10.8 acres of vernal pools.

Vernal pools often provide suitable habitat conditions for many rare plants and animals such as vernal pool tadpole and fairy shrimp, Conservancy fairy shrimp (*Branchinecta conservvatio*), and legenere (*Legenere limosa*).

### *Drainage Channels and Riverine Habitat*

Drainage channels occur throughout Zone 4 of the "Water" Study Area. These include intermittent to nearly permanent stream channels, all of which have an ordinary high water mark. Morrison, Elder, Buffalo, and Laguna Creeks are intermittent to perennial streams that transect Zone 4 as shown in Exhibit 3B.3-1. Portions of Morrison, Elder, Buffalo, and Laguna Creeks support surface flow all year because flows are supplemented by runoff from adjacent developed areas, but upstream segments of these creeks are intermittent. Intermittent stream channels support flowing water through winter and spring, but dry up by summer. Many of the other intermittent channels present on the project site are tributary to Alder Creek. There are 6.7 acres of perennial stream channel (or riverine habitat) scattered throughout Zone 4. Jurisdiction over drainage channels outside the Folsom SPA has not been formally determined, but it is likely that the majority, if not all of these features are subject to Federal jurisdiction.

Wildlife such as great egret (*Ardea alba*), great blue heron (*Ardea herodias*), and other shorebirds may forage in these streams. The streams may provide habitat for Pacific chorus frog, western pond turtle, and other amphibians and reptiles.

### *Freshwater Forested/Willow Scrub*

Approximately 2.2 acres of this community is present within Zone 4 of the "Water" Study Area and includes California box elder (*Acer negundo* var. *californicum*), Fremont cottonwood *(Populus fremontii* ssp. *fremontii*), valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), and willows (*Salix* spp.). The willow scrub community is dominated by narrow-leaved willow (*Salix exigua*) and arroyo willow (*Salix lasiolepis*). Scattered white alder (*Alnus rhombifolia*) present and patches of poison hemlock (*Conium maculatum*). The canopy is fairly open, with dense thickets of shrub. The herbaceous layer is dominated by poison hemlock (*Conium maculatum*), annual grasses, and mugwort (*Artemesia* sp.). Wildlife species potentially occurring would be similar to the riverine habitat.

### *Freshwater Emergent Wetland or Marsh*

Freshwater marsh is an emergent wetland plant community occurring in areas that are permanently or nearly permanently inundated. Within Zone 4 of the "Water" Study Area, this community type is found in association with the drainage channels described above. Approximately 13.2 acres of freshwater marsh are present throughout Zone 4 of the "Water" Study Area. Vegetation within the community consists primarily of wetland species, including cattails, hard-stem bulrush (*Scirpus acutus*), tall flatsedge (*Cyperus eragrostis*), soft rush (*Juncus effusus*), and willow. The permanently flooded marsh habitats along Morrison, Elder, Buffalo, and Laguna Creeks can be described as Valley Freshwater Marsh, a community considered sensitive by the CDFG due to activities throughout the state that have reduced the extent of the community.

Wildlife associated with this community include those commonly found in wetland environments, such as Pacific treefrog, bullfrog (*Rana catesbeiana*), western pond turtle, shorebirds, waterfowl, and other common wildlife found in riparian and wetland habitats.

### *Ponds*

These include ponds created through impoundment of stream channels and excavated basins. Approximately 5.1 acres of pond habitat occur within Zone 4 of the "Water" Study Area. The on-site ponds are typically inundated year round and some support sparse cover of emergent vegetation along the shallow margins, and black willow and Fremont cottonwood on their banks. In contrast to seasonal wetlands, seeps, and marshes, ponds are characterized predominantly by open water or bare ground and are not vegetated wetlands. No ponds are present in off-site elements of the project. Wildlife species found within pond habitats would be similar to those found in perennial wetland and riverine habitats and could include bull frogs, western pond turtle, and shorebirds.

## PLANT COMMUNITIES IN ZONES 1 AND 2 OF THE "WATER" STUDY AREA

Zone 1 comprises the Natomas Central Mutual Water Company's (NCMWC's) service area in the southern Natomas Basin, north of the City of Sacramento and Sacramento International Airport. Habitats found within Zone 1 include riverine/open water habitat along the Sacramento River, cropland, and urban land, mainly in the southern portion of NCMWC's service area. Open water habitats include ponds, flooded oxbows, rivers, streams, and canals and are present within the Sacramento River, Cache Creek, Willow Slough, Tule Canal, and other unnamed waterways. The depths and/or flow velocities of these features restrict the establishment of terrestrial vegetation, but submerged and floating aquatic vegetation may occur (Environmental Science Associates 2007). Several of these open water features are drainages that may support freshwater marsh or riparian communities. Based on National Wetland Inventory data produced by USFWS, Zone 1 of the "Water" Study Area contains a total of 143.13 acres of wetland habitat within NCMWC's service area, with freshwater emergent wetland comprising 85 acres and the remainder consisting of freshwater forested/shrub wetland, freshwater pond, and riverine. Urban and cropland habitats are present within the remainder of Zone 1 and comprise the majority of the land area.

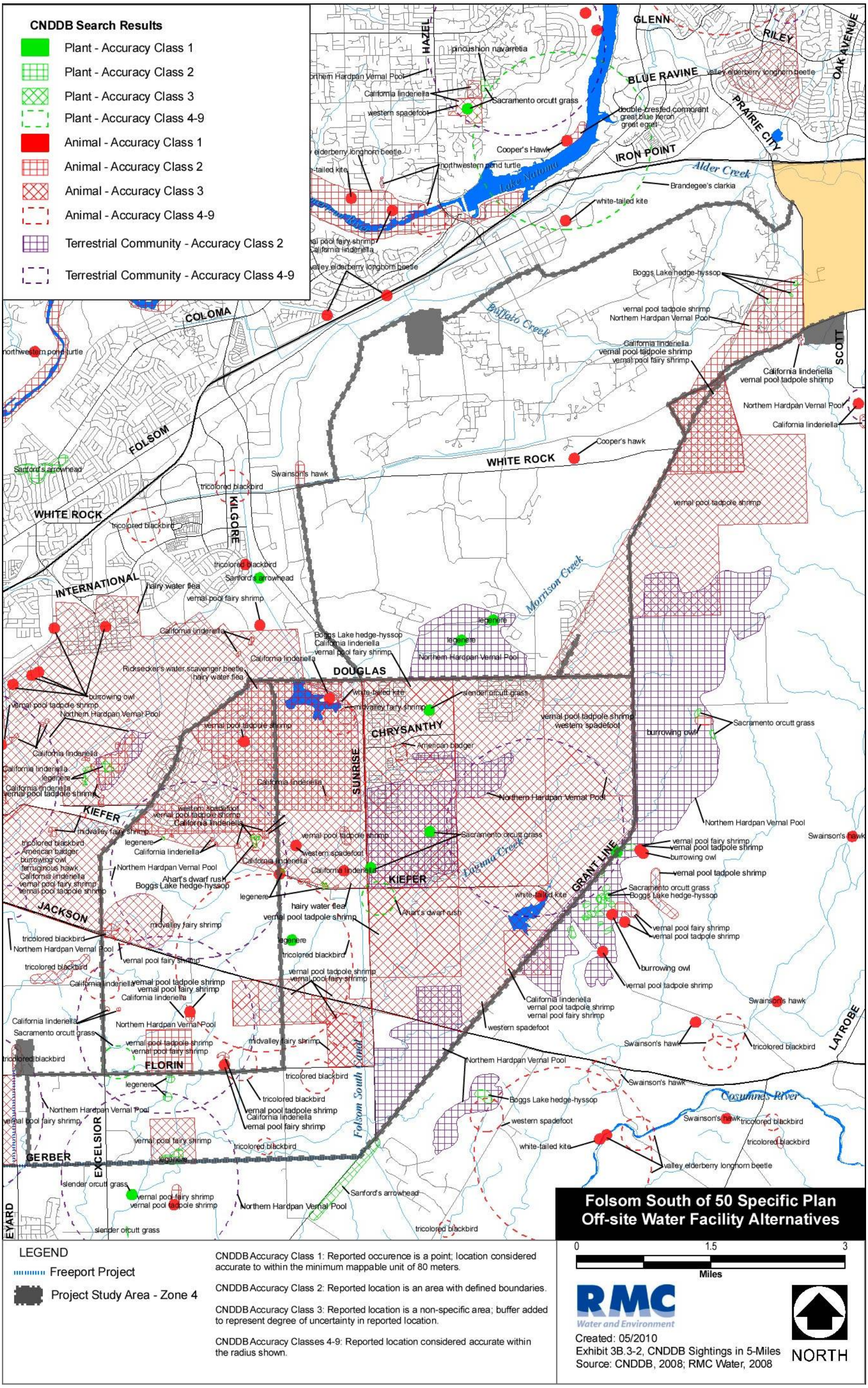
Zone 2 of the "Water" Study Area is comprised of the Sacramento River between Freeport and the NCMWC's service area. Zone 2 mainly consists of open water habitat with riparian habitats situated along the levees and banks. According to data produced by the National Wetland Inventory, Zone 2 is comprised of 1205 acres of riverine habitat and 12.2 acres of freshwater Forested/Shrub Wetland. Details regarding the quantity of flow within the river during dry, average, and wet year conditions are provided in Section 3.9B.1.

## SPECIAL-STATUS SPECIES IN ZONE 4 OF THE "WATER" STUDY AREA

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under the California Environmental Quality Act (CEQA), California Fish and Game Code, California Endangered Species Act (CESA), Federal Endangered Species Act (ESA), Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). For purposes of this analysis, the term "special-status" includes those species categories identified and described in Section 3A.3 (Biological Resources, "Land"), on page 3A.3-8. A list of special-status species with potential to occur within the vicinity of Zone 4 of the "Water" Study Area was compiled based on data from the above sources. Conclusions regarding habitat suitability and species occurrence are based on a reconnaissance-level assessment of the area, as well as existing literature, and other environmental documents prepared for other projects within Zone 4 of the "Water" Study Area. Exhibit 3B.3-2 illustrates the location of documented special-status species within a 5-mile radius of Zone 4 of the "Water" Study Area.

Surveys were conducted to determine habitat suitability for biological resources that could potentially occur within Zone 4 of the "Water" Study Area. Road alignment surveys included both sides of the roadway through a combination of foot surveys, where accessible, and by automobile, in instances where access was limited. The reconnaissance survey did not include areas that were inaccessible due to private property fencing, construction activities, or the planned Rancho Cordova and Easton Valley Parkway alignments. For planned roadways and areas where access was limited, the previously prepared environmental documents were used and are incorporated by reference. These documents include:

- White Rock Road Widening Project, Phases A, B, and C, EIR;
- Freeport Regional Water Project EIR/EIS;
- Easton Project EIR for the Easton Valley Parkway; and
- Rio del Oro Specific Plan EIR/EIS.




**Special-Status Plant and Wildlife Species with Potential to Occur in Zone 4 of the "Water" Study Area** **Exhibit 3B.3-2**

### *Special-status Plants*

Based on information obtained from a literature review and from regulatory agencies, 17 special-status plant species were identified as having the potential to occur within Zone 4 of the "Water" Study Area (Appendix M-V, Tables 1 and 2). Appendix M-V provides additional information on the status, life history, distribution, and potential for occurrence in the project area for each of these species. Table 3B.3-1 identifies the plant and wildlife species that could occur, are likely to occur, and known to occur within Zone 4 the "Water" Study Area. Exhibit 3B.3-2 illustrates the relative locations of these special-status plant species occurrences.

**Table 3B.3-1**
**Special-Status Plant Species with Potential to Occur in Zone 4 of the "Water" Study Area**

| Species | Federal/State/ CNPS Status | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| **PLANTS** | | | |
| *Arctostphaylos myrtifolia* Ione manzanita | FT/--/1B.2 | Chaparral and cismontane woodland on acidic, Ione soils, clay or sandy substrates. From 200 to 1,900 feet in elevation. | **Unlikely to Occur.** Unlikely to occur due to lack of suitable habitat in Zone 4 of Off-site Water Facilities Study Area. |
| *Castilleja campestris* ssp. *succulenta* succulent owl's–clover | FT/CE/1B.2 | Vernal pools, often acidic. From 200 to 2,460 feet in elevation. | **Likely to Occur.** Potentially occurring in the project area. The project area is not within designated critical habitat. |
| *Chlorogalum grandiflorun* Red Hill's soaproot | --/--/1B.2 | Cismontane woodland, chaparral, and lower montane coniferous forests on serpentine or gabbro soils. From 850 to 3,500 feet in elevation. | **Unlikely to Occur.** Zone 4 is outside of the species' known elevation range and no suitable habitat was observed. |
| *Clarkia biloba* ssp. *brandegeeae* | --/--/1B.2 | Chaparral and cismontane woodland in openings and rocky slopes; often road cuts, from 0 to 3,000 feet in elevation. | **Unlikely to Occur.** No suitable habitat was observed in Zone 4. |
| *Downingia pusilla* Dwarf downingia | --/--/2.2 | Mesic areas in valley and foothill grassland and vernal pools. From 3 to 1,450 feet in elevation. | **Likely to Occur.** Suitable habitat observed within Zone 4. |
| *Eriogonum apricum* var. *apricum* Ione buckwheat | FE/SE/1B.1 | Chaparral in openings and Ione soil. From 200 to 475 feet in elevation. | **Unlikely to Occur.** Unlikely to occur due to lack of suitable habitat and soils in project area. |
| *Eriogonum apricum* var. *prostratum* Irish Hill buckwheat | FE/SE/1B.1 | Chaparral in openings and Ione soil. From 200 to 400 feet in elevation. | **Unlikely to Occur.** Unlikely to occur due to lack of suitable habitat and soils in project area. |
| *Eryngium pinnatisectum* Tuolumne button-celery | --/--/1B.2 | Cismontane woodlands, lower montane coniferous forests, and vernal pools in mesic areas. From 230 to 300 feet in elevation. | **Could Occur.** Potentially suitable habitat exists within Zone 4. |
| *Gratiola heterosepala* Bogg's Lake hedge-hyssop | --/CE/1B.2 | Marshes and swamps and vernal pools, clay. From 30 to 7,800 feet in elevation. | **Likely to Occur.** Potentially occurring in the project area. |
| *Horkelia parryi* Parry's horkelia | --/--/1B.2 | Chaparral and cismontane woodland, especially Ione formation. From 260 to 3,400 feet in elevation. | **Unlikely to Occur.** Lack of suitable habitat in zone 4 of project area. |

**Table 3B.3-1**
**Special-Status Plant Species with Potential to Occur in Zone 4 of the "Water" Study Area**

| Species | Federal/State/ CNPS Status | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| *Juncus leiospermus* var. *ahartii* Ahart's dwarf rush | --/--/1B.2 | Mesic areas in valley and foothill grassland. From 100 to 325 feet in elevation. | **Likely to Occur.** Potentially occurring in the project area. |
| *Legenere limosa* legenere | --/--/1B.1 | Vernal pools. From 3 to 2,900 feet in elevation | **Likely to Occur.** Potentially occurring in the project area. |
| *Navarretia myersii* ssp. *Myersii* Pincushion navarretia | --/--1B.1 | Vernal pools. From 65 to 1,100 feet in elevation. | **Likely to Occur.** Potentially occurring in the project area. |
| *Orcuttis tenuis* slender Orcutt grass | FT/CE/1B.1 | Vernal pools. From 115 to 5,775 feet in elevation. | **Known to Occur.** Potentially occurring in the project area. The project area is located within Critical Habitat Unit 6 (Off-site Water Facility Alternatives 2, 2A, 3, 3A, 4, and 4A). |
| *Orcuttia viscida* Sacramento Orcutt grass | FE/CE/1B.1 | Vernal pools. From 115 to 325 feet in elevation. | **Known to Occur.** Potentially occurring in the project area. The project area is located within Critical Habitat Unit 2 (Off-site Water Facility Alternatives 2, 2A, 3, 3A, 4, and 4A). |
| *Pseudobahia bahifolia* Hartweg's golden sunburst | FE/CE/1B.1 | Cismontane woodland and Valley and foothill grassland clay, often acidic soils. From 100 to 1,000 feet in elevation | **Likely to Occur.** Potentially occurring in the project area. |
| *Sagittaria sanfordi* Sanford's arrowhead | --/--/1B.2 | Marshes and swamps. From 0 to 2,000 feet in elevation. | **Could Occur.** Potentially occurring in the project area. |

Source: CNDDB 2008, RBI 2008

STATUS CODES

**Federal**

FE = Endangered
FT = Threatened
FC = Candidate

**State**

CE = Endangered
CT = Threatened
CFP = Fully Protected
CSC = California Department of Fish and Game Special Concern species

**California Native Plant Society**

List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere
List 3 = Plants about which we need more information--a review list
List 4 = Plants of limited distribution--a watch list

0.1 = Seriously endangered in California
0.2 = Fairly endangered in California
0.3 = Not very endangered in California

**Potential for Occurrence Definitions**

**Unlikely to occur:** Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

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

**Likely to occur:** Habitat conditions, behavior of the species, known occurrences in the project vicinity, or other factors indicate a relatively high likelihood that the species would occur at the project site.

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

### *Special-Status Wildlife*

Based on information obtained from a literature review and from regulatory agencies, 25 special-status terrestrial wildlife species were identified as having the potential to occur within Zone 4 of the "Water" Study Area (Appendix M-V, Tables 1 and 2). Appendix M-V provides additional information on the status, life history, distribution, and potential for occurrence in the project area for each of these species. Table 3B.3-2 identifies the wildlife species that could occur, are likely to occur, and known to occur within Zone 4 the "Water" Study Area. Exhibit 3B.3-2 illustrates the relative locations of these special-status wildlife species occurrences.

**Table 3B.3-2**
**Special-Status Wildlife Species with Potential to Occur in Zone 4 of the "Water" Study Area**

| Species | Federal/State | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| **INVERTEBRATES** | | | |
| *Branchinecta conservvatio* Conservancy fairy shrimp | FE/-- | Large vernal pools with cool, moderately turbid water | **Could Occur.** Potentially suitable habitat occurs in Zone 4, but Zone 4 is not within designated critical habitat. |
| *Branchinecta lynchi* vernal pool fairy shrimp | FT/-- | Vernal pools throughout California west of the Sierra Nevada. | **Known to Occur**. Potentially occurring in the project area. The project area is within Critical Habitat Unit 13 (Off-site Water Facility Alternatives 2, 2A, 3, 3A, 4, and 4A). |
| *Desmocerus californicus dimorphus* = valley elderberry longhorn beetle | FT/-- | Elderberry shrubs throughout the Central Valley and foothills below 3,000 feet elevation. | **Known to Occur.** Potentially occurring in the project area. Several elderberry shrubs were detected in the project area during surveys along White Rock Road and the Off-site Water Facility Alternative 1A alignment and the planned Easton Valley Parkway. |
| *Lepidurus packardi* vernal pool tadpole shrimp | FE/-- | Vernal pools in the Central Valley containing clear to highly turbid water. | **Known to Occur.** The project area is within Critical Habitat Unit 8 (Off-site Water Facility Alternatives 2, 2A, 3, 3A, 4, and 4A). |
| **AMPHIBIANS AND REPTILES** | | | |
| *Actinemys (=Emys) marmorata marmorata* northwestern pond turtle | --/CSC | Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks. | **Likely to Occur**. Suitable habitat is found along local drainages within the Off-site Water Facilities Study Area. Nearest known occurrence is at Mather Lake (DFG 2008). |
| *Ambystoma californiense* California tiger salamander | FT (central population)/-- | Requires underground refuges, such as ground squirrel burrows, for shelter; typically found in more friable soils. Water sources, such as vernal pools, are required for breeding. | **Unlikely to Occur**. Nearest recorded sighting is south of the Cosumnes River. No contributing drainages intersect the off-site water facility study area. |
| *Rana aurora draytonii* California red-legged frog | FT/CSC | Breeds in slow moving streams, ponds, and marshes with emergent vegetation; forages in nearby uplands within about 200 feet. | **Unlikely to Occur.** There are no known occurrences of California red-legged frog in Sacramento County. Sacramento County is not within the current range of the species. |

**Table 3B.3-2**
**Special-Status Wildlife Species with Potential to Occur in Zone 4 of the "Water" Study Area**

| Species | Federal/State | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| *Spea hammondii* western spadefoot toad | --/CSC | Requires vernal pools and seasonal wetlands below 4,500 feet that lack predators for breeding. Also occurs in grassland habitat and occasionally in valley foothill oak woodlands and orchards. | **Known to Occur.** Documented within Off-site Water Facilities Study Area; sightings along Grant Line Road, south of Douglas Road. |
| *Spea hammondii* western spadefoot toad | --/CSC | Requires vernal pools and seasonal wetlands below 4,500 feet that lack predators for breeding. Also occurs in grassland habitat and occasionally in valley foothill oak woodlands and orchards. | **Known to Occur.** Documented within Off-site Water Facilities Study Area; sightings along Grant Line Road, south of Douglas Road. |
| *Thamnophis gigas* Giant garter snake | FT/ST | Marshes, sloughs, low-gradient streams, small lakes, and rice fields. | **Unlikely to Occur (Zone 4).** No documented sightings or suitable habitats were observed in Zone 4. Giant garter snake is known to occur in Zone 1 within NCMWC's service area. |
| **BIRDS** | | | |
| *Ammodramus savannarum* grasshopper sparrow | --/CSC(nesting) | Dry, dense grasslands and prairies, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. Nests are built of grasses and forbs in a slight depression in ground, hidden at base of an overhanging clump of grasses or forbs. | **Could Occur.** Potentially occurring in the project area. May nest and forage in dense grassland areas along Grant Line, Douglas, and White Rock Roads. |
| *Athene cunicularia hypugaea* western burrowing owl | --/CSC | Year-long resident of open, dry grassland and desert habitats and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats up to 5,300 feet. | **Known to Occur.** Potentially occurring in the project area. May nest and forage in the Off-site Water Facilities Study Area. |
| *Agelaius tricolor* tricolored blackbird | --/CSC | Breeds near freshwater, preferably in emergent wetland with tall dense cattails or tules, but also in willow, blackberry, wild rose, and tall herbs. Forages in grassland and cropland in the Central Valley and on the coast. | **Known to Occur.** Potentially occurring in the project area. May forage in project area. This species is identified as occurring along Eagles Nest Road. |
| *Aquila chrysaetos* Golden eagle | CFP/-- | Grasslands and early successional stages of forest and shrub habitats for foraging up to 11,500 feet. Secluded cliffs with overhanging ledges or large trees in open areas with unobstructed views for nesting. | **Could Occur.** May forage in portions of Zone 4. |
| *Buteo swainsoni* Swainson's hawk | --/ST | Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Riparian woodlands, juniper-sage flats, and oak woodlands for nesting. Grasslands and agricultural areas for foraging. | **Known to Occur**. Potentially occurring in the project area. May nest and forage in grassland portions of project area along White Rock, Grant Line, and Douglas Roads. |
| *Circus cyaneus* northern harrier | -- /CSC(breeding) | Grasslands, marshes, and agricultural areas for foraging and nesting. | **Likely to Occur.** Potentially occurring in the project area. May nest and forage in the Off-site Water Facilities Study Area. |

**Table 3B.3-2**
**Special-Status Wildlife Species with Potential to Occur in Zone 4 of the "Water" Study Area**

| Species | Federal/State | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| *Elanus leucurus* white-tailed kite | --/CFP | Open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Nests in trees, often near a marsh, usually 20 to 50 feet above the ground in branches near the top of a tree. | **Known to Occur.** Observed southwest of the intersection of Sunrise Boulevard/ Douglas Road. May nest and forage in the Off-site Water Facilities Study Area. |
| *Haliaeetus leucocephalus* Bald eagle | FT/SE | Year-round resident in ice-free regions of California. Foraging areas include regulated and unregulated rivers, reservoirs, lakes, estuaries, and coastal marine ecosystems. Majority of bald eagles in California breed near reservoirs and nests are usually located within one mile of foraging habitat. | **Unlikely to Occur.** No appropriate nesting or foraging habitat present in Zone 4 of the off-site water study area. |
| *Lanius ludovicianus* Loggerhead shrike | --/CSC (nesting) | Open habitats with sparse shrubs and trees (or other suitable perch sites) and bare ground and/or low, sparse herbaceous cover; oak woodlands for nesting. Found in lowlands and foothills throughout California. | **Likely to Occur.** Suitable habitat observed during field reconnaissance. May nest and forage in the Off-site Water Facilities Study Area. |
| *Ripaeria riparia* Bank swallow | --/CSC | Sporadic colonial breeder, frequently near flowing water. Nests in steep sand, dirt, or gravel banks, in a burrow dug near the top of the bank, along the edge of inland water or in gravel pits, and road embankments. | **Unlikely to Occur.** No appropriate nesting or foraging habitat present in Zone 4 of the project area. |
| **MAMMALS** | | | |
| *Antrozous pallidus* pallid bat | --/CSC | Inhabits grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Typically roosts in caves, crevices, or mines. Requires open habitat for foraging. | **Likely to Occur.** Potentially occurring in the project area. May forage in project area and use bridge structures. |
| *Taxidea taxus* American badger | --/CSC | Dry, open stages of most shrub, forest, and herbaceous habitats, with friable soils. Cultivated lands have been reported to provide little usable habitat. | **Likely to Occur.** Suitable habitat occurs along waterways traversing the Off-site Water Facilities Study Area. Not observed during field surveys. |

Source: CNDDB 2008, RBI 2008, ECORP 2009

STATUS CODES

**Federal**

FE = Endangered
FT = Threatened
FC = Candidate

**State**

CE = Endangered
CT = Threatened
CFP = Fully Protected
CSC = California Department of Fish and Game Special Concern species

**Potential for Occurrence Definitions**

**Unlikely to occur:** Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

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

**Likely to occur:** Habitat conditions, behavior of the species, known occurrences in the project vicinity, or other factors indicate a relatively high likelihood that the species would occur at the project site.

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

## FISHERY RESOURCES IN ZONE 2 OF THE "WATER" STUDY AREA

Numerous fish monitoring studies have documented that a variety of resident and migratory fish and microinvertebrates are present in the Sacramento River in the vicinity of Zone 2 of the "Water" Study Area. Relevant studies include: (1) investigations of fish eggs and larvae near Hood, (2) fisheries surveys characterizing species composition, abundance, and seasonal distribution of downstream migrating juvenile Chinook salmon and steelhead near Knights Landing, and (3) seasonal and geographic distribution of various State and Federally listed threatened or endangered fish species including Winter-run and Central Valley fall/late fall-run Chinook salmon (*Onocorhynchus tshawytscha*), Green sturgeon (*Acipenseridae* sp.), Delta smelt (*Hypomesus transpacificus*), Sacramento splittail (*Pogonichthys macrolepidotus*), Longfin smelt (*Spirinchus thaleichthys*), and Central Valley steelhead (*Onocorhynchus mykiss*). These studies help define the existing conditions for Zone 2 of the Off-site Water Facilities Study Area.

Other fish species common in the Sacramento River near the Freeport Project intake location include river and Pacific lamprey (*Lampetra* sp.), California roach (*Hesperoleucus symmetricus*), large-mouth bass (*Micropterus salmoides*), hardhead, threadfin shad, catfish (*Ictalurus punctatus*), Sacramento pike (*Ptychocheilus grandis*), minnow, tule perch, sculpin, bullhead, and a variety of other resident fish species (FRWA 2003). The Sacramento River also provides habitat for a variety of invertebrates, including planktonic species such as copepods, and epibenthic species such as crawfish and amphipods.

Additional surveys beyond those available for the study area were not conducted. Historical survey information was deemed sufficient to establish information about composition and abundance of fishery species in Zone 2 of the "Water" Study Area.

### Special-status Fish Species

Fish species listed for protection under CESA and known to occur within Zone 2 of the "Water" Study Area include Central Valley steelhead, winter-run and fall-run Chinook salmon, Delta smelt and green sturgeon. Other special-status fish species include longfin smelt, lamprey, hardhead, Sacramento splittail, and California roach. Based on currently available information regarding these species' habitat distributions and known or presumed occurrences, these species could potentially occur within Zone 2 of the "Water" Study Area. The Freeport Project EIR/EIS, incorporated by reference into this EIR/EIS, provides detailed descriptions for each of these fish species along with an assessment of the potential impacts associated with operation of the Freeport Project intake, which includes a positive barrier fish screen.

The species composition and relative abundance of both fish and macroinvertebrates within the Sacramento River vary within and among years in response to environmental factors such as changes in hydrologic conditions, seasonal migration patterns, and microhabitat conditions. Several of the fish species inhabiting Zone 2, most notably striped bass, white sturgeon, American shad, and catfish, support recreational fisheries, but are not listed under the state or Federal ESA. Many other fish and macroinvertebrates are considered to be important prey and forage species.

Several endangered or threatened fish species have been collected in the vicinity of the Sacramento River within the "Water" Study Area. These include: (1) winter-run Chinook salmon (listed as an endangered species under the CESA and Federal ESA, (2) spring-run Chinook salmon and steelhead (listed as threatened species under the CESA and Federal ESA), (3) green sturgeon juveniles and adults, (recently listed as a threatened species under the Federal ESA), and (4) Delta smelt (listed as a threatened species under the CESA and Federal ESA). Although Delta smelt have been occasionally collected in the Sacramento River near the Freeport Project diversion, they primarily occur downstream; that is, within the lower Sacramento River downstream of Sacramento and within the lower portions of the Delta and Suisun Bay.

Table 3B.3-3 identifies the wildlife species that could occur, are likely to occur, and known to occur within Zone 2 the "Water" Study Area.

**Table 3B.3-3**
**Special-Status Fish Species with Potential to Occur in Zone 2 of the "Water" Study Area**

| Species | Federal/State | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| *Acipenser medirostris* Green sturgeon | FT/CSC | Habitat requirements of green sturgeon are poorly known, but spawning and larval ecologies probably are similar to those of white sturgeon. Adult green sturgeon are more marine than white sturgeon, spending limited time in estuaries or freshwater (SWRCB 1999). Indirect evidence indicates that green sturgeon spawn mainly in the Sacramento River; spawning has been reported in the mainstem as far north as Red Bluff. Preferred spawning habitat is the lower reaches of large rivers with swift currents and large cobble. | **Likely to Occur.** Green sturgeon may spawn both upstream and downstream of Zone 2. It is probable that green sturgeon larvae or juveniles will be in the water column throughout the year. |
| *Hypomesus transpacificus* Delta smelt | FT/ST | Delta smelt are endemic to the upper Sacramento-San Joaquin Delta. Juvenile and adult Delta smelt typically inhabit open waters of the lower Delta and Suisun Bay including Suisun Marsh. Delta smelt inhabit shallow-water areas (typically less than nine feet deep at the lower low water); however, juvenile and adult Delta smelt are also known to occur within the deeper channel areas (Hanson, unpublished data). Juvenile and adult Delta smelt are generally found in the lower reaches of the Sacramento River downstream of Rio Vista, the San Joaquin River downstream of Mossdale, and within Suisun Bay (SWRCB 1999). | **Known to Occur.** Based on the Smelt's geographic distribution, the Freeport Project diversion and Zone 2 of the "Water" Study Area are located near the northern extent of the Delta smelt's geographic range and with the designated critical habitat for Delta smelt. |
| *Lampetra tridentate* River lamprey | FSC/CSC | The river lamprey has been captured mostly in the upper portion of the Sacramento-San Joaquin estuary and its tributaries in California. | **Known to Occur.** River lamprey have been found throughout the mainstem Sacramento River and the downstream Delta. They migrate through the mainstem river and tributaries to spawn in small streams in April and May. |
| *Oncorhynchus mykiss* Central Valley steelhead | FT/-- | Steelhead typically return to their natal streams to spawn. Considerable variation occurs in steelhead-run timing. Stocks in the Central Valley are all winter steelhead. Adults migrate upstream through the Delta and into the Sacramento River and tributaries primarily during the late fall, winter, and spring. Steelhead begin moving through the mainstem in July, and continue migrating through February or March. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within an area of the Sacramento River designated as critical habitat for steelhead. |

**Table 3B.3-3**
**Special-Status Fish Species with Potential to Occur in Zone 2 of the "Water" Study Area**

| Species | Federal/State | General Habitat | Potential for Species to Occur |
|---|---|---|---|
| *Oncorhynchus tshawytscha* Central Valley spring-run Chinook salmon | FT/ST | Spring-Run salmon migrate upstream from March through October. Adults hold in deep cold pools within the rivers and tributaries over the summer months prior to spawning from August to October. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within an area of the Sacramento River designated as critical habitat for spring-run Chinook salmon. |
| *Oncorhynchus tshawytscha* Winter-run Chinook salmon | FE/SE | Adult winter-run Chinook salmon migrate through the Delta from late November through June and into the Sacramento River from December through July. Winter-run Chinook salmon remain in the river up to several months before spawning. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within an area of the Sacramento River designated as critical habitat for winter-run Chinook salmon. |
| *Oncorhynchus tshawytscha* Central Valley fall/late fall-run Chinook salmon | FP/CSC | Adult late-fall-run Chinook salmon migrate through the Delta and into the Sacramento River from October through March, or possibly April, and spawn from January through April. Peak spawning activity occurs in February and March. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within an area of the Sacramento River designated as critical habitat for fall/late fall-run Chinook salmon. |
| *Pogonichthys macrolepidotus* Sacramento splittail | FSC/SSC | The Sacramento splittail is a large minnow endemic to the Bay/Delta Estuary. Once found throughout low-elevation lakes and rivers of the Central Valley from Redding to Fresno, this native species now occurs in the lower reaches of the Sacramento and San Joaquin Rivers and tributaries, the Delta, Suisun and Napa marshes, the Sutter and Yolo Bypasses, and the tributaries of north San Pablo Bay. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within the range of Sacramento sptiltail. |
| *Spirinchus thaleichthys* Longfin smelt | FSC/SSC | The longfin smelt is a small, planktivorous fish that is found in several Pacific coast estuaries from San Francisco Bay to Prince William Sound, Alaska. Longfin smelt can tolerate a broad range of salinity concentrations, ranging from freshwater to seawater. | **Known to Occur.** The Freeport Project diversion and Zone 2 of the "Water" Study Area are located within an area of the Sacramento River likely on the edge of this species range. |

Source: CNDDB 2008

STATUS CODES

**Federal**

FE = Endangered

FT = Threatened

FC = Candidate

**State**

CE = Endangered

CT = Threatened

CFP = Fully Protected

CSC = California Department of Fish and Game Special Concern species

**Potential for Occurrence Definitions**

**Unlikely to occur:** Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

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

**Likely to occur:** Habitat conditions, behavior of the species, known occurrences in the project vicinity, or other factors indicate a relatively high likelihood that the species would occur at the project site.

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

## Critical Habitat Designations for Fish

### *Central Valley Spring-run and Fall, Late Fall-run Chinook Salmon*

NMFS recently designated critical habitat for the Central Valley spring-run Chinook salmon; effective January 2, 2006. Critical habitat consists of the waters, substrates, and adjacent riparian zones of accessible estuarine and riverine reaches. Critical habitat is designated to include all reaches accessible to Chinook salmon in the Sacramento River and its tributaries in California, all river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas above specific dams or above long standing naturally impassable barriers.

Table 5-3 of the Freeport Project EIR, Life Stage Timing and Distribution of Selected Species Potentially Affected by the Proposed Alternatives, which is incorporated by reference into this EIR/EIS, provides the known timing and distribution of these species within the vicinity of the Freeport Project intake/fish screen. This table is included in Appendix M-V.

### *Existing Factors Affecting Chinook Salmon Populations*

The following environmental and biological factors affect the abundance, mortality, and population dynamics of Chinook salmon:

- loss of access to historic spawning and juvenile rearing habitat within the upper reaches of the Sacramento River and its tributaries as a result of the migration barriers caused by major dams and reservoirs;
- river and creek water temperatures affect incubating eggs, holding adults, and growth and survival of juvenile salmon;
- changes in habitat quality including availability for spawning and juvenile rearing;
- exposure to contaminants;
- predation mortality by Sacramento pikeminnow, striped bass, and other predators;
- competition and interactions with hatchery-produced Chinook salmon; and
- recreational and commercial fishing of subadult and adult Chinook salmon.

In recent years, however, a number of changes have been made to improve the survival and habitat conditions for Chinook salmon. Several large, previously unscreened water diversions have been equipped with positive barrier fish screens. These screens include perforated metal plates, meshes, or other physical devices that are designed to prevent fish from passing into intake facilities (entrainment) while minimizing the stress and injury that may occur when fish impact the screen or are subjected to changes in water velocity caused by the diversion.

Changes to ocean salmon fishing regulations, and modifications to California State Water Project (SWP) and Central Valley Project (CVP) Delta export operations, have also been made to improve the survival of both adult and juvenile Chinook salmon. Improvements in fish passage facilities have been made to improve migration and upstream access. These and other changes in management actions, in combination with favorable hydrologic and oceanographic conditions in recent years, are thought to have contributed to the increasing abundance of adults returning to the upper Sacramento River in the mid-1990s. However, since 2006, hydrological conditions have been such that both spring and fall run populations have been low, necessitating commercial fishing bans in 2008 and 2009.

### *Central Valley Steelhead*

NMFS recently designated critical habitat for Central Valley steelhead; effective January 2, 2006. Critical habitat is designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams or above longstanding naturally impassable barriers.

### *Central Valley Winter-run Chinook Salmon*

NMFS designated critical habitat for Central Valley winter-run Chinook salmon on June 16, 1993. Critical habitat is designated to include the Sacramento River from Shasta Dam to Chipps Island. Also included are all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge.

### *Delta Smelt*

USFWS designated critical habitat for Delta smelt within the Sacramento-San Joaquin system on December 19, 1994. Specific areas identified as critical habitat for Delta smelt spawning include Barker, Lindsay, Cash, Prospect, Georgiana, Beaver, Hog, Sycamore Sloughs and the Sacramento River in the Delta, and the tributaries of northern Suisun Bay. Areas identified as critical habitat for Delta smelt rearing extend eastward from the Carquinez Straits, including Suisun, Grizzly, and Honker Bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Three-Mile Slough, and south along the San Joaquin River including Big Break. The Sacramento River upstream of Sacramento (I Street Bridge) is not within the area designated as critical habitat by USFWS for Delta smelt.

### *Green Sturgeon*

Green sturgeon is listed by NMFS as a threatened species under the Federal ESA. Critical habitat for the species was designated by NMFS on October 9, 2009.

### *Longfin Smelt*

The longfin smelt is listed as a threatened species under the CESA. At this time, no critical habitat designations are currently in place for this species.

## Wetlands and Other Waters of the United States

An inventory of wetland areas within Zone 4 of the "Water" Study Area was conducted using a combination of information produced by USFWS as part of the National Wetlands Inventory (2009) and wetland inventories conducted by ECORP, January 2009. These data sources provide complete coverage for the conveyance pipeline corridors evaluated for the Off-site Water Facility Alternatives and the Folsom Boulevard and White Rock WTP sites. Total acreage of jurisdictional wetlands within areas that could be affected by any of the Off-site Water Facility Alternatives was estimated, and has not been verified by USACE. Acreage was calculated conservatively, assuming a 200-foot corridor for pipeline alignments. The inventory revealed a total of 50.7 acres of potential waters of the U.S., including wetlands, within Zone 4 of the "Water" Study Area. Potential jurisdictional wetlands and waters of the U.S. inventoried within Zone 4 consist of 7.8 acres of seasonal wetlands, 4.9 acres of seasonal wetland swales, 10.8 acres of vernal pools, 6.7 acres of drainage channel, including intermittent and perennial stream channels (or riverine habitat), 2.2 acres of freshwater forested/shrub wetland, 13.2 acres of freshwater emergent wetland (or marsh), and 5.1 acres of freshwater pond. The locations and extent of wetlands and other

waters of the U.S., as mapped by the National Wetlands Inventory and ECORP (2009), are shown in Exhibits 3B.3-3a, Exhibits 3B.3-3b, Exhibits 3B.3-3c, and Exhibits 3B.3-3d.

As described in more detail in Section 3A.3, Biological Resources – "Land," wetlands and other waters of the U.S. on the project site, as well as waters of the state, provide important ecological functions within the watershed.

## 3B.3.2 REGULATORY FRAMEWORK

### FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

The following Federal plans, policies, regulations, and laws related to biological resources are relevant to the Off-site Water Facilities, and are described in detail in Section 3A.3, "Biological Resources – Land:"

- Federal Endangered Species Act
- Section 404 of the Clean Water Act
- Section 401 Water Quality Certification
- Migratory Bird Treaty Act
- Wetland Conservation Provision (Swampbuster) of the Food Securities Act

#### *Operations Criteria and Plan for Long-Term Operation of CVP/SWP*

Reclamation, as a Federal agency, obtains incidental take authorization through consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the ESA to facilitate operation of the CVP. Similar take authorizations apply to DWR as part of its operation of the SWP. As part of combined operation of the CVP/SWP, the USFWS and NMFS have issued biological opinions that apply to the coordinated operation and are described in more detail below.

**FWS Biological Opinion on Coordinated Operations of the CVP and SWP.** The December 15, 2008, biological opinion by the USFWS on the coordinated operations of the CVP/SWP concluded that continued long term operations of the CVP and SWP, as proposed, were "likely to jeopardize" the continued existence of delta smelt without further flow conditions in the Delta for their protection and the protection of designated delta smelt critical habitat. The FWS developed a Reasonable and Prudent Alternative (RPA), which consists of five components aimed at protecting delta smelt, improving and restoring habitat, and monitoring and reporting results. Two RPA components establish flow conditions on Old and Middle River (OMR) flows to reduce the effects that reverse flows have on the entrainment of adults, larvae and juvenile life stages into the CVP and SWP pumping facilities in the south Delta:

- RPA Component 1 – addresses high and low entrainment risk periods and actions to protect adult delta smelt under specific conditions during the winter adult migration period. The measures reduce entrainment risk by limiting OMR reverse flows.

- RPA Component 2 – implemented upon the completion of RPA Component 1 or when Delta water temperatures reach 12ºC, a level that is associated with the start of delta smelt spawning, or biological evidence is collected in trawl programs or at the fish facilities that adult smelt have started spawning. OMR flows are also limited under RPA Component 2 depending on the location of the population relative to the proximity of the conveyance channels leading to the pumping facilities in the south Delta.

**NMFS Biological Opinion on Coordinated Operations of the CVP and SWP.** The NMFS published a biological opinion on June 4, 2009 describing the anadromous fish protections for the continued long term coordinated operations of the CVP and SWP[1] (NMFS 2009). This BO concluded that continued long term

[1] Judge Wanger issued a preliminary injunction against portions of the 2009 BO that address conditions downstream of Zone 2 of the "Water" Study Area with focus on the relationship between San Joaquin River flows at Vernalis and CVP/SWP exports from the Delta and the maximum reverse flows within the Delta that CVP/SWP pumping can cause.

operations of the CVP and SWP, as proposed, were "likely to jeopardize" the continued existence of Sacramento River winter run Chinook salmon, Central Valley spring run Chinook salmon, Central Valley steelhead, and the southern Distinct Population Segment (DPS) of North American green sturgeon. They also concluded that continued CVP/SWP operations were "likely to destroy or adversely modify" designated or proposed critical habitat of these species.

The NMFS concluded that Reclamation and DWR (the "water projects") both "directly altered the hydrodynamics of the Sacramento-San Joaquin River basins and have interacted with other activities affecting the Delta to create an altered environment that adversely influences salmonid and green sturgeon population dynamics." Within the Delta, the NMFS opinion identified adverse effects which include: water diversion from the north Delta into the Delta interior; enhance vulnerability of juvenile salmonids to entrainment at the export pumping facilities; enhanced vulnerability of San Joaquin River steelhead to direct entrainment and export-related changes in Delta hydrodynamics; and direct mortality of salmonids due to entrainment at the export pumps. To address these issues, the NMFS described six actions within RPA IV to be taken in the Delta:

- Action IV.1 – Modify Delta Cross Channel gate operations and evaluate methods to control access to Georgiana Slough and the Interior Delta to reduce diversion of listed fish from the Sacramento River into the southern or central Delta.
- Action IV.2 – Control the net negative flows toward the export pumps in OMR to reduce the likelihood that fish will be diverted from the San Joaquin or Sacramento River into the southern or central Delta.
- Action IV.3 – Curtail exports when protected fish are observed near the export facilities to reduce mortality from entrainment and salvage.
- Action IV.4 – Improve fish screening and salvage operations to reduce mortality from entrainment and salvage.
- Action IV.5 – Establish a technical group to assist in determining real-time operational measures, evaluating the effectiveness of the actions, and modifying them if necessary.
- Action IV.6 – Do not implement the South Delta Barriers Improvement Program.

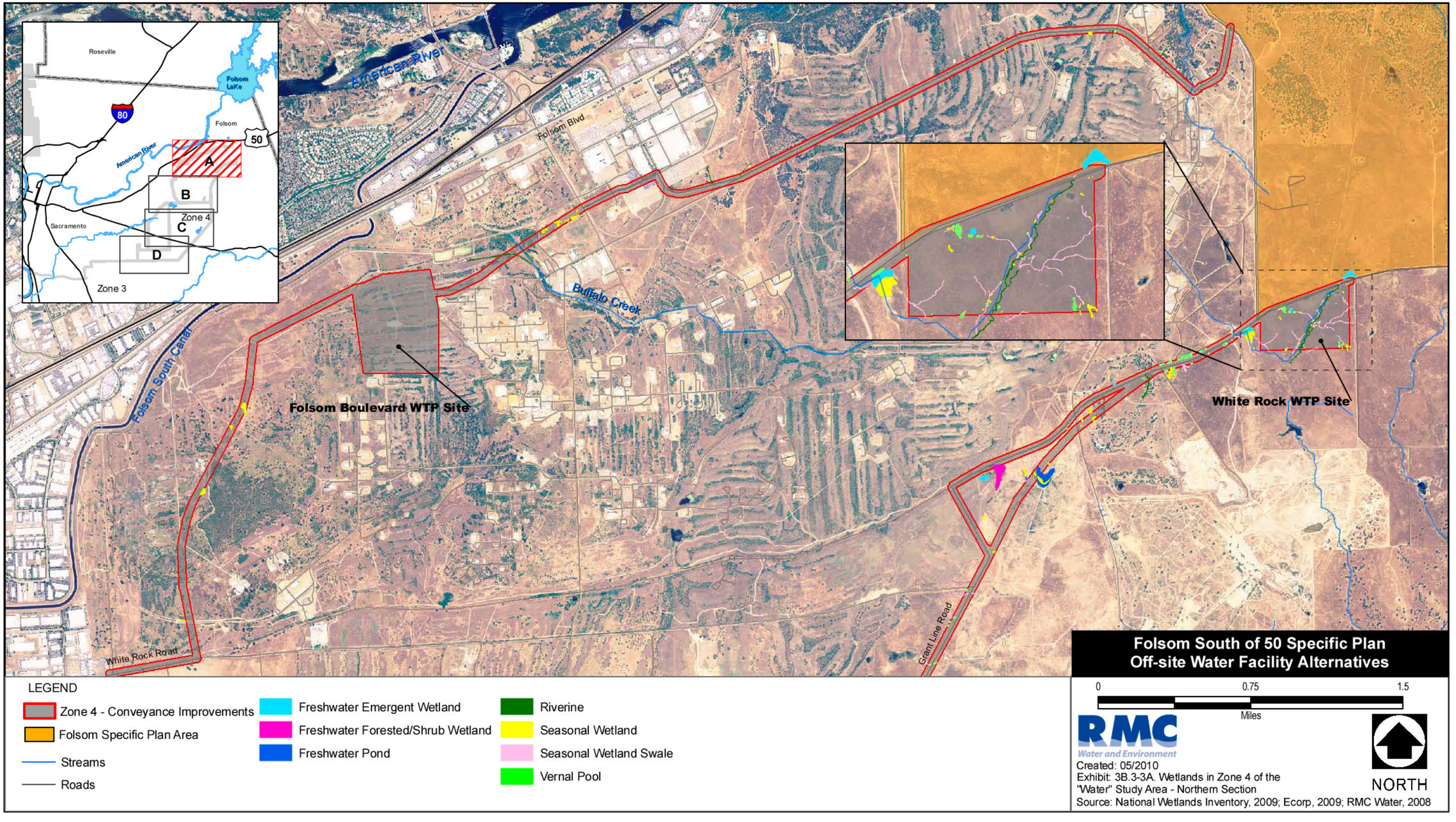
### *Essential Fish Habitat for Pacific Salmon*

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH). The EFH designation applies to all species managed under a Federal Fishery Management Plan (FMP). In California, the FMP for salmon designates the mainstem Sacramento River as EFH (Pacific Fisheries Council 1999).

## STATE PLANS, POLICIES, REGULATIONS, AND LAWS

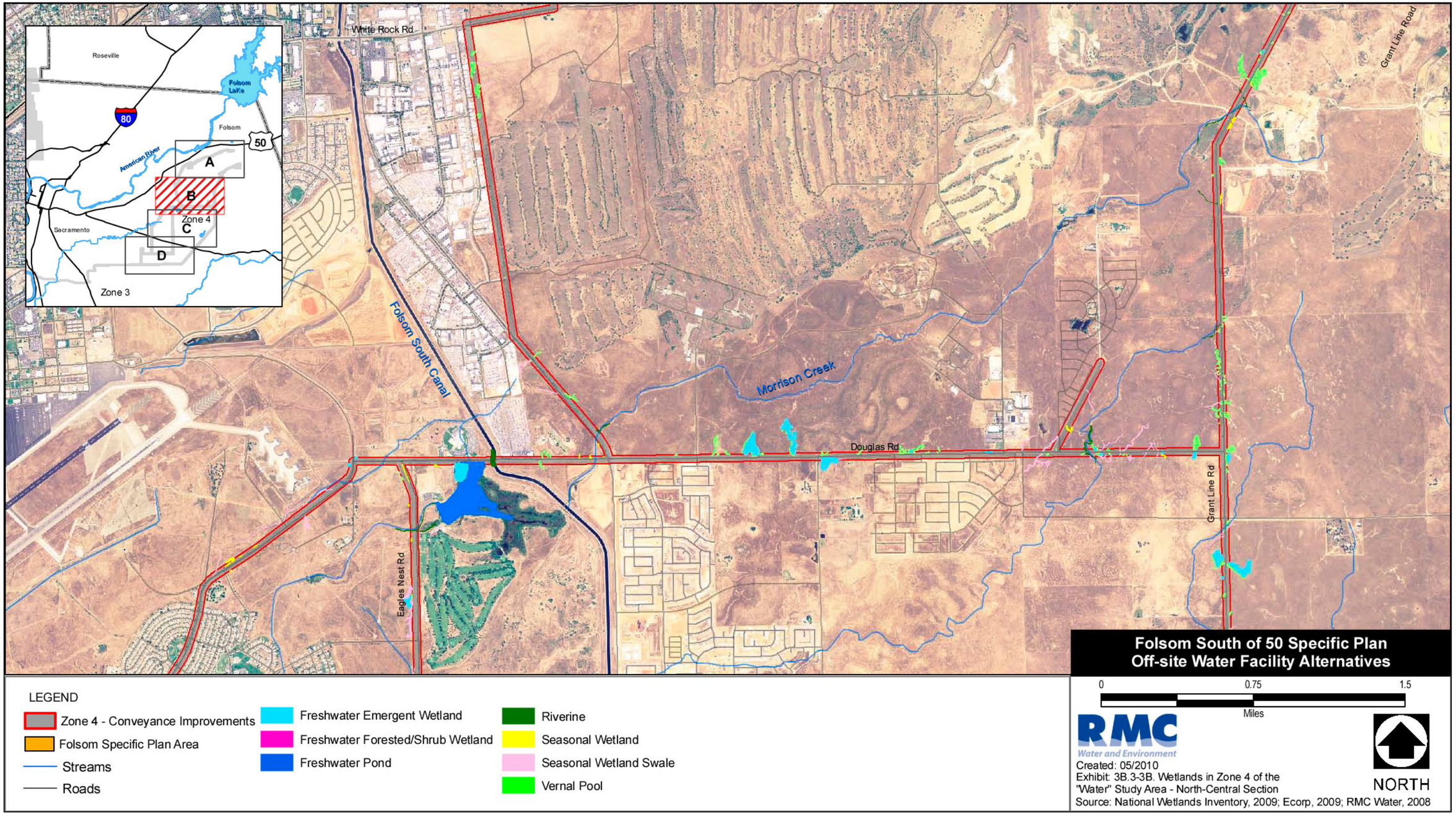
The following state plans, policies, regulations, and laws related to biological resources are relevant to the Off-site Water Facilities Alternatives, and are described in detail in Section 3A.3, "Biological Resources – Land:"

- California Endangered Species Act
- California Public Resources Code Section 21083.4 (Oak Woodlands)
- Section 1602 of the California Fish and Game Code
- Porter-Cologne Water Quality Control Act
- California Fish and Game Code Section 3503.5 (Protection of Raptors)

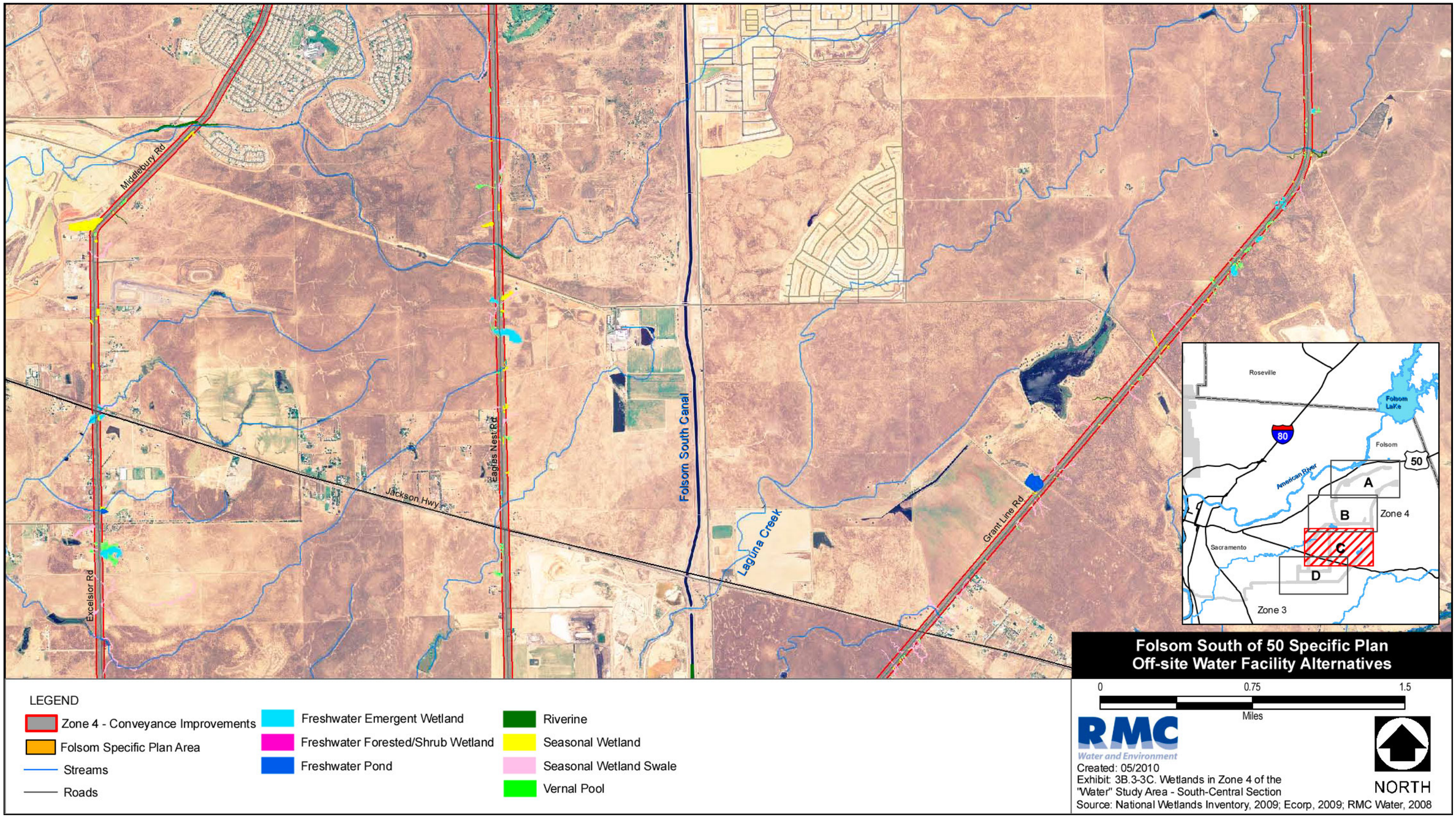



**Wetland Areas in Northern Section of Zone 4**

**Exhibits 3B.3-3A**

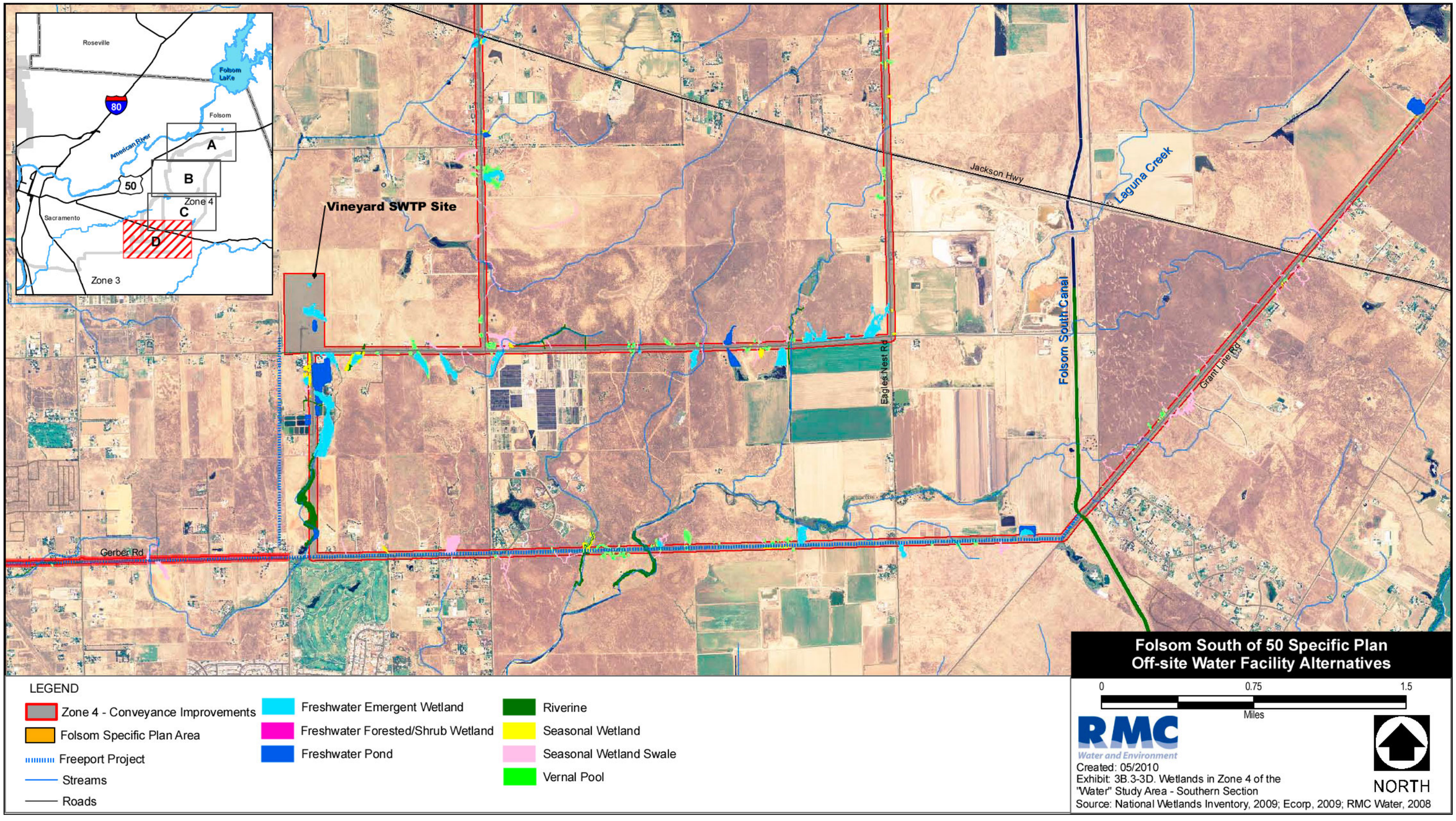



**Wetland Areas in North-Central Section of Zone 4** **Exhibits 3B.3-3B**




**Wetland Areas in South-Central Section of Zone 4**

**Exhibits 3B.3-3C**




**Wetland Areas in Southern Section of Zone 4**

**Exhibits 3B.3-3D**

### DFG 2081 Incidental Take Permit (ITP) for Longfin Smelt

The DFG issued an ITP pursuant to Fish and Game Code section 2081 to the DWR on February 23, 2009 for the on-going and long-term operation of SWP facilities in the Delta for the protection of longfin smelt. For the most part the 2081 ITP conditions of approval prescribe OMR flow requirements that are also included in the FWS OCAP BO. These requirements are designed to protect adult longfin smelt migration and spawning during the December through February period and larval and juvenile longfin smelt during the January through June period. For the adults (December through February) DFG identified OMR flows no more negative than -5,000 cfs. For the larval/juvenile longfin smelt period, they identified OMR flows no more negative than -1,250 to -5,000 cfs, January through March, no more negative than -2,000 to -5,000, April and May, and no more negative than -5,000 cfs during June.

## REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

The following regional and local plans, policies, regulations, and laws related to biological resources are relevant to the Off-site Water Facilities Alternatives, and are described in detail in Section 3A.3, "Biological Resources – Land:"

- Sacramento County General Plan, Conservation and Open Space Elements
- Sacramento County Swainson's Hawk Ordinance
- Sacramento County Tree Preservation Ordinance
- Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

### Sacramento County General Plan

The Open Space Element of the County General Plan provides policies and strategies to conserve biological resources. Open space areas, including wetlands, waterways, oak woodlands, and grasslands, have been designated as part of the land use element. No portions of the Off-site Water Facilities Study Area have been designated as open space areas in the General Plan; however, wetlands, riparian habitat, and oak woodlands are present and may require compliance with the Conservation and Open Space Elements.

As indicated in Chapter 1B, Sacramento County currently released a draft of its 2025 General Plan; however, this update to the General Plan is not expected to be adopted until sometime in late 2010.

### South Sacramento Habitat Conservation Plan

The proposed South Sacramento Habitat Conservation Plan (SSHCP) is a regional approach to conserving species and addressing issues related to urban development, habitat conservation, open space protection, and agricultural protection. The SSHCP would consolidate environmental efforts to protect and enhance vernal pool habitat and other aquatic and upland habitats to provide ecologically viable conservation areas in south Sacramento County for numerous species. Adoption of the SSHCP would authorize Sacramento County and its partners to issue permits that allow landowners to engage in specific development activities (covered activities) that could result in the incidental take of listed species. Sacramento County and its partners would adopt a developer-paid fee based on loss of habitat acreage, habitat type and long-term management costs. Fees would fund the habitat preservation, restoration and management elements of the proposed SSHCP.

The SSHCP will cover 40 species, 10 of which are either state or Federally listed. Sacramento County and its partners intend to apply for permits from the USFWS and the DFG for the incidental take of covered species resulting from otherwise lawful activities. Many of these species are documented within Zone 4 of the "Water" Study Area. The anticipated duration of the permit would be 30 years. Pursuant to the Federal ESA, Sacramento County and cooperating agencies, organizations, and stakeholders must prepare a regional habitat conservation plan (HCP) as part of their application for the Federal incidental take permit.

Sacramento County and USFWS issued a notice of preparation for the preparation of an EIR/EIS in June 2008. A draft of the SSHCP was released for public review in October of 2009. Zone 4 of the "Water" Study Area overlaps with portions of the SSHCP plan area. Due to uncertainties regarding the timing of the SSHCP process along with the expected approval date, the City has assumed a potential adoption date of early 2011.

### Natomas Basin Habitat Conservation Plan

The adoption of the (1994) North Natomas Community Plan required the development and implementation of a HCP as mitigation for development in North Natomas. The purpose of the Natomas Basin Habitat Conservation Plan (NBHCP) is to promote biological conservation along with economic development and continuation of agriculture within the Natomas Basin. The Final NBHCP was released in April 2003, and approved by USFWS in June, 2003. The NBHCP covers 7 plant and 15 animal species, including giant garter snake.

Under the NBHCP, development projects must pay mitigation fees related to the acreage that will be disturbed by the project, conduct a biological survey for covered species, consult with USFWS and DFG regarding the results of the survey, and implement measures required by the agencies to avoid and minimize impacts to covered species. No physical disturbance to the site is permitted until the above conditions have been met.

### City of Rancho Cordova

The following goals and policies of the City of Rancho Cordova's General Plan related to the protection of biological resources and applicable to one or more components of the Off-site Water Facilities Alternatives are as follows.

**Goal NR1:** Protect and preserve diverse wildlife and plant habitats, including habitat for special status species.

**Goal NR.2:** Preserve the City's rich and diverse natural wetlands.

**Goal NR.3:** Preserve and maintain creek corridors and wetland preserves with useable buffer zones throughout the new development areas as feasible.)

**Goal NR.4:** Encourage the planting and preservation of high-quality trees throughout the City.

**Goal NR.5:** Protect the quantity and quality of the City's water resources.

- **Policy NR.1.1:** Protect rare, threatened, and endangered species and their habitats in accordance with State and federal law.
- **Policy NR.1.2:** Conserve Swainson's hawk habitat consistent with State policies and Department of Fish and Game guidelines.
- **Policy NR.1.4:** Discourage the planting of invasive species.
- **Policy NR.1.5:**Ensure the protection of wildlife through the establishment of programs to control feral pet populations.
- **Policy NR.1.6:** Participate in the development of a habitat conservation plan to address the unique biological resources in Rancho Cordova.
- **Policy NR.1.7:** Prior to project approval, the City shall require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain listed plant and/or wildlife species based upon the City's biological resource mapping provided in the General Plan EIR or other technical materials.

- **Policy NR.1.9:** The City shall require that impacts to riparian habitats be mitigated at a no net loss of existing function and value based on field survey and analysis of the riparian habitat to be impacted. No net loss may be accomplished by avoidance of the habitat, restoration of existing habitat, or creation of new habitat, or through some combination of the above.

- **Policy NR.2.2:** Ensure that direct and indirect effects to wetland habitats are minimized by environmentally sensitive project siting and design, to the maximum extent feasible.

- **Policy NR.2.5:** The City shall require that drainage improvements that discharge into areas of wetlands to be preserved are, to the maximum extent feasible, designed to mimic the undeveloped surface water flow conditions of the area in terms of seasonality, volume, and flow velocity.

- **Policy NR.3.2:** In general, the City will encourage the preservation of existing location, topography, and meandering alignment of creeks. Where necessary, and if consistent with other City policies, the creation and realignment of creek corridors shall be constructed to recreate the character of the natural creek corridor. Channelization and the use of concrete within creek corridors shall not be supported.

- **Policy NR.4.1:** Conserve native oak and landmark tree resources for their historic, economic, aesthetic, educational, and environmental value.

## 3B.3.3 Environmental Consequences and Mitigation Measures

### Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. For the purposes of this analysis, an impact to biological resources would be considered significant if the construction or operation of the Off-site Water Faculty Alternatives 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 the California Department of Fish and Game, National Marine Fisheries Service, or U.S. Fish and Wildlife Service;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game, National Marine Fisheries Service, or U.S. Fish and Wildlife Service;

- have a substantial adverse effect on Federally protected (or jurisdictional) wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands) 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 wildlife nursery sites;

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

## ANALYSIS METHODOLOGY

This section provides a program-level analysis of potential impacts to local biological resources based on the description of the various Off-site Water Facility Alternative components and their respective footprints as identified and described in Chapter 2, "Alternatives." The impact analysis focuses on foreseeable changes to the baseline condition in the context of the significance criteria presented above. In conducting the following impact analysis for biological resources, three principal factors were taken into consideration when determining the significance of the Off-site Water Facilities:

- magnitude of the impact (e.g., substantial/not substantial);
- uniqueness of the affected resource (i.e., rarity of the resource); and
- susceptibility of the affected resource to disturbance (i.e., sensitivity of the resource).

The significance evaluation considers the interrelationship of these three components. For example, a relatively small magnitude impact to a state or Federally listed species or associated habitat would be considered significant if the species is very rare and is believed to be very susceptible to disturbance (e.g., vernal pool fairy shrimp). Conversely, common wildlife species found in urban areas are not rare or sensitive to disturbance. Therefore, a much larger magnitude of impact would be required to result in a significant impact.

As provided in Section 3B.9, "Hydrology and Water Quality – Water," the hydrological changes within the Natomas Basin, Sacramento River, and Freeport Project – or Zones 1, 2, and 3 of the Off-site Water Facilities Study Area – as a result of Off-site Water Facilities operations are expected to be minor with minimal changes to existing hydrologic conditions. This analysis acknowledges these findings and, therefore, places emphasis on potential impacts to special status species, wetlands, and sensitive habitats that occur within the 200-foot corridor under consideration for each of the Off-site Water Facility Alternatives. These improvements would be exclusively constructed within Zone 4 of the "Water" Study Area and, therefore, this analysis emphasizes those Zone 4 areas. Potential impacts to biological resources within the Folsom SPA, including issues related to the On-site WTP and sections of the pipeline for the Proposed Alternative along Oak Avenue are covered programmatically in Section 3A.3.3. Impacts to biological resources and fisheries within Zones 1, 2, and 3 as a result of operational effects to hydrology within the Sacramento River and drainage return flows within the NCMWC are also considered in this analysis and evaluated under separate subheadings, where appropriate, to provide the appropriate geographic context for the discussion.

The analysis of impacts to biological resources resulting from implementation of the Off-site Water Facility alternatives is based on review of existing biological resources, including wetlands and fisheries, documented on or within 5-miles of Zone 4 of the "Water" Study Area. Sources of information contributing to this analysis were obtained from the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) databases, National Wetlands Inventory, and reconnaissance-level surveys of accessible areas by RBI on October 6–7, 2008 (RBI 2008) and ECORP, Inc. during the months of October and November in 2008 (ECROP 2009). These background reports and databases included identification of vegetation communities, wildlife habitats, and animal species occurring in Zone 4 of the "Water" Study Area. The reconnaissance survey did not include areas that were inaccessible due to private property fencing, construction activities, or the area from the intersection of Sunrise Boulevard and Douglas Boulevard to the intersection of Prairie City Road and Easton Valley Parkway. Both sides of roads in the project area were surveyed by foot and by automobile, as appropriate. The following sources were reviewed to augment field reconnaissance, reports, and databases noted above in instances where access was restricted:

- Rio del Oro Specific Plan EIR/EIS;
- Freeport Regional Water Project EIR/EIS;
- Easton Project EIR; and

- White Rock Road Widening Project, Phases A, B, and C, EIR.

The Freeport Regional Water Project EIR/EIS provides extensive detail regarding the terrestrial biological and fishery resources present within Zones 2 and 3 and is incorporated by reference into this EIR/EIS. Discussions of the potential impacts to fisheries and aquatic species within Zones 1, 2, 3, and 4 incorporate and, where appropriate, summarize the findings of Freeport Project EIR analysis.

## IMPACT ANALYSIS

Impacts that would occur under each of the Off-site Water Facility Alternatives are identified as follows:

NCP (No USACE Permit Alternative)

PA (Proposed Off-site Water Facility Alternative)

1 (Off-site Water Facility Alternative 1 – Raw Water Conveyance – Gerber/Grant Line Road Alignment and White Rock WTP)

1A (Off-site Water Facility Alternative 1A Raw Water Conveyance – Gerber/Grant Line Road Alignment Variation and White Rock WTP)

2 (Off-site Water Facility Alternative 2 Treated Water Conveyance – Douglas Road Alignment and Vineyard SWTP)

2A (Off-site Water Facility Alternative 2A Treated Water Conveyance – Excelsior Road Alignment Variation and Vineyard SWTP)

2B (Off-site Water Facility Alternative 2B Treated Water Conveyance – North Douglas Tanks Variation and Vineyard SWTP)

3 (Off-site Water Facility Alternative 3 Raw Water Conveyance – Excelsior Road Alignment and White Rock WTP)

3A (Off-site Water Facility Alternative 3A Raw Water Conveyance – Excelsior Road Alignment Variation and White Rock WTP)

4 (Off-site Water Facility Alternative 4 Raw Water Conveyance – Easton Valley Parkway Alignment and Folsom Boulevard WTP)

4A (Off-site Water Facility Alternative 4A Raw Water Conveyance – Easton Valley Parkway Alignment Variation and Folsom Boulevard WTP).

The impacts for each alternative are compared relative to the PA at the end of each impact conclusion (i.e., similar, greater, lesser).

IMPACT 3B.3-1 **Loss and Degradation of Waters of the U.S., including Wetlands, and Waters of the State.** *Construction of the Off-site Water Facility Alternatives has the potential to result in substantial adverse effects to Federally and state-protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to vernal pools and seasonal wetlands) through direct fill or excavation, hydrological interruption, or other indirect impacts. Wetlands, waters of the state, and other waters of the U.S. that would be affected by implementation of the Off-site Water Facility Alternatives include seeps, vernal pools, seasonal wetlands and seasonal wetland swales, drainage channels, ditches, and ponds.*

### NCP

The No USACE Permit Alternative would be specifically designed so that the off-site water supply facilities would not result in any direct impacts (i.e., fill) to water of the United States, including wetlands. Under this

alternative, where the water conveyance facilities intersect waters of the U.S., the City would employ the use of trenchless construction methods, including but not limited to, horizontal directional drilling, microtunneling, or jack-and-bore. Furthermore, the new water treatment plant, whether on-site or off-site, would not be constructed within 50 feet of any waters of the U.S. Therefore, there would be **no direct** impacts from fill of jurisdictional waters of the U.S. ***[Lesser].***

However, there is a potential that indirect impacts, such as transport of sedimentation from construction activities, could still occur. Therefore, **indirect** impacts are considered **potentially significant.** ***[Lesser]***

Mitigation Measure: Implement Mitigation Measure 3B.3-1b and 3A.3-1a.

PA

Construction and operations of the Proposed Off-site Water Facility Alternative could involve construction-related, direct and indirect impacts to wetlands and waters of the U.S. within Zone 4 of the "Water" Study Area. A total of approximately 50.7 acres of waters of the U.S., including wetlands and vernal pools, occurs within the 200-foot pipeline corridor under consideration for these alternatives. Based on the hydrological changes anticipated within Zones 1 and 2 as a result of the Proposed Off-site Water Facility Alternative as described in more detail in Section 3B.9, Hydrology and Water Quality – "Water," these operational changes could affect existing riparian vegetation along the Sacramento River. These separate, interconnected impacts are discussed in more detail under the following subheadings. The analysis of potential wetland impacts for On-site WTP is covered under Section 3A.3, Biological Resources – "Land."

### Construction Effects within Zone 4 of the "Water" Study Area

Implementation of the Proposed Off-site Water Facility Alternative could result in direct and indirect impacts to waters of the U.S. as result of the placement of fill materials or excavation within jurisdictional waters of the U.S., including wetlands within the pipeline corridor for the Proposed Off-site Facility Alternative. In reality, construction of the Off-site Water Facility Alternatives would be expected to affect a corridor of less than 100 feet in width and, to the extent feasible, the City would route the pipeline alignment to avoid waters of the U.S.; especially within the permanent easement. For this reason and to enable preliminary evaluation, the City has evaluated both sides of the corridor under consideration to determine where reductions in direct and indirect wetland impacts could be achieved. The left and right sides of the alignment corridor are defined as the sides of the roadway when facing in the direction of flow (i.e., facing toward the SPA, with the source of water or Freeport Project at the observer's back).

The 200-foot corridor for the Proposed Off-site Water Facility Alternative contains a total of $\pm$12.9 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of the conveyance pipeline and WTP under this alternative. As shown in the table, along the left half of the two-hundred-foot corridor up to 0.53 acres of seasonal wetland, 0.96 acres of seasonal wetland swale, 2.01 acres of vernal pools, 0.5 acres of riverine habitat, 1.28 acres of freshwater emergent wetland, and 0.44 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the two-hundred-foot corridor, up to 1.09 acres of seasonal wetland, 1.18 acres of seasonal wetland swale, 3.12 acres of vernal pools, up to 1.09 acres of freshwater emergent wetland, 0.16 acres of riverine habitat, and 0.12 acres of freshwater forested/willow scrub could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction.

The potential for direct and indirect impacts to wetlands and waters of the U.S. exists. A majority of the direct effects would occur in areas where the conveyance alignment deviates outside the actual roadway or right-of-way and intersects with wetlands or other waters of the U.S. Although the City would to the maximum extent practical, route the conveyance pipeline along roadways or within portions of the roadway shoulder not containing wetlands, the possibility for the construction and permanent easement to impact wetlands directly or indirectly is

high given the number and frequency of potentially jurisdictional features. Additionally, this alternative travels cross-country, east of the end of Gerber Road and through an area containing vernal pools and riverine channels associated with Laguna Creek. This area contains a wetland preserve area immediately to the south of East Bay Municipal Utility District's (EBMUD's) easement for Segment 3 of the Freeport Project.

**Table 3B.3-4**
**Summary of Wetland Impacts for the Off-site Water Facility Alternatives[a]**

| Wetland Type | PA | | 1 [(1)] | | 1A[(1)] | | 2 | | 2A | | 2B | | 3[(1)] | | 3A[(1)] | | 4[(2)] | | 4A[(2)] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *L* [3] | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* |
| Freshwater Emergent Wetland | 1.28 | 1.09 | 1.08 | 0.93 | 1.05 | 0.93 | 3.26 | 3.93 | 1.24 | 3.24 | 0.53 | 0.21 | 3.36 | 4.03 | 1.34 | 3.34 | 2.57 | 2.67 | 0.58 | 1.98 |
| Seasonal wetland | 0.53 | 1.09 | 0.76 | 1.29 | 0.88 | 1.45 | 1.10 | 1.70 | 2.08 | 1.66 | 0.61 | 0.14 | 1.31 | 1.91 | 2.29 | 1.87 | 1.48 | 1.94 | 2.34 | 1.72 |
| Seasonal wetland swale | 0.96 | 1.18 | 1.30 | 1.55 | 1.31 | 1.55 | 1.28 | 0.70 | 0.79 | 0.58 | 0.23 | 0.26 | 1.64 | 1.06 | 1.15 | 0.94 | 1.04 | 0.46 | 0.56 | 0.34 |
| Vernal Pool | 2.01 | 3.12 | 2.34 | 3.36 | 2.36 | 3.35 | 2.73 | 2.08 | 2.36 | 1.99 | 1.06 | 1.11 | 3.07 | 2.42 | 2.70 | 2.33 | 1.51 | 1.81 | 1.14 | 1.72 |
| Riverine | 0.50 | 0.16 | 0.67 | 0.76 | 0.68 | 0.76 | 3.22 | 1.86 | 3.20 | 1.81 | 0.14 | 0.09 | 3.39 | 2.03 | 3.37 | 1.98 | 3.18 | 1.76 | 3.15 | 1.71 |
| Seasonal Pond | 0.44 | | 0.43 | | 0.62 | 0.26 | 0.35 | 3.07 | 0.39 | 3.29 | | | 0.35 | 3.07 | 0.39 | 3.29 | 0.40 | 3.01 | 0.25 | 2.98 |
| Freshwater Forested/ Willow Scrub | | 0.12 | | 0.13 | | | | 0.13 | | | 0.13 | | | 0.13 | | | | | | |
| **Subtotal (Waters of the U.S.)**[4] | 5.7 | 6.8 | 6.6 | 8.0 | 6.9 | 8.3 | 11.9 | 13.5 | 10.1 | 12.6 | 2.70 | 1.8 | 13.1 | 14.7 | 11.2 | 13.75 | 10.2 | 11.7 | 8.0 | 10.5 |
| **Grand Total*** | 12.9 | | 11.1 | | 12.8 | | 25.4 | | 22.7 | | 4.5 | | 25.4 | | 22.7 | | 21.9 | | 18.4 | |

Notes:

[a] The No USACE Permit Alternative would be sited to avoid all direct wetland impacts.

[1] Includes wetland areas on White Rock WTP site.

[2] Includes wetland areas on Folsom Boulevard WTP Site.

[3] L=left side of 200-foot corridor; R=right side of 200-foot corridor. Left and right sides of the alignment corridor are defined as the sides of the roadway when facing in the direction of flow (i.e., facing toward the SPA, with the Freeport Project at the observer's back).

[4] rounded to the nearest tenth.

Source: National Wetlands Inventory 2009; ECORP 2009; and RMC 2010

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative could be up to 6.8 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. Based on these considerations, impacts to wetlands and waters of the U.S. could be **potentially significant**.

### Operational Effects within Zones 1, 2, 3, and 4 of the "Water" Study Area

Section 3B.9.3 provides an analysis of the Off-site Water Facility's operation under a range of hydrologic conditions. Following construction of the Off-site Water Facilities, operational effects to waters of the U.S., including wetlands, would be expected to be limited to portions of Zone 1 and 2 (Sacramento River) where minor changes in surface water levels would occur. Minor changes in river conditions that would occur as part of the Off-site Water Facility operations (see Table 3B.9-3) would be expected to result in negligible changes in water levels within Sacramento River or drainage channels that expect irrigation return flow within the NCMWC service area. Based on these considerations, operation of the Proposed Off-site Water Facility Alternative would result in **less-than-significant direct** and **indirect** impacts to wetland and riparian areas within the hydrologic

influence of the Sacramento River within Zones 1 and 2 of the "Water" Study Area and drainage channels and irrigation canals with NCMWC's service area.

Mitigation Measure 3B.3-1a: Secure Clean Water Act Section 404 Permit and Implement All Permit Conditions; Ensure No Net Loss of Functions of Wetlands, Other Waters of the U.S., and Waters of the State.

Before the approval of grading and improvement plans and before any groundbreaking activity associated with the Off-site Water Facilities requiring fill of wetlands or other waters of the U.S. or waters of the state, the City shall obtain all necessary permits under Sections 401 and 404 of the CWA or the state's Porter-Cologne Water Quality Control Act for the respective phase. For each respective Off-site Water Facility component, all permits, regulatory approvals, and permit conditions for effects on wetland habitats shall be secured before implementation of any grading activities within 250 feet of waters of the U.S. or wetland habitats, including waters of the state, that potentially support Federally listed species. The City shall commit to replace, restore, or enhance on a "no net loss" basis (in accordance with USACE and the Central Valley RWQCB) the acreage of all wetlands and other waters of the U.S. that would be removed, lost, and/or degraded with implementation of project plans for that phase. Wetland habitat shall be restored, enhanced, and/or replaced at an acreage and location and by methods agreeable to USACE, the Central Valley RWQCB, and the City, as appropriate, depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes.

As part of the Section 404 permitting process, a draft wetland mitigation and monitoring plan (MMP) shall be developed for the selected Off-site Water Facility Alternative on behalf of the City. Before any ground-disturbing activities that would adversely affect wetlands and before engaging in mitigation activities associated with each phase of development, the City shall submit the draft wetland MMP to USACE and the Central Valley RWQCB for review and approval of those portions of the plan over which they have jurisdiction. The MMP would have to be approved prior to issuance of a Section 404 permit. Once the final MMP is approved and implemented, mitigation monitoring shall continue for a minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the performance standards identified in the approved MMP have been met, whichever is longer.

As part of the MMP, the City shall prepare and submit plans for the creation of aquatic habitat in order to adequately offset and replace the aquatic functions and services that would be lost, account for the temporal loss of habitat, and contain an adequate margin of safety to reflect anticipated success. Restoration of previously altered and degraded wetlands shall be a priority of the MMP for offsetting losses of aquatic functions on the project site because it is typically easier to achieve functional success in restored wetlands than in those created from uplands. The MMP must demonstrate how the aquatic functions and values that would be lost through project implementation will be replaced.

The habitat MMP for jurisdictional wetland features shall be consistent with USACE's and EPA's April 10, 2008 *Final Rule for Compensatory Mitigation for Losses of Aquatic Resources* (33 CFR Parts 325 and 332 and 40 CFR Part 230). According to the *Final Rule*, mitigation banks should be given preference over other types of mitigation because a lot of the risk and uncertainty regarding mitigation success is alleviated by the fact that mitigation bank wetlands must be established and demonstrating functionality before credits can be sold. This also alleviates temporal losses of wetland function while compensatory wetlands are being established. Mitigation banks also tend to be on larger, more ecologically valuable parcels and are subjected to more rigorous scientific study and planning and implementation procedures than typical permittee-responsible mitigation sites (USACE and EPA 2008). It is not likely feasible to provide compensatory mitigation for all aquatic resource impacts on site. Therefore, a combination of on-site and off-site permittee-responsible mitigation and mitigation banking would likely be necessary to achieve the no-net-loss standard.

Compensatory mitigation for losses of stream and intermittent drainage channels shall be achieved through in-kind preservation, restoration, or enhancement, as specified in the *Final Rule* guidelines. The wetland MMP shall address how to mitigate impacts on all aquatic resource types and shall describe specific method(s) to be implemented to avoid and/or mitigate any Off-site Water Facility-related impacts. The wetland compensation section of the habitat MMP shall include all the contents identified in Mitigation Measure 3A.3-1A.

USACE has determined that the Off-site Water Facilities may require an individual permit. In its final stage and once approved by USACE, the MMP for the Off-site Water Facilities is expected to detail proposed wetland restoration, enhancement, and/or replacement activities that would ensure no net loss of aquatic functions in the project vicinity. Approval and implementation of the wetland MMP shall aim to fully mitigate all unavoidable impacts on jurisdictional waters of the U.S., including jurisdictional wetlands. To satisfy the requirements of the City and the Central Valley RWQCB, mitigation of impacts on the non-jurisdictional wetlands beyond the jurisdiction of USACE shall be included in the same MMP. All mitigation requirements determined through this process shall be implemented before grading plans are approved. The MMP shall be submitted to USACE and approved prior to the issuance of any permits under Section 404 of the CWA.

Water quality certification pursuant to Section 401 of the CWA will be required before issuance of the Section 404 permit. Before construction in any areas containing wetland features, the City shall obtain water quality certification for the Off-site Water Facilities. Any measures required as part of the issuance of water quality certification shall be implemented.

**Implementation**: City of Folsom Utilities Department

**Timing**: Before the approval of grading or improvement plans or any ground-disturbing activities for all the Off-site Water Facilities containing wetland features or other waters of the U.S. The MMP must be approved before any impact on wetlands can occur. Mitigation shall be implemented on an ongoing basis throughout and after construction, as required.

**Enforcement**: 1. U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Game.

Mitigation Measure 3B.3-1b: Maximize Use of Trenchless Technology for Conveyance Pipeline Design.

Following the selection of a Off-site Water Facility Alternative, the City shall design and route the water conveyance pipeline to avoid waters of the U.S. and State, including wetlands and vernal pools, to the maximize extent practical. Where avoidance is not practical, the City shall maximize the use of trenchless technologies (micro-tunneling or jack-and-bore), where feasible.

All trenchless construction crossings will include the preparation of a Frac-Out (or inadvertent return of drilling lubricants) Contingency Plan for tunneling activities that use drilling lubricants (e.g., construction of pipelines using jack-and-bore methods). The purpose of the plan will be to minimize the potential for a frac-out associated with tunneling activities, provide for the timely detection of frac-outs, and ensure an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling lubricant (i.e., bentonite). Preparation and implementation of a Frac-Out Contingency Plan will be reflected in contract documents.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:** 1. U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Regional Water Quality Control Board, California Department of Fish and Game.

Mitigation Measure 3B.3-1c: Restore all Waters Impacted by Trenching and Temporary Construction Staging Areas to Pre-Project Contours and Conditions.

For all water line crossings of waters of the U.S. or waters of the state in which the use of trenchless technologies are not feasible, the City shall ensure that all waters impacted by trenching activities are restored to pre-project contours and conditions. In addition, within 30 days following project construction, the City shall ensure that all temporary construction staging areas within waters of the U.S. or waters of the state are restored to pre-project contours and conditions.

At minimum, the City shall ensure that the following measures are implemented during construction:

- Conduct trenching and construction activities across drainages during low-flow (e.g., <1 to 2 cfs) or dry periods as feasible;
- If working in active channels, install cofferdam upstream and downstream of stream crossing to separate construction area from flowing waterway;
- Place sediment curtains upstream and downstream of the construction zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone;
- Locate spoil sites such that they do not drain directly into the drainages or seasonal wetlands;
- Store equipment and materials away from the drainages and wetland areas. No debris will be deposited within 250 feet of the drainages and wetland areas;
- Prepare and implement a revegetation plan to restore vegetation in all temporarily disturbed wetlands and other waters using native species seed mixes and container plant material that are appropriate for existing hydrological conditions.

Before the approval of grading and improvement plans and before any groundbreaking activity associated with the Off-site Water Facilities requiring fill of wetlands or other waters of the U.S. or waters of the state, the City shall submit a wetland mitigation and monitoring plan (MMP) for the restoration of these waters within the selected water alignment to the USACE and Central Valley RWQCB for review and approval of those portions of the plan over which they have jurisdiction. The MMP would have to be approved prior to issuance of a Section 404 permit. Once the final MMP is approved and implemented, mitigation monitoring shall continue for a minimum of 5 years from completion of restoration activities, or human intervention (including recontouring and grading), or until the performance standards identified in the approved MMP have been met, whichever is longer.

At minimum, the MMP shall provide the following information:

- A description and drawings showing the existing contours (elevation) and existing vegetation of the waters of the U.S. and waters of the state that would be impacted through trenching activities. This information shall include site photographs taken at each impacted water.
- Methods used to ensure that trenching within waters of the U.S. and waters of the state do not adversely alter existing hydrology, including the draining of the waters (e.g., use of cut-off walls).

- The methods used to restore the site to the original contour and condition, as well as a plan for the revegetation of the site following installation of the water line.
- Proposed schedule for restoration activities.

**Implementation:** City of Folsom Utilities Department

**Timing:** Before the approval of grading or improvement plans or any ground-disturbing activities for all the Off-site Water Facilities containing wetland features or other waters of the U.S.

**Enforcement:**
1. U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Regional Water Quality Control Board, California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

Mitigation Measure: Implement Mitigation Measure 3A.3-1a.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:**
1. U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Regional Water Quality Control Board, California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

1

Off-site Water Facility Alternative 1 would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility. Unlike the previous alternative, this alternative would involve the construction of the off-site White Rock WTP. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative.

The 200-foot corridor and WTP site for Off-site Water Facility Alternative 1 contain a total of ±11.1 acres of waters of the U.S., including wetlands and vernal pools. The left half of the 200-hundred-foot corridor contains up to 0.76 acres of seasonal wetland, 1.3 acres of seasonal wetland swale, 2.34 acres of vernal pools, 0.67 acres of riverine habitat, 1.08 acres freshwater emergent wetland, and 0.43 acres of freshwater pond that could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the two-hundred-foot corridor, up to 1.29 acres of seasonal wetland, 1.55 acres of seasonal wetland swale, 3.36 acres of vernal pools, 0.76 acres of riverine habitat, 0.93 acres freshwater emergent wetland, and 0.13 acres of freshwater forested/ willow scrub could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction.

Of these wetland acreages, up to 0.21 acres of seasonal wetland, 0.36 acres of seasonal wetland swale, 0.34 acres of vernal pools, and 0.17 acres of riverine habitat, and 0.1 acres of freshwater emergent wetland, are included on the White Rock WTP site (ECORP, 2009). These wetland features are primarily associated with a seasonal drainage feature that traverse the White Rock WTP site diagonally from northeast to southwest.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 8.0 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. For these reasons, this impact is considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

1A

Off-site Water Facility Alternative 1A would involve similar construction and operational activities as previously described for Off-site Water Facility Alternative 1. The 200-foot corridor for Alternative 1A contains a total of ±12.8 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left half of the two-hundred-foot corridor, up to 0.88 acres of seasonal wetland, 1.31 acres of seasonal wetland swale, 2.36 acres of vernal pools, 0.68 acres of riverine habitat, 1.05 acres freshwater emergent wetland, and 0.62 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the two-hundred-foot corridor, up to 1.45 acres of seasonal wetland, 1.55 acres of seasonal wetland swale, 3.35 acres of vernal pools, 0.76 acres of riverine habitat, 0.93 acres freshwater emergent wetland, and 0.26 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Of these wetland acreages, up to 0.21 acres of seasonal wetland, 0.36 acres of seasonal wetland swale, 0.34 acres of vernal pools, and 0.17 acres of riverine habitat, and 0.1 acres of freshwater emergent wetland are included on the White Rock WTP site.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 8.3 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. Based on these considerations, impacts to wetlands and waters of the U.S. could be **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

2

Off-site Water Facility Alternative 2 would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility; however, this alternative would not involve the construction of a WTP. The 200-foot corridor for Off-site Water Facility Alternative 2 contains a total of ±22.7 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. Along the left half of the 200-foot corridor, up to 1.1 acres of seasonal wetland, 1.28 acres of seasonal wetland swale, 2.73 acres of vernal pools, 3.22 acres of riverine habitat, 3.26 acres freshwater emergent wetland, and 0.35 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the 200-foot corridor, up to 1.7 acres of seasonal wetland, 0.7 acres of seasonal wetland swale, 2.08 acres of vernal pools, 1.86 acres of riverine habitat, 3.93 acres freshwater emergent wetland, 3.07 acres of freshwater pond, and 0.13 acres of freshwater forested/willow scrub could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. In addition, the Vineyard SWTP sites contains just under 3.6 acres of wetlands, mainly in the form of freshwater emergent marsh; however, as provided in Chapter 2, "Alternatives," improvements associated

with this alternative would be limited to the developed footprint of the SWTP and, therefore, these wetland areas are not included in the acreage estates for this alternative.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 25.4 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Eagles Nest Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternatives, and the **direct** and **indirect** impacts are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

2A

Off-site Water Facility Alternative 2A would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility; however, this alternative would not involve the construction of a WTP. The 200-foot corridor for Off-site Water Facility Alternative 2A contains a total of ±22.7 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left half of the 200-foot corridor, up to 2.08 acres of seasonal wetland, 0.79 acres of seasonal wetland swale, 2.36 acres of vernal pools, 3.20 acres of riverine habitat, 1.24 acres freshwater emergent wetland, and 0.39 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the two-hundred-foot corridor, up to 1.66 acres of seasonal wetland, 0.58 acres of seasonal wetland swale, 1.99 acres of vernal pools, 1.81 acres of riverine habitat, 3.24 acres freshwater emergent wetland, and 3.29 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. In addition, the Vineyard SWTP sites contains just under 3.6 acres of wetlands, mainly in the form of freshwater emergent marsh; however, as provided in Chapter 2, "Alternatives," improvements associated with this alternative would be limited to the developed footprint of the SWTP and, therefore, these wetland areas are not included in the acreage estates for this alternative.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 12.6 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Excelsior Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternative, and the **direct** and **indirect** impacts are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

2B

Off-site Water Facility Alternative 2B would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility; however, this alternative would not involve the construction of a WTP. Additionally, the conveyance pipeline alignment under this alternative has a substantially reduced length. The 200-foot corridor for Off-site Water Facility Alternative 2B contains a total of ±4.5 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left half of the 200-foot corridor, up to 0.61 acres of seasonal wetland, 0.23 acres of seasonal wetland swale, 1.06 acres of vernal pools, 0.14 acres of riverine habitat, 0.53 acres freshwater emergent wetland, and 0.13 acres of freshwater forested/ willow scrub could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right

half of the 200-hundred-foot corridor, up to 0.14 acres of seasonal wetland, 0.26 acres of seasonal wetland swale, 1.11 acres of vernal pools, 0.09 acres of riverine habitat, and 0.21 acres freshwater emergent wetland, could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 2.7 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With the substantially reduced distance of the conveyance alignment, the magnitude of wetland impacts would be less under this alternative as compared to the Proposed Off-site Water Facility Alternative,and the **direct** and **indirect** impacts are considered **potentially significant**. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

3

Off-site Water Facility Alternative 3 would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility and Off-site Water Facility Alternative 1. The 200-foot corridor for Off-site Water Facility Alternative 3 contains a total of ±25.4 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left half of the 200-foot corridor, up to 1.31 acres of seasonal wetland, 1.64 acres of seasonal wetland swale, 3.07 acres of vernal pools, 3.39 acres of riverine habitat, 3.36 acres freshwater emergent wetland, and 0.35 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the two-hundred-foot corridor, up to 1.91 acres of seasonal wetland, 1.06 acres of seasonal wetland swale, 2.42 acres of vernal pools, 2.03 acres of riverine habitat, 4.03 acres freshwater emergent wetland, 3.07 acres of freshwater pond, and 0.13 acres of freshwater forested/willow scrub could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Of these wetland acreages, up to 0.21 acres of seasonal wetland, 0.36 acres of seasonal wetland swale, 0.34 acres of vernal pools, 0.17 acres of riverine habitat, and 0.1 acres of freshwater emergent wetland, are included on the White Rock WTP site.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 14.7 acres Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Excelsior Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternative, and the **direct** and **indirect** impacts are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

3A

Off-site Water Facility Alternative 3A would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility and Off-site Water Facility Alternative 1. The 200-foot corridor for Off-site Water Facility Alternative 3A contains a total of ±22.7 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left half of the 200-foot corridor, up to 2.29 acres of seasonal wetland, 1.15 acres of seasonal wetland swale, 2.7 acres of vernal pools, 3.37 acres of riverine habitat, 1.34 acres freshwater emergent wetland, and 0.39 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right half of the 200-foot corridor, 1.87 acres of seasonal wetland, 0.94 acres of seasonal wetland swale, 2.33 acres of vernal pools, 1.98 acres of riverine habitat,

up to 3.34 acres freshwater emergent wetland, and 3.29 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Of these wetland acreages, up to 0.21 acres of seasonal wetland, 0.36 acres of seasonal wetland swale, 0.34 acres of vernal pools, 0.17 acres of riverine habitat, and 0.1 acres of freshwater emergent wetland, are included on the White Rock WTP site.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 13.75 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Excelsior Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternative, and the **direct** and **indirect** impacts are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

4

Off-site Water Facility Alternative 4 would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility; however, the WTP under this alternative would be constructed within a more urbanized environment and no wetland features delineated on the Folsom Boulevard WTP site. Instead, a series of linear willow scrub habitats totaling approximately 18.4 acres has formed in between some of the dredge tailings. The 200-foot corridor for Off-site Water Facility Alternative 4 contains a total of $\pm$21.9 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left, 100 feet of the corridor, up to 1.48 acres of seasonal wetland, 1.04 acres of seasonal wetland swale, 1.51 acres of vernal pools, 3.18 acres of riverine habitat, 2.57 acres freshwater emergent wetland, and 0.40 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right, 100 feet of the corridor, up to 1.94 acres of seasonal wetland, 0.46 acres of seasonal wetland swale, 1.81 acres of vernal pools, 1.76 acres of riverine habitat, 2.68 acres freshwater emergent wetland, and 3.01 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 11.7 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Eagles Nest Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternative. Both **direct** and **indirect** impacts to wetlands under this alternative are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

4A

Off-site Water Facility Alternative 4A would involve similar construction and operational activities as previously described for the Proposed Off-site Water Facility; however, the WTP under this alternative would be constructed within a more urbanized environment with no delineated wetland features. The 200-foot corridor for Off-site Water Facility Alternative 4A contains a total of $\pm$18.4 acres of waters of the U.S., including wetlands and vernal pools. Table 3B.3-4 provides a breakdown of the different wetland types potentially impacted by construction of this alternative. As shown along the left, 100 feet of the corridor, up to 2.34 acres of seasonal wetland, 0.56 acres of seasonal wetland swale, 2.01 acres of vernal pools, 3.15 acres of riverine habitat, 0.58 acres freshwater emergent wetland, and 0.25 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction. Along the right, 100 feet of the corridor, up to 1.72 acres of seasonal

wetland, 0.34 acres of seasonal wetland swale, 1.72 acres of vernal pools, 1.71 acres of riverine habitat, 1.98 acres freshwater emergent wetland, and 2.98 acres of freshwater pond could be subject to fill, excavation, or indirect impacts (e.g., sedimentation) during construction.

Based on the preliminary estimates provided in Table 3B.3-4, the potential **direct** and **indirect** impacts to waters of the U.S., including wetlands, under this alternative during construction could be up to 10.4 acres. Because the City has not yet completed project specific engineering details for this alternative, the actual impacts to waters of the U.S., including wetlands, cannot be determined. With additional wetland areas potentially affected along Excelsior Road, the magnitude of wetland impacts would be greater under this alternative as compared to the Proposed Off-site Water Facility Alternative. Both **direct** and **indirect** impacts to wetlands under this alternative are considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a.

Implementation of Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1a would reduce significant impacts on jurisdictional wetlands and waters of the U.S. and waters of the state under the Off-site Water Facility Alternatives. Presuming the City completes additional routing analysis and prepares a mitigation plan that is acceptable to USACE and implemented as required, the direct and indirect impacts resulting from the Off-site Water Facility Alternatives could be mitigated to a **less-than-significant** level by providing "no net loss" of overall wetland acreage, as required in USACE permit conditions.

IMPACT 3B.3-2 Loss and Degradation of Habitat for Special-Status Wildlife Species and Potential Direct Take of Individuals. *The Off-site Water Facility Alternatives have the potential to result in a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status by DFG, NMFS, and USFWS. Impacts could include loss and degradation of habitat for several special-status wildlife species or take of listed species, including vernal pool invertebrates, valley elderberry longhorn beetle, and Swainson's hawk.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

As provided in Chapter 2, Alternatives, the "Water" Study Area includes four separate zones, however, construction activities would be limited to Zone 4 where physical improvements are proposed. In this context, this analysis provides discussions for the construction and operational impacts to special status wildlife species as a result of the Off-site Water Facility Alternatives.

## Construction Impacts

Twenty-five special-status terrestrial wildlife species were identified as having the potential to occur within 5 miles of Zone 4 of the "Water" Study Area with 16 of these species having a moderate to high potential for occurrence, including vernal pool and conservancy fairy shrimp, Swainson's hawk, valley elderberry longhorn beetle, and vernal pool tadpole shrimp. Zone 4 of the "Water" Study Area also provides habitat for several species of concern, which include western spadefoot toad, burrowing owl, and pallid bat. Construction of the pipeline alignments, pump stations, and WTPs under these Off-site Water Facility Alternatives may result in direct or indirect impacts to animal species listed in Table 3B.3-5. Table 3B.3-2 presents a detailed accounting of those wildlife species potentially affected by each alternative conveyance alignment and WTP site. Specific impacts to special-status species are addressed below.

### *Vernal Pool Fairy Shrimp and Vernal Pool Tadpole*

Vernal pools, seasonal wetlands, and seasonal wetland swale are documented throughout Zone 4 of the "Water" Study Area, comprising approximately 10.8 acres, 7.8 acres, and 4.9 acres, respectively, and support special-status invertebrates such as vernal pool fairy shrimp and vernal pool tadpole shrimp. Other species may include

California linderiella fairy shrimp (*Linderiella occidentalis*) or conservancy fairy shrimp (*Branchinecta conservatio*). As shown in Table 3B.3-5, vernal pool fairy shrimp and vernal pool tadpole shrimp are known to occur in the vicinity of all the Off-site Water Facility Alternatives that cross through Zone 4 of the "Water" Study Area. Depending on the location of the construction (i.e., roadway centerline verses shoulder) construction activities associated with the pipelines and WTPs could result in **significant direct** and **indirect** impacts to vernal pool habitat and, hence, vernal pool crustaceans. ***[Similar]***

Excavation and trenching activities could directly impact vernal pools, which could result in habitat loss or injury to individuals by filling or excavation within suitable habitat. Direct impacts could be minimized or avoided by constructing the conveyance alignments primarily along and within existing roadways or by using trenchless construction techniques to cross larger vernal pool or wetland features. However, without a more detailed alignment for each of the Off-site Water Facility Alternatives, such a determination is not possible. Temporary dewatering activities during construction could cause mortality of individual wetland species, especially vernal pool crustaceans. (See also discussion of dewatering in Section 3B.17, "Groundwater – Water"). Generally, the USFWS considers disturbance within 250 feet of vernal pool crustacean habitat to be an indirect impact to the species (USFWS 1996). Construction activities associated with pipeline and WTP facilities could result in **significant direct** impacts to vernal pool crustaceans, and may also lead to a cumulative decline of the species over time. **Indirect** impacts may include the temporary degradation of water quality or dewatering of pools during construction and could also be **significant**. ***[Similar]***

### *Western Spadefoot Toad and Northwestern Pond Turtle*

Vernal pools, wetland, and wetland swale habitat occur throughout portions of Zone 4 of the "Water" Study Area and provide suitable habitat for special-status amphibians such as western spadefoot toad. Western pond turtle may occur in drainage ditches, sloughs, and other aquatic features within Zone 4 of the "Water" Study Area where suitable habitat is present. As shown in Table 3B.3-5, the nearest known occurrences of western spadefoot and northwestern pond turtle are within less than 1/4 mile. Construction activities associated with the conveyance pipeline and pump station facilities could result in direct and indirect impacts to vernal pools, wetlands, and creeks, and hence, potential habitat for western spadefoot toad and northwestern pond turtle. This **direct** impact is considered **potentially significant**. **Indirect** impacts may include the temporary degradation of water quality or dewatering of pools during construction and could also be **potentially significant**. ***[Similar]***

### *Valley Elderberry Longhorn Beetle*

Table 3B.3-5 indicates that occurrences of elderberry shrubs – the exclusive habitat for valley elderberry longhorn beetle – are documented in the northeastern sections of Zone 4 of the "Water" Study Area. The nearest occurrence of these species is less than 50 feet from the centerline of White Rock Road and the planned Easton Valley Parkway (Sacramento County 2008a and 2008b, and ECORP 2009). As a result, construction of the conveyance pipelines within portions of these roadways could result in direct impacts to valley elderberry longhorn beetle.

Direct impacts to elderberry shrubs include damage, pruning, and/or removal of shrubs, potentially resulting from excavation and trenching that would be used to install pipeline across smaller ditches (less than 10 feet in width). Some direct impacts would be minimized by constructing primarily along and within existing roadways and within agricultural lands, and by using trenchless construction techniques to cross larger water bodies. Temporary dewatering activities during construction may cause mortality of individual shrubs, especially if long dewatering periods are required to construct the pipeline facilities. (See also discussion of dewatering in Section 3B.17, "Groundwater – Water").

**Table 3B.3-5**
**Special-Status Wildlife Potentially Affected by Off-site Water Facility Alternatives**

| Species | Proximity to Water Project Alt.[1] | Off-site Water Facility Alternatives / Facilities | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No USACE Permit and Proposed Alt | Alt 1 | Alt 1A | Alt 2 | Alt 2A | Alt 2B | Alt 3 | Alt 3A | Alt 4 | Alt 4A |
| **Invertebrates** | | | | | | | | | | | |
| Vernal pool fairy shrimp *Branchinecta lynchi* | <100 ft | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | <100 ft | X (B, E) | X (B, E) | X (B, E) | X (B, E) | X (B, E) | X (B, E) | X (B, E) | X (B, E) | X (C) | X (C) |
| Vernal pool tadpole shrimp *Lepidurus packardi* | <100 ft | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) |
| **Amphibians/Reptiles** | | | | | | | | | | | |
| Northwestern pond turtle *Actinemys (Emys) marmorata* | <1/2 mile | -- | -- | -- | X (B) | X (B) | X (B) | X (B) | X (B) | X (B) | X (B) |
| Western spadefoot toad *Spea hammondii* | <500 ft | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) |
| **Birds** | | | | | | | | | | | |
| Tricolored blackbird *Agelaius tricolor* | <1/2 mile | -- | -- | -- | X (A) | X (A) | -- | X (A) | X (A) | X (A) | X (A) |
| Swainson's hawk *Buteo swainsoni* (breeding) | <1/2 mile | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) |
| Grasshopper sparrow *Ammodramus savannarum* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | -- | -- | -- | -- | -- | -- | -- |
| Western burrowing owl *Athene cunicularia hypugaea* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) |
| Loggerhead shrike *Lanius ludovicianus* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | -- | -- |
| Northern harrier *Circus cyaneus* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | -- | -- |
| Ferruginous hawk *Buteo regalis* | <500 ft | -- | -- | -- | -- | X (A) | -- | -- | X (A) | -- | X (A) |
| White-tailed kite *Elanus leucurus* | <1/2 mile | X (A) | X (A) | X (A) | X (A) | X (A) | -- | X (A) | X (A) | X (A) | X (A) |
| **Mammals** | | | | | | | | | | | |
| American badger *Taxidea taxus* | <500 ft | -- | -- | -- | -- | X (A) | -- | -- | X (A) | -- | X (A) |
| Pallid bat *Antrozous pallidus* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | -- | -- | -- | -- | -- | -- | -- |

Notes:
[1] Proximity of occurrence was determined through a combination of GIS analysis and field verification, where possible.
Source: (A) – CNDDB 2008; (B) – RBI 3008; (C) – Sacramento County 2008b; (D) – City of Rancho Cordova 2005; and (E) – Sacramento County 2008a or 2008b
(Note: Source information compiled in Appendix M.)

Indirect impacts could occur if herbicides or insecticides are used in habitats adjacent to elderberry shrubs, if earthmoving activities disturb elderberry shrub roots, or if the topography and/or hydrology of the surrounding area are altered to the extent that it reduces the soil moisture surrounding the elderberry shrub. USFWS considers disturbance within 100 feet of an elderberry shrub to be a potential direct impact to valley elderberry longhorn beetle (USFWS, 1999). As a result, construction activities associated with the pipelines could result in **significant direct** and **indirect** impacts to valley elderberry longhorn beetle. ***[Similar]***

### *Swainson's Hawk and Other Raptors*

As provided in Table 3B.3-5 and shown in Exhibit 3B.3-2, there are numerous documented sightings of Swainson's hawk within Zone 4 of the "Water" Study Area. Occurrences of nesting Swainson's hawks are documented within one mile of all the Off-site Water Facility Alternatives and 1/4 mile of the White Rock WTP. Swainson's hawk nests in trees, often within riparian habitats, and forage within cropland, fields, and open lands; hawks may occur within the alignment of each conveyance alignment alternative. Construction of the Off-site Water Facilities may temporarily and/or permanently disturb the nesting of state-threatened Swainson's hawk due to construction noise and disturbance, as well as potential nest site removal or abandonment during the breeding season.

DFG generally considers all disturbance within 1/2-mile of an active nest to be a potential impact to Swainson's hawk. Construction may also affect foraging habitat for Swainson's hawk in the Off-site Water Facilities Study Area (Swainson's Hawk Technical Advisory Committee [SHTAC] 2000). DFG generally considers impacts to suitable foraging habitat within 10 miles of an active nest to be a potential indirect impact to Swainson's hawk (SHTAC 2000). Based on this criterion, all facility siting options have a high likelihood of impacting Swainson's hawk foraging habitat. In addition, the White Rock WTP and conveyance alignment could adversely affect nesting habitat and result in a **potentially significant direct** and **indirect** impacts. ***[Similar]***

As shown in Table 3B.3-5, there are also several occurrences of burrowing owl within Zone 4 of the "Water" Study Area. Burrowing owls often occur along the edges of croplands and along drainage ditches and levees where suitable habitat containing burrows occurs. Construction of the Off-site Water Facility Alternatives may temporarily and permanently disturb the nesting of burrowing owl due to construction noise and disturbance, as well as permanent and temporary disturbance of foraging habitat. DFG generally considers all disturbance within 50 meters (160 feet) of an active nest to be a potential impact to burrowing owl (California Burrowing Owl Consortium [CBOC] 1993). Construction may also affect foraging habitat for burrowing owl in Zone 4 of the "Water" Study Area. As a result, each of the Off-site Water Facility Alternatives has a high likelihood to result in a **potentially significant direct** or **indirect** impacts on burrowing owl. ***[Similar]***

Construction of the Off-site Water Facility Alternatives could also temporarily and permanently disturb the nesting of White-tailed kite, Loggerhead shrike, and Tricolored blackbird, due to construction noise and disturbance, as well as potential nest site removal during the breeding season. Construction may also permanently and temporarily affect foraging habitat for these species within portions of the Zone 4 "Water" Study Area. Although direct impacts could be minimized or avoided by constructing primarily along and within existing roadways and by using trenchless construction techniques to cross larger water bodies, without a detailed alignment, the City is unable to confirm avoidance of impacts to these species. Additionally, DFG generally considers disturbance within 500 feet of a nesting raptor to be an impact and, therefore, construction activities associated with the conveyance pipeline, pump station, and WTP could result in **potentially significant direct** and **indirect** impacts to these species, and may also lead to a cumulative decline of the species over time. ***[Similar]***

### *Special-status Bats*

Several special-status bat species have potential to occur within zone 4 of the "Water" Study Area, including pallid bat and Townsend's big-eared bat. These species may forage over open grassland and woodland areas, as

well as riparian areas. In addition, several small bridge crossings are present within Zone 4, which could provide suitable roosting habitat. At this time, it is unknown if these bridge structures provide suitable thermal or structural conditions for roosting bats. However, if one or more of these structures is used as a day roost, hibernation roost, or maternity colony roost, implementation of the Off-site Water Facility Alternatives could result in injury and mortality of pallid bat, Townsend's big-eared bat, or other common bat species. Day roosts are used throughout the spring and summer and maternity colony roosts can be active from approximately early April until mid-October. Hibernation roosts may be used from approximately November to early March. Loss of individual bats would be considered a **potentially significant, direct** impact. **Indirect** impact on special-status bat species could also be **potentially significant**. ***[Similar]***

### *Other Special-status Species*

Several other special-status species have potential to occur on the project site: grasshopper sparrow, Modesto song sparrow, and American badger, as discussed below.

Zone 4 of the "Water" Study Area provides potential nesting habitat for grasshopper sparrow and Modesto song sparrow. Individuals of these species may nest in open woodland, grassland, or riparian habitats, respectively, on site. Portions of these habitats would be impacted during the implementation of the Off-site Water Facility Alternatives, however, no large habitat conversions are anticipated under the Off-site Water Facility Alternatives. As a result, direct and indirect impacts on these species as a result of the Off-site Water Facility Alternatives are considered less than significant because minor reduction in habitat is not likely to result in a substantial effect on their populations.

As provided in Table 3B.3-5, there are a few occurrences of American badger in Zone 4 of the "Water" Study Area. Due to the high mobility of this species, the relatively narrow and linear construction footprints, and the relative abundance of available habitat in Zone 4 of the "Water" Study Area, construction activities associated with the Off-site Water Facility Alternatives would not likely result in significant impacts to this species. Therefore, **direct** and **indirect** impacts to American badger would be **less than significant**. ***[Similar]***

## Operational Impacts

Fish species listed for protection under CESA and known to occur within Zone 2 of the "Water" Study Area include Central Valley steelhead, winter-run and fall-run Chinook salmon, Delta smelt and green sturgeon. Other special-status fish species include longfin smelt, lamprey, hardhead, Sacramento splittail, and California roach. Each of these species are known to occur within the vicinity of Zone 2 of the "Water" Study Area at some point during the year and as a result could be impacted by the change in the agricultural delivery schedule of up to 8,000 acre-feet per year (AFY) of CVP water to a municipal and industrial (M&I) delivery schedule.

As described in more detail in Section 3B.9.3, hydrologic modeling results for the operations of the Off-site Water Facility Alternatives show no significant changes in any of the hydrologic indicators measured. The proposed change in the point of diversion and change in CVP delivery schedule are relatively minor when compared to overall flows in the Sacramento River system, including total Delta inflow and outflow, and Delta CVP and SWP exports (see Section 3B.9, "Hydrology and Water Quality – Water," for additional discussion). The minor changes in hydrologic conditions would have only very minimal impacts on overall aquatic habitat quantity and quality and would contribute additional flows to a section of the Sacramento River (e.g., Zone 2 of the "Water" Study Area). In this context, the operation of the Off-site Water Facility Alternatives would not result in any substantial changes in flows that could contribute to a reduction in fish populations or the quality or quantity of aquatic habitat within the Sacramento River system, including the Delta, for any special-status wildlife and fishery species and the **direct** and **indirect** impacts are considered **less than significant**. ***[Similar]***

As provided in Impact 3B.9-2, the major water quality changes associated with the operation of the Off-site Water Facility Alternatives are associated with the changes in the type of the return flows anticipated between agricultural and M&1 uses. Although currently a topic debate in relation to potential impacts to fishery resources,

the City acknowledges that the operation of the Off-site Water Facility Alternatives would indirectly contribute to additional ammonia loadings to the Sacramento River through discharges from SRCSD's WWTP. The extent of potential impact from increased discharges of ammonia and other priority pollutants on special status fish species would be contingent on the fate and transport of the pollutants in question in relation to the specific movement of fish under existing conditions and with the operation of the Off-site Water Facility Alternatives. Given all the various existing stressors that characterize existing river conditions combined with the fact that the Off-site Water Facility Alternatives would involve only minor hydrologic changes and essentially a trading in the type of nitrogen-based inputs to the system, potential impacts to fisheries in relation to cumulative sources of existing loadings are considered **less than significant**. ***[similar]*** Impact 3A.13.3 specially addresses the potential impacts of the corresponding increases in wastewater discharges to the SRCSD's WWTP from the SPA and SRCSD's ability to meet its waste discharge requirements.

As provided in Chapter 2, "Alternatives," implementation of the Off-site Water Facility Alternatives would not result in changes to existing irrigation patterns within NCMWC's service area or limit the availability of surface water for continued irrigated agriculture. Similarly and based on this circumstance, operation of the Off-site Water Facility Alternatives would result in no adverse effects to giant garter snake within the Natomas Basin. For this reason, a **less-than-significant** impact would occur. ***[Similar]***

Mitigation Measure 3B.3-2: Conduct Preconstruction Survey for Western Spadefoot Toad and Northwestern Pond Turtle and if Found, Implement Avoidance and Compensation Measures.

Prior to construction, a qualified biologist retained by the City shall conduct protocol-level surveys for the western spadefoot toad and northwestern pond turtle to determine if these species are currently using water features crossed by the selected alignment. If either of these species is detected, then the City shall consult with the DFG (and USFWS if appropriate) to develop additional minimization measures prior to project construction (if necessary). These additional measures may include timing restrictions for groundwater dewatering activities, construction monitoring, and long-term monitoring.

If temporary fencing is used, it shall take the form of silt fencing and temporary plastic construction fencing placed no closer than 25 feet from the edge of the protected habitat. Protective fencing around vernal pools identified as potential habitat for special-status species shall be constructed in a way that allows western spadefoot toad to access these wetlands.

Impacted western spadefoot toad habitat shall be mitigated and compensated in accordance with USFWS and DFG requirements.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:**

1. U.S. Fish and Wildlife Service, California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3A.3-1b, 3A.3-2a, 3A.3-2b, 3A.3-2c, 3A.3-2d, 3A.3-2e, 3A.3-2f, 3A.3-2g, and 3A.3-2h.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:**
1. U.S. Fish and Wildlife Service, California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

Mitigation Measures 3B.3-1a, 3B.3-1b, 3A.3-1b, 3A.3-2a, 3A.3-2b, 3A.3-2c, 3A.3-2d, 3A.3-2e, 3A.3-2f, 3A.3-2g, and 3B.3-2h, would lessen significant direct and indirect impacts on special-status wildlife resulting from Off-site Water Facility Alternatives NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4B. Given the linear nature of the Off-site Water Facility Alternatives and their orientation towards existing built-environments, fully compensating for direct and indirect impacts within the overall Zone 4 portion of the "Water" Study Area is considered feasible for most species potentially impacted by the alternatives under consideration. Based on the combination of preconstruction surveys, habitat preservation, and restoration measures proposed by the City, impacts to special-status wildlife species, with the exception of vernal pool crustaceans, would be avoided or minimized to a **less-than-significant** level.

In the absence of complete avoidance, impacts to vernal pool crustaceans species could only be mitigated through a combination of habitat preservation and restoration in the vicinity of the selected Off-site Water Facilities. Given that even following the restoration of the impacted area(s), the take of these species could have already occurred, the City is unable to demonstrate complete avoidance. Therefore, demonstrating full compensation for these impacts by preserving and restoring existing habitats for vernal pool crustaceans in the vicinity of the selected Off-site Water Facility Alternative is infeasible. For this reason, the direct and indirect impacts would remain **significant** and **unavoidable** for those Off-site Water Facility Alternatives unable to demonstrate complete avoidance of "take" of vernal pool species. Avoidance measures employed under the No USACE Permit Alternative to avoid direct impacts to vernal pools combined with mitigation to reduce potential indirect impacts, would reduce the overall magnitude of impact to vernal pools to a **less-than-significant** level.

IMPACT 3B.3-3 Potential Loss or Degradation of Special-Status Plant Populations and Habitat. *Implementation of the Off-site Water Facility Alternatives could result in direct removal of special-status plants, if they are present, through loss of suitable habitat or degradation of suitable habitat due to site alteration.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

Seventeen special-status plant species have the potential to occur within Zone 4 of the "Water" Study Area in vernal pool, seasonal wetland, freshwater marsh, pond, oak woodland, and grassland habitats. Seven of these species—Ahart's dwarf rush, Bogg's Lake hedge-hyssop, dwarf downingia, legenere, Sacramento Orcutt grass, slender Orcutt grass, and Tuolumne button-celery—were determined to have a moderate to high potential to occur within Zone 4. Construction of the Off-site Water Facility Alternatives could adversely affect these species and their habitats by incidentally taking a species, potentially jeopardizing the viability of a population, disturbing habitat, or disruption of reproductive activities.

As provided in Table 3B.3-6, construction of the conveyance pipeline and WTPs may result in direct or indirect impacts to several special-status plant species. Certain grasslands and seasonal wetlands within and in the vicinity of Zone 4 of the "Water" Study Area are known to or may potentially provide habitat for numerous special-status plant species, including Boggs Lake hedge-hyssop, Ahart's dwarf rush, slender Orcutt grass, Sacramento Orcutt grass, and Sanford's arrowhead. As shown in Table 3B.3-6, the Off-site Water Facility Alternative alignments each contain suitable habitats for special-status plants. Therefore, each of the Off-site Water Facilities alignments and WTPs could directly or indirectly impact the habitat of one or more of these special status species, or individual plants that may inhabit areas.

Loss of suitable habitat as a result of the Off-site Water Facility Alternatives could result in direct removal or mortality of special-status plants, if they are present. Construction activities could also result in indirect impacts on special-status plants including impacts caused by sedimentation, changes in vegetation as a result of changes in land use and management practices, altered hydrology, habitat fragmentation, and the introduction of invasive species or noxious weeds from surrounding development. Because implementation of all Off-site Water Facility Alternatives could result in loss and degradation of habitat that could support special-status plant species, **direct** and **indirect** impacts on special-status plant species are considered **potentially significant**. ***[Similar]***

Mitigation Measure: Implement Mitigation Measure 3A.3-3.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:**

1. U.S. Fish and Wildlife Service and California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

Implementation of Mitigation Measure 3A.3-3 would reduce the potentially significant impacts on special-status plant species under the Off-site Water Facility Alternatives to a **less-than-significant** level because each facility component would be required to identify and avoid special-status plant populations or provide compensation for the loss of special-status plants through creation of off-site populations, conservation easements, or other appropriate measures.

**Table 3B.3-6**
**Special-Status Plant Species Potentially Affected by Off-site Water Facility Alternatives/Facilities**

| Species | Proximity To Zone 4[1] | Off-site Water Facility Alternatives / Facilities | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No USACE Permit and Proposed Alt | Alt 1 | Alt 1A | Alt 2 | Alt 2A | Alt 2B | Alt 3 | Alt 3A | Alt 4 | Alt 4A |
| **LISTED PLANTS** | | | | | | | | | | | |
| Boggs Lake hedge-hyssop *Gratiola heterosepala* | <500 ft | X (A) | X (A) | X (A) | -- | -- | -- | -- | -- | -- | -- |
| Sacramento orcutt grass *Orcuttia viscida* | <500 ft | X (A) | X (A) | X (A) | X (A) | X (A) | -- | X (A) | X (A) | X (A) | X (A) |
| Hartweg's golden sunburst *Pseudobahia bahifolia* | <1 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) |
| Slender Orcutt grass *Orcuttis tenuis* | <1 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | -- | X (A, B) | X (A, B) | X (A, B) | X (A, B) |
| Ahart's drawf rush *Juncus leiospermus* var. *ahartii* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) | X (A, B) |
| Succulent owl's–clover *Castilleja campestris* ssp. *succulenta* | <1 mile | X (A, B) | X (A, B) | X (A, B) | -- | -- | -- | -- | -- | -- | -- |
| Sanford's arrowhead *Sagittaria sanfordii* | <1/2 mile | X (A, B) | X (A, B) | X (A, B) | -- | -- | -- | -- | -- | -- | -- |
| Greene's legenere *Legenere limosa* | <1/2 mile | X (F) | X (F) | X (F) | X (F) | X (F) | X (F) | X (F) | X (F) | X (F) | X (F) |
| **SENSITIVE HABITATS** | | | | | | | | | | | |
| Oak Woodland – Habitat | <500 ft | -- | -- | -- | -- | -- | -- | -- | -- | X (C) | X(C) |
| Riparian/Seasonal Wetlands – Habitat | <500 ft | X (B, D) | X (B, D) | X (B, D) | X (B, D) | X (B, D) | X (B, D) | X (B, D) | X (B, D) | X (B, D, C) | X (B, D,C) |
| Northern Hardpan Vernal Pool – Habitat | <500 ft | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) | X (A) |

Notes:
[1] Proximity of occurrence was determined through a combination of GIS analysis and field verification, where possible.
Source: (A) – CNDDB 2008; (B) – RBI 2008; (C) – Sacramento County 2008b; (D) – City of Rancho Cordova 2005; (E) – Sacramento County 2008a or 2008b; and (F) ECORP 2009 (Note: Source information compiled in Appendix M.)

IMPACT 3B.3-4 Loss of Sensitive Natural Communities (Not Already Covered under Other Impacts). *Construction and operation of the Off-site Water Facility Alternatives has the potential to have a substantial adverse effect on local riparian and woodland habitats. These are natural communities considered sensitive by state and local resource agencies and require consideration under CEQA.*

NCP, PA, 1, 1A

Table 3B.3-7 provides a breakdown of the different plant communities included within the 200-foot construction corridor for these alternatives along with an additional breakdown of the acreages within the 100-feet to the right and left of the alignment. The left and right sides of the alignment corridor are defined as the sides of the roadway when facing in the direction of flow (i.e., facing toward the SPA, with the source of water or Freeport Project at the observer's back). As provided in Table 3B.3-7, these Off-site Water Facility Alternatives contain up to 0.7 acres of marsh, 0.5 acres of oak-dominated woodland, and 0.3 acres of elderberry savanna total within each alignment corridor. In addition, it is important to note that although Table 3B.3-7 does not reflect any riparian habitat for these alternatives, these estimates conflict with the riparian acreages provided in Table 3B.3-4 for these alternatives. This is due to the fact that data from the National Wetlands Inventory (2009) was used in deriving the habitat estimates for Table 3B.3-4, but not for the estimates in Table 3B.3-7. For this reason, a worst-case estimate is being used for potential riparian impacts under these alternatives using the estimates provided in Table 3B.3-4 of approximately 0.6 acres total. Implementation of these Off-site Water Facility Alternatives could result in disturbance and/or removal of these natural communities at several locations along the conveyance alignments and WTP sites. Riparian areas potentially affected by these alternatives include Buffalo Creek, Morrison Creek, and Laguna Creek.

Given uncertainties regarding the timing of construction, precise location of the conveyance alignment, and other roadway improvement projects proposed within eastern Sacramento County, it is possible that construction could extend into areas adjacent to the roadways thereby requiring the crossing of these water features and their associated riparian corridors. Trenchless or in-channel construction techniques may be used to cross smaller drainages with trenchless construction potentially occurring at larger waterway crossings such as Morrison, Buffalo, and Laguna Creeks. As engineering design progresses, the City anticipates completing additional routing analysis before finalizing the method for each crossing in consultation with DFG, the Central Valley RWQCB, and USFWS, as appropriate. Similarly, the placement of the WTP under these alternatives has not been determined for the approximately 68-acre White Rock WTP and, therefore, the exact acreage of affected riparian habitat cannot be quantified at this time. For these reasons and based on the program-level of this analysis, the City concludes that up to 0.5 acres of riparian habitat (see Table 3B.3-4), 0.6 acres of marsh, 0.5 acres of oak-dominated woodland, and 0.3 acres of elderberry savanna could be directly impacted under these alternatives if impacts are limited to one side of the alignment corridor.

Dewatering of trenches or smaller ditches could temporarily affect riparian vegetation, depending on the length of time necessary to install the pipeline and the season of construction. Indirect impacts to riparian vegetation, such as fuel spills and/or disturbance of roots, may also occur under unanticipated circumstances thereby resulting in adverse impacts to riparian resources. The potential impacts of constructing these alternatives could include the direct loss of these acreages from facility footprints, construction-related disturbance, and indirect water quality impacts. For this reason, **direct** and **indirect** impacts resulting from construction would be **potentially significant**. ***[Similar]***

As provided in Table 3B.9-3, of Section 3B.9, Hydrology and Water Quality "Water," the operation of the Off-site Water Facility Alternatives would involve negligible changes to existing flows within Zone 2 of the "Water" Study Area and downstream locations within the Delta. Based on these findings, neither the operations of the Off-site Water Facilities nor the assignment of water supplies from NCMWC in the Sacramento River basin would have substantial adverse effects on riparian habitat or other sensitive natural communities along the Sacramento River as a result of substantial changes in water levels or diversion of flow. No new groundwater pumping would

be required within NCMWC's service area and, therefore, no changes to surface water hydrology within wetlands and other sensitive wetland features within the NCMWC's service area is anticipated. For these reasons, **direct** and **indirect** impacts to sensitive communities from long-term operation of the Off-site Water Facilities would be **less than significant**. ***[Similar]***

**Table 3B.3-7**
**Summary of Plant Communities for Each Off-site Water Facility Alternative**

| Wetland Type | NCP/PA | | 1[1] | | 1A[1] | | 2 | | 2A | | 2B | | 3[1] | | 3A[1] | | 4[2] | | 4A[2] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *L*[(3)] | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* |
| Annual Grassland | 124.2 | 116.6 | 189.2 | 180.7 | 180.7 | 183.8 | 122.8 | 109.2 | 108.3 | 107.5 | 47.9 | 50.7 | 191.2 | 177.6 | 176.7 | 175.9 | 137.2 | 139.1 | 117.3 | 134.1 |
| Canal | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | -- | -- | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Dredge Tailings | 5.9 | 4.4 | 5.9 | 4.4 | -- | -- | 5.8 | 4.4 | -- | -- | 4.4 | 5.9 | 5.9 | 4.4 | -- | -- | 113.2 | 114.2 | 113.2 | 114.2 |
| Elderberry Savannah | 0.3 | -- | 0.3 | -- | -- | -- | 0.3 | -- | -- | -- | -- | 0.3 | 0.3 | -- | -- | -- | -- | -- | -- | -- |
| Fremont Cottonwood | 0.6 | 1.6 | 0.6 | 1.6 | 4.4 | 1.4 | 0.7 | 1.6 | 1.2 | 1.4 | 1.5 | 0.7 | 0.7 | 1.6 | 1.2 | 1.4 | 22.2 | 22.6 | 22.15 | 22.6 |
| Marsh | 0.6 | 0.1 | 0.6 | 0.1 | 0.6 | 0.1 | 1.8 | 0.4 | -- | -- | -- | -- | 1.8 | 0.4 | -- | -- | 1.8 | 0.4 | -- | -- |
| Irrigated Agriculture | 17.4 | 8.8 | 17.3 | 8.8 | 17.3 | 8.8 | 9.5 | 12.9 | 6.8 | 5 | 4.1 | 6.8 | 9.5 | 12.9 | 6.8 | 5 | 2.9 | 9.1 | 0.2 | 1.1 |
| Lacustrine | -- | -- | -- | -- | -- | -- | -- | 1.2 | -- | 1.2 | -- | -- | -- | 1.2 | -- | 1.2 | -- | 1.2 | -- | 1.2 |
| Urban | 40.7 | 59.1 | 39.8 | 58.4 | 36.1 | 56.3 | 67.2 | 73.3 | 75.2 | 76.4 | 20.8 | 14.2 | 67.2 | 73.3 | 75.2 | 76.4 | 71.7 | 61.3 | 83.2 | 66.7 |
| Woodlands (Oak) | 0.5 | -- | 0.5 | -- | 0.5 | -- | -- | 5.2 | 0.3 | 2.8 | -- | -- | -- | 5.1 | 0.3 | 0.2 | 2.6 | 5.3 | 2.9 | 0.3 |
| Valley Foothill Riparian | -- | -- | -- | -- | -- | -- | 3.3 | 2.6 | 3.5 | 2.8 | -- | -- | 3.3 | 2.6 | 3.5 | 2.8 | 3.6 | 2.7 | 3.8 | 2.9 |
| Coyote Scrub | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10.5 | 7.9 | 10.5 | 7.9 |
| Willow Scrub | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 17.4 | 16.8 | 17.4 | 16.8 |

Note: acreage rounded to the nearest tenth

[1] Acreages include White Rock WTP site

[2] Acreages includes Folsom Boulevard WTTP site.

[3] L=left side of 200-foot corridor; R=right side of 200-foot corridor. Left and right sides of the alignment corridor are defined as the sides of the roadway when facing in the direction of flow (i.e., facing toward the SPA, with the Freeport Project at the observer's back).

Source: ECORP 2009; and RMC 2010

Mitigation Measure: Implement Mitigation Measures 3B.3-1a, 3B.3-1b, 3A.3-1b, and 3A.3-4a.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:** 1. California Department of Fish and Game and Regional Water Quality Control Board.

2 and 2A

Off-site Water Facility Alternative 2 and 2A would not involve the construction of any new WTP facilities; however, as shown in Table 3B.3-7, the alternative alignment considered under these alternatives could entail substantially higher impacts on up to a total of 5.9 and 6.3 acres of riparian habitat, respectively. As provided in Table 3B.3-7, these Off-site Water Facility Alternatives also contain up to 2.2 acres of marsh (only Alternative 2), 5.2 and 3.1 acres of oak-dominated woodland, and 0.3 acres of elderberry savanna (only Alternative 2). Based on these estimates, these alternatives have the potential to impact up to 3.3 and 3.5 acres of riparian habitat, respectively, if impacts are limited to one side of the roadway along with potential disturbance and/or removal of other natural communities. Riparian areas potentially affected by these alternatives include Buffalo Creek, Morrison Creek, Elder Creek, and Mather Lake. The potential impacts of constructing these alternatives could include the direct loss of these acreages from facility footprints, construction-related disturbance, and indirect water quality impacts. For this reason, potential **direct** and **indirect** impacts resulting from construction would be **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-4, 3B.3-1a, 3B.3-1b and 3A.3-1b.

Similar to the Proposed Off-site Water Facility Alternative, direct and indirect impacts to sensitive communities from long-term operation of the Off-site Water Facilities under these alternatives would be **less than significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

2B

Off-site Water Facility Alternative 2B would not involve the construction of any new WTP facilities and would have a substantially reduced impact on riparian habitat. As provided in Table 3B.3-7, this Off-site Water Facility Alternative only contains up to 0.3 acres of elderberry savanna. Based on these estimates, this alternative would not impact any riparian habitat and disturbance and/or removal would be limited to elderberry savanna. Based on the substantially reduced potential for impacts to sensitive habitat under this alternative, potential **direct** and **indirect** impacts resulting from construction would be **less than significant**. ***[Lesser]***

Mitigation Measure: No mitigation measures are required.

Similar to the Proposed Off-site Water Facility Alternative, **direct** and **indirect** impacts to sensitive communities from long-term operation of the Off-site Water Facilities under these alternatives would be **less than significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

3 and 3A

Off-site Water Facility Alternative 3 and 3A would involve the construction of the White Rock WTP facilities and, therefore, the estimates provided in Table 3B.3-4 of approximately 0.6 acres of riparian (riverine) habitat for the White Rock WTP site would also apply to this alternative. In addition, as shown in Table 3B.3-7, these alternative alignments considered under these alternatives could entail substantially higher impacts on up to 5.9 and 6.3 acres of riparian habitat, respectively. As shown in Table 3B.3-7, these Off-site Water Facility Alternatives also contain up to 2.2 acres of marsh (only Alternative 3), 5.4, and 2.8 acres of oak-dominated woodland, and 0.3 acres of elderberry savanna (only Alternative 3). Based on these estimates, these alternatives have the potential to impact up to 3.3 and 3.5 acres of riparian habitat, respectively, if impacts are limited to one side of the roadway along disturb and/or remove other natural communities. Riparian areas potentially affected by these alternatives include Buffalo Creek, Morrison Creek, Elder Creek, and Mather Lake. The potential impacts of

constructing these alternatives could include the direct loss of these acreages from facility footprints, construction-related disturbance, and indirect water quality impacts. For this reason, potential **direct** and **indirect** impacts resulting from construction would be **potentially significant.** ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-4, 3B.3-1a, 3B.3-1b and 3A.3-1b.

Similar to the Proposed Off-site Water Facility Alternative, direct and indirect impacts to sensitive communities from long-term operation of the Off-site Water Facilities under these alternatives would be **less than significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

4 and 4A

Off-site Water Facility Alternative 4and 4A would involve the construction of the 120-acre Folsom Boulevard WTP and an alternative conveyance alignment. As provided in Table 3B.3-7, these Off-site Water Facility Alternatives also contain up to 2.2 acres of marsh (only Alternative 4), 7.9, and 3.2 acres of oak-dominated woodland, 6.3 and 6.7 acres of valley foothill riparian, and 2.2 acres of willow scrub. Based on these estimates, these alternatives have the potential to impact up to 3.6 and 3.8 acres of riparian habitat, respectively, is impacts are contained to one side of the alignment corridor along with disturbance and/or removal of other natural communities. Riparian areas potentially affected by these alternatives include Buffalo Creek, Elder Creek, and Mather Lake. The potential impacts of constructing these alternatives could include the direct loss of these acreages from facility footprints, construction-related disturbance, and indirect water quality impacts. For this reason, potential **direct** and **indirect** impacts resulting from construction would be **potentially significant.** ***[Greater]***

Mitigation Measure: Implement Mitigation Measures 3B.3-4, 3B.3-1a, 3B.3-1b and 3A.3-1b.

Similar to the Proposed Off-site Water Facility Alternative, direct and indirect impacts to sensitive communities from long-term operation of the Off-site Water Facilities under these alternatives would be **less than significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

Implementation of Mitigation Measures 3A.3-1a, 3B.3-1a, 3B.3-1b, and 3A.3-1b would reduce significant impacts on sensitive natural communities under the Off-site Water Facility Alternatives to a **less-than-significant** level because a mitigation and monitoring plan ensuring adequate compensation for the loss of riparian habitat would have to be developed and implemented as a condition of the streambed alteration permit.

IMPACT 3B.3-5 Loss of Individual Oak Trees. *Implementation of the Off-site Water Facility Alternatives could result in the removal of oak woodland and individual oak trees meeting the criteria for protection under Folsom Municipal Code and the Sacramento County Tree Ordinance.*

NCP, PA, 1, and 1A

These alternatives could involve the removal or disturbance of several oak trees that occur within the 200-foot corridor under consideration. Similar to other natural features evaluated in this section, the City further analyzed the right and left one hundred feet within the corridor to determine if any substantial reductions in habitat impacts could be achieved by constructing facilities on the side of the corridor with fewer trees. As shown in Table 3B.3-8, the implementation of these alternatives could result in the removal or disturbance of approximately 5 interior live oaks and 2 valley oaks measuring 6 inches or greater in diameter at breast height.

Because construction of Off-site Water Facilities components could require the removal of trees, including oak species, the County of Sacramento may require a permit for the pruning or removal of protected trees within its jurisdiction. Therefore, this **direct** and **indirect** impact is considered **potentially significant**. ***[Similar]***

**Table 3B.3-8**
**Trees Potentially Affected by Each Off-site Water Facility Alternative Corridor[a]**

| Wetland Type | No USACE Permit and PA | | 1 | | 1A | | 2 | | 2A | | 2B | | 3 | | 3A | | 4 | | 4A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* | *L* | *R* |
| Blue Oak | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | 51 | 12 | 139 | 13 |
| Interior Live Oak | 3 | 2 | 3 | 2 | 3 | 2 | 1 | 9 | 82 | 6 | -- | -- | 1 | 9 | 82 | 6 | 199 | 29 | 187 | 67 |
| Valley Oak | 1 | 1 | 1 | 1 | 1 | 1 | -- | -- | -- | 1 | -- | -- | -- | -- | -- | 38 | 18 | 61 | 39 | 22 |
| Eucalyptus | 2 | 1 | 2 | 1 | 2 | 1 | 6 | 4 | 6 | 4 | 1 | 1 | 6 | 4 | 6 | 4 | -- | 3 | 4 | 3 |
| Chinese Pistache | -- | -- | -- | -- | -- | -- | -- | -- | 4 | -- | -- | -- | -- | -- | 4 | -- | -- | -- | 4 | -- |
| Sycamore | -- | 3 | -- | 3 | -- | 3 | -- | 3 | -- | 3 | 3 | -- | -- | 3 | -- | 3 | 39 | 39 | 41 | -- |
| Willow | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | 1 | -- |
| Liquid Amber | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | 1 | -- | -- | -- | 1 |
| Zelkova | -- | -- | -- | -- | -- | -- | -- | -- | 7 | -- | -- | -- | -- | -- | 7 | -- | -- | -- | 7 | -- |

Notes:
[a] Rounded to the nearest tenth.
Source: ECORP 2009 and RMC 2010

Mitigation Measure: Implement Mitigation Measure 3A.3-5.

**Implementation:** City of Folsom Utilities Department

**Timing:** Prior to and during construction of all Off-site Water Facilities

**Enforcement:**
1. U.S. Fish and Wildlife Service, California Department of Fish and Game.
2. For all project-related improvements that would be located within the City of Folsom: City of Folsom Community Development Department.
3. For improvements within Sacramento County or City of Rancho Cordova: Sacramento County Planning and Community Development Department or City of Rancho Cordova Planning Department.

2 and 2A

These alternatives could involve the removal or disturbance of several oak trees that occur within the 200-foot corridor under consideration. As provided in Table 3B.3-8, the implementation of these alternatives could result in the removal or disturbance of approximately 10 interior live oaks under Alternative 2 and 88 interior live oaks under Alternative 2A measuring 6 inches or greater in diameter at breast height. It is important to note that the

vast majority of these trees occur along one side of the alignment, so it is likely that the alignment can be adjusted to minimize tree removal.

Because construction of Off-site Water Facilities components could require the removal of trees, including oak species, the County of Sacramento may require a permit for the pruning or removal of protected trees within its jurisdiction. The City of Rancho Cordova also has an adopted City's Tree Preservation and Protection Ordinance that would be applicable to portions of the respective Off-site Water Facility Alternatives that cross the City of Rancho Cordova's jurisdiction. Therefore, this **direct** and **indirect** impact is considered **potentially significant.** ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3A.3-5.

2B

No oak trees are located within 200-foot corridor under consideration for this alternative and, therefore, no removal or disturbance of several oak species that occur. For this reason, **no direct** and **indirect** impacts would occur. ***[Lesser]***

Mitigation Measure: No mitigation measures are required.

3 and 3A

These alternatives could involve the removal or disturbance of several oak trees that occur within the 200-foot corridor under consideration. As provided in Table 3B.3-8, the implementation of these alternatives could result in the removal or disturbance of approximately 10 interior live oaks under Alternative 2 and 88 interior live oaks under Alternative 2A measuring 6 inches or greater in diameter at breast height. It is important to note that the vast majority of these trees occur along one side of the alignment.

Because construction of Off-site Water Facilities components could require the removal of trees, including oak species, the County of Sacramento may require a permit for the pruning or removal of protected trees within its jurisdiction. The City of Rancho Cordova also has an adopted City's Tree Preservation and Protection Ordinance that would be applicable to portions of the respective Off-site Water Facility Alternatives that cross the City of Rancho Cordova's jurisdiction. Therefore, this **direct** and **indirect** impact is considered **potentially significant**. ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3A.3-5.

4 and 4A

These alternatives could involve the removal or disturbance of several oak trees that occur within the 200-foot corridor under consideration. As provided in Table 3B.3-8, the implementation of these alternatives could result in the removal or disturbance of approximately 63 blue oaks, 228 interior live oaks, and 79 valley live oaks under Alternative 4. Up to 152 blue oaks, 254 interior live oaks, and 61 valley live oaks under Alternative 4A measuring 6 inches or greater in diameter at breast height.

Because construction of Off-site Water Facilities components could require the removal of trees, including oak species, the County of Sacramento may require a permit for the pruning or removal of protected trees within its jurisdiction. The City of Rancho Cordova also has an adopted City's Tree Preservation and Protection Ordinance that would be applicable to portions of the respective Off-site Water Facility Alternatives that cross the City of Rancho Cordova's jurisdiction. Therefore, this **direct** and **indirect** impact is considered **potentially significant.** ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3A.3-5.

With the implementation of Mitigation Measure 3A.3-5, appropriate compensation measures would be implemented through the preparation and implementation of an oak tree replacement plan to reduce potential impacts to riparian habitats and other sensitive natural communities. Compliance with the prescribed mitigation would ensure that these impacts are reduced to a **less-than-significant** level with no corresponding net reduction in the numbers of protected trees.

IMPACT 3B.3-6 Potential Interference with Wildlife or Fisheries Movement. *Construction and operation of the Off-site Water Facility Alternatives has the potential to interfere substantially with the movement of native resident or migratory fish or within established native resident or migratory wildlife corridors.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

The Off-site Water Facilities would generally be constructed within existing road right-of-way and disturbed easements. Construction of the Off-site Water Facilities may have a temporary impact to the movements of some terrestrial wildlife during construction. However, construction of the Off-site Water Facilities conveyance facilities would not result in any permanent barriers to the movement of terrestrial species. During construction of the Off-site Water Facilities, direct impacts to local drainage ways within Zone 4 could occur. However, once constructed, these facilities would be submerged and would not adversely affect migratory corridors for wildlife. Operation of the Off-site Water Facilities is expected to result in **less-than-significant direct** and **indirect** impacts to existing wildlife corridors. ***[Similar]***

Except in flood conditions, there is no direct hydrologic connection between the streams within Zone 4 of the Off-site Water Facilities Study Area and the Sacramento River. Water from Morrison Creek is pumped into the Sacramento River by the City of Sacramento. Therefore, the pump is an impassable barrier to fish species in the Sacramento River. Similar barriers separate Buffalo and Alder Creeks from the American River. Therefore, construction-related direct impacts to fish species within Zone 4 are considered **less than significant**. Similarly, the operation of these facilities within Zone 4 is not expected to interfere substantially with the movement of any native resident or migratory fish and **no indirect** or **direct** impact is expected. ***[Similar]***

Operations of the Off-site Water Facilities would produce only minor levels of noise from pumps, and would not lead to on-going disturbance that would interfere with the movement of any native wildlife species or wildlife corridors and nursery sites. Assignment of water from NCMWC to the City would result in slight, permanent increases in river flows (see Chapter 3B.9.3) within a section of the Sacramento River, north of Freeport. In considering the combination of a change in delivery schedule, addition of a new point of diversion, and quantity of water diverted, the Off-site Water Facilities could realize benefits in terms of increased flows within the Sacramento River when compared to existing conditions, and therefore, could realize added minor benefits to fisheries. The direct and indirect impacts would be **less than significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

IMPACT 3B.3-7 Potential Conflict with Habitat Conservation Plans. *Construction of the Off-site Water Facilities has the potential to conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

No Habitat Conservation Plan (HCP) or Natural Communities Conservation Plan (NCCP) has been adopted for the portions of the Off-site Water Facilities Study Area where physical improvements are proposed. Operational

changes within NCMWC's service area as a result of the Off-site Water Facilities would not result in substantial changes to existing irrigation patterns, which changes could otherwise result in adverse effects to giant garter snake within the Natomas Basin. Issues related to changes in hydrology and flow, as a result of the Off-site Water Facilities, are discussed in further in Section 3B.9, "Hydrology and Water Quality – Water." Based on these findings, the Off-site Water Facilities would not conflict with objectives and policies of the NBHCP.

Likewise, the SSHCP is not scheduled for completion and implementation until late 2010 or early 2011, and the exact scope and content of that SSHCP is not known at this time. Therefore, a consistency determination for the Off-site Water Facilities is not appropriate at this time. If the SSHCP is finalized and approved before commencement of mitigation developed for the Off-site Water Facilities, USACE and the City have the option of participating in the mitigation program that would be implemented in conjunction with the SSHCP.

Based on this discussion, the Off-site Water Facilities would not conflict with any adopted HCP or NCCP and **no direct** or **indirect impact** is expected. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

## 3B.3.4 RESIDUAL SIGNIFICANT IMPACTS

Implementation of the proposed Off-site Water Facility Alternatives could result in potentially impacts to biological resources including plant, wildlife, and fishery resources. Implementation of Mitigation Measures 3B.3-1a, 3B.3-1b, 3B.3-1c, and 3A.3-1b would minimize potential effects to waters of the U.S. and waters of the state, including wetlands, to less-than-significant levels by requiring that all disturbed waters be restored to pre-construction contours and permit conditions. These measures would also ensure that all ephemeral, intermittent or perennial streams are crossed using "trenchless" techniques. Additionally, the City will be required to submit, for review and approval, a mitigation and monitoring plan for the restoration of areas temporarily impacted by construction. Combined and fully implemented, compliance with these measures would ensure that performance standards and success criteria for restored or newly created habitats are satisfied thereby ensuring no net loss of habitat acreage, function, and value. Based on these considerations, no significant, residual impact to wetlands.

Although it is the City's preference to install new conveyance improvements within Zone 4 of the "Water" Study Area within existing roadway right-of-way, it is possible that one or more sections of the conveyance pipeline or associated structural facilities could be located outside the roadway. The extent of any impact to special status plant and wildlife species that does occur during construction to areas outside the roadway would be generally mitigated to less-than-significant levels according to the measures identified in this section 3B.3-1a, 3B.3-1b, 3A.3-1b, 3A.3-2a, 3A.3-2b, 3A.3-2c, 3A.3-2d, 3A.3-2e, 3A.3-2f, 3A.3-2g, 3A.3-2h, and 3A.3-3. However, since the City is unable to ensure that the actual placement of the conveyance alignment and structural facilities, there is no way of completely demonstrating avoidance of the numerous vernal pool features located the corridor under consideration for all the Off-site Water Facility Alternatives. Even if the vernal pool or seasonal wetland areas are restored following construction, there could still be direct impacts or take of vernal pool crustaceans during construction. This impact represents would be potentially significant and unavoidable, residual impact of the Off-site Water Facility Alternatives.

Implementation of Mitigation Measures 3A.3-4a and 3A.3-5 would minimize impacts to oak woodlands and sensitive riparian habitats to less-than-significant levels through restoration of the construction area and/or compensation of the impacted habitats. As a result, no residual significant impacts would remain.