

## 8.2 Biological Resources

The objectives of this section are to describe the biological resources that occur in the general Project area, including threatened and endangered species and their habitats, and to describe the potential impacts that could occur to those species as a result of construction and operation of the proposed Project. The following section includes a description of the laws, ordinances, regulations, and standards (LORS) that apply to biological resources protection, the setting and conditions of the affected site, the methods that were used to evaluate the potential presence of special-status species, and the potential adverse impacts that could occur to biological resources as a result of Project implementation. This section also discusses the feasibility of potential protection and mitigation measures that would avoid, minimize, or compensate for unavoidable adverse impacts.

### 8.2.1 Introduction

Chevron is proposing the Power Plant Replacement Project (PPRP) to add an additional 60 megawatts (MW) net generation to its existing refinery electrical generation located within Chevron's Richmond Refinery (the Refinery) in the City of Richmond (see Figure 1.2-1) in Contra Costa County, California. The proposed PPRP will be integrated into Chevron's plans to meet its growing refinery electrical load, and produce steam to replace an existing boiler plant that is approaching its end of life. The PPRP is a subset of the larger Richmond Refinery Renewal Project that is concurrently undergoing California Environmental Quality Act (CEQA) review by the City of Richmond. The California Energy Commission (CEC) has jurisdiction for only the PPRP portion of the Renewal Project that is the subject of this application.

The PPRP will consist of the following components:

- A nominal 43-MW net, natural gas- or liquid petroleum gas (butane)-fired cogeneration train consisting of one combustion turbine generator (CTG), a refinery fuel gas-fired heat recovery steam generator, 13.8-kV switchgear and ancillary equipment.
- Shutdown of the existing No. 1 power plant refinery steam boilers currently providing steam to the Refinery.
- A 17-MW net extraction, condensing steam turbine generator (STG), an associated cooling tower, and 12-kV switchgear installed as part of the new hydrogen production facility (the remainder of the hydrogen plant is under CEQA review as part of the Renewal Project). The new hydrogen plant will be a net generator of steam for both the STG and the Refinery steam system.
- Reconductoring of approximately 4,000 feet of existing onsite double-circuit overhead 115-kV transmission line to upgrade its ampacity. The reconductoring will reuse existing transmission line structures.
- Adjacent onsite service connections for fuel, reclaimed water, water, wastewater, steam, and electricity to existing piperacks, with the exception of the reconductoring noted above.

The cogeneration portion of the PPRP will occupy approximately 0.5 acre within an existing 5.2-acre cogeneration facility, and the STG and associated equipment will occupy approximately 0.5 acre within a new 7.9-acre hydrogen plant that will be built as part of the Richmond Refinery Renewal Project. The PPRP will be located well within the heart of the existing 2,900-acre Richmond Refinery. Temporary construction laydown and parking for the PPRP will be provided in various existing laydown areas within the Refinery that are currently used for ongoing maintenance and project laydown. A complete description of the PPRP is provided in Section 2.

The additional surface water runoff from the PPRP within the Refinery site will be directed via catchment basins and underground culverts to the Refinery's existing stormwater system. The stormwater would be discharged under the existing Refinery National Pollutant Discharge Elimination System (NPDES) permit.

## 8.2.2 Applicable Laws, Ordinances, Regulations and Standards

The following describes the primary LORS associated with potential impacts to biological resources in the Project area, and the agencies responsible for enforcing regulations.

### 8.2.2.1 Federal

#### **Federal Endangered Species Act (FESA, 16 USC 153 et seq.)**

Applicants for projects that could result in adverse effects to any federally listed species are required to mitigate potential impacts in consultation with the U.S. Fish and Wildlife Service (USFWS). Adverse effects are defined as "take," which is prohibited except under authorization through Section 7 or Section 10 consultation and Incidental Take Authorization. The objective of consultation is to determine whether the proposed project would result in take of an individual listed plant or animal or jeopardize the continued existence of a listed species, and what avoidance and/or compensation measures would be necessary to avoid take and jeopardy.

In general, compensation is typically required for adverse effects to listed species. Take, under federal definition, also includes actions that could result in "significant habitat modification or degradation" (50 CFR Section 17.3). Candidate species do not have the full protection of FESA; however, the USFWS advises project applicants that Candidate species could be elevated to listed status at any time, and should be regarded as species with special consideration.

**Migratory Bird Treaty Act (16 USC 703 to 711):** Protects all migratory birds, including nests and eggs.

**Bald and Golden Eagle Protection Act (16 USC 668):** Specifically protects bald and golden eagles from harm or trade.

**Clean Water Act (33 USC 1251 et seq.).** The objective of this act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters [Section 10(a)]. Section 404 of the Clean Water Act (CWA) establishes a program to regulate and permit the discharge of dredged or fill material into waters of the United States, including wetlands.

Section 401 of the CWA requires that federal agencies issuing licenses or permits for construction or other activities get a written certification that the activity will not cause or contribute to a violation of the state's or tribe's water quality standards. After receiving the

certification, the federal agency issuing the permit must include conditions in the permit to prevent the project from degrading water quality of a downstream state or tribe.

The U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act. Projects that would result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from the USACE. Section 401 compliance has been delegated by USEPA in California and is administered by the Regional Water Quality Control Boards.

### 8.2.2.2 State

#### **California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et seq.)**

Species listed under the CESA cannot be “taken” or harmed, except under specific permit. Take is defined in Fish and Game Code Section 86 as to hunt, pursue, catch, capture, or kill, or to attempt to do so.

**Fish and Game Code Section 3511, 4700, 5050, and 5515:** Protects bird, mammal, reptile, amphibian, and fish species, which are “fully protected.” California Department of Fish and Game (CDFG) is unable to authorize take of “fully protected” species when activities are proposed in areas inhabited by those species.

**Fish and Game Code Section 3503:** It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

**Fish and Game Code Section 3503.5:** Protects all birds of prey and their eggs and nests.

**Fish and Game Code Section 3513:** Makes it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

**Fish and Game Code Sections 1900 et seq., or Native Plant Protection Act:** Lists threatened, endangered, and rare plants listed by the state.

**Title 14, California Code of Regulations, Sections 670.2 and 670.5:** Lists animals designated as threatened or endangered in California. California Species of Concern (CSC) is a category designated by CDFG for species considered to be indicators of regional habitat changes, or candidate species for future state listing. CSC do not have special legal status, but are used by CDFG as a management tool when considering the future use of any land parcel.

**California Fish and Game Code (Sections 1600 through 1616):** Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFG. This applies to any channel modifications that would be required to meet drainage, transportation or flood control objectives of the project. CDFG jurisdiction is limited to the 100-year flood level. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. A Streambed Alteration Agreement may be required by CDFG for construction activities that could result in an accidental sediment release into a jurisdictional area.

**California Environmental Quality Act (CEQA):** Requires that a project's effects on environmental resources must be analyzed and assessed using criteria determined by the lead agency. Under CEQA, rare species are defined in a broader sense than threatened, endangered, or CSC. Under this definition, CDFG can request additional consideration of species not otherwise protected.

**Warren Alquist Act:** A CEQA-equivalent process implemented by the CEC. Preparation of this SPPE Application will result in an Initial Study prepared by CEC Staff to fulfill CEQA requirements.

**State Lands Commission (SLC) Land Use Leases/Land Use Permits:** The SLC administers lands owned by the state, which includes the beds of all naturally navigable waterways, such as major rivers, streams and lakes, and tidal and submerged lands below the high tide line. The SLC issues Land Use Leases or Land Use Permits for use of state lands that are determined to be consistent with the public trust values for fisheries, navigation, public access, recreation, wildlife habitat and open space.

**Regional Water Quality Control Board Section 401:** The federal Clean Water Act requires that the discharge of dredged or fill material into waters of the United States does not violate state water quality standards. Applicants that apply for Section 404 or Section 10 permits from the USACE must also obtain a 401 water quality certification from the state. The Refinery is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

**Water Quality Control Plan for the San Francisco Region (Basin Plan):** The applicable basin plan is the San Francisco Bay Basin Water Quality Control Plan (Basin Plan), last revised in 1995. The RWQCB is responsible for developing and implementing the Basin Plan, which documents approaches to implementing state and federal policies in the context of actual water quality conditions. The RWQCB's other activities include permitting of waste discharges, and implementing monitoring programs of pollutant effects. For more information about the State and Regional Board regulations and permits that affect the proposed Project, see Section 8.13 (Water Resources).

### 8.2.2.3 Local

**Bay Conservation and Development Commission:** The Bay Conservation and Development Commission (BCDC) is authorized by the McAteer Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. It implements the San Francisco Bay Plan, and regulates filling and dredging in the Bay, its sloughs and marshes, and certain creeks and tributaries. BCDC jurisdiction includes San Pablo Bay and a shoreline band that extends inland 100 feet from the high tide line. BCDC permits would be required for any work within either the Bay or the shoreline band. The Project site and linear features are located outside the BCDC jurisdictional area along the San Pablo Bay.

**City of Richmond General Plan Goals, Guidelines, and Policies:** The City of Richmond has a general plan (City of Richmond, 1994) with goals, guidelines, and policies that represent the City's overall philosophy on public and private development and provide a foundation for public and private decision-making on related issues. This plan has a number of guiding principles that may be pertinent to the activities in the proposed Project vicinity. General Plan goals and policies that may apply to PPRP include the following:

*General Goal VI:* Ensure a proper balance between economic and physical development in Richmond, and protection and enhancement of the natural environment.

*Goals of the Land Use Element, LU-G:* Achieve residential, commercial, industrial, and mixed-use developments which are compatible with environmental constraints and which protect and enhance the area's natural resources.

*Shoreline Area Guideline #1:* Allow for an appropriate level of development in shoreline areas while establishing a pleasing setting and protecting natural resources that are irreplaceable.

*Open Space and Conservation Element Goal OSC-A:* Preserve environmental conditions that, if disturbed, would destroy important wildlife habitats and valued natural features.

*Open Space and Conservation Element Goal OSC-F:* Preserve the natural topographical form of the Berkeley Hills, San Pablo Ridge, El Sobrante Ridge, Point Potrero and San Pablo Peninsula.

*Open Space and Conservation Element Goal OSC-J:* Reduce the need to import water and the environmental damage caused by water importation.

*Open Space and Conservation Element Goal OSC-M:* Develop and implement a new stormwater pollution control program that will protect water quality in the City's waterways and the San Francisco Bay from stormwater discharges.

*Open Space and Conservation Element Policy OSC-A.3:* Minimize removal of vegetation in all new developments. In particular, the cutting of mature native woodland trees, especially on unstable slopes and in creek beds, should be controlled.

*Open Space and Conservation Element Policy OSC-B.1:* Discourage filling, dredging and/or development that would have a significant adverse impact on the biological productivity or aesthetic character of the physical features of the area.

*Open Space and Conservation Element Policy OSC-B.2:* Require mitigation measures to avoid any detrimental impacts of development on the biological productivity or aesthetic character of open water, marsh, mudflat or tideland.

*Open Space and Conservation Element Policy OSC-C.2:* Require all new waterfront development, and encourage existing waterfront development, to provide a reasonable degree of buffering between such development and adjacent marsh and mudflat areas. (Buffering size should be determined in consultation with CDFG and other relevant agencies).

*Open Space and Conservation Element Policy OSC-J.1:* Greatly expand reclamation of waste water. Such water should be utilized by all appropriate users, in particular by industry (e.g., Chevron Refinery and Richmond Rod and Gun Club).

*Open Space and Conservation Element Policy OSC-J.3:* Encourage new development in areas already served by water tanks or reservoirs and discourage new development in areas not served by water tanks and reservoirs to minimize costs of public services, increase water conservation and preserve open space.

*Open Space and Conservation Element Policy OSC-K.3:* Prohibit underground disposal of liquid wastes.

*Open Space and Conservation Element Policy OSC-K.5:* Provide for the monitoring and protection of groundwater through environmental reviews.

*Open Space and Conservation Element Policy OSC-M.2:* Protect the City's waterways and the Bay from run-off containing high concentrations of pesticides and fertilizers, industrial wastes, or other contaminants.

*West Shoreline Area Guideline #1:* Evaluate any proposals for the use of San Pablo Peninsula, Point Pinole, and the waters around Castro Rocks with attention to their effects on the deer population, the monarch butterfly and the harbor seal, respectively.

### 8.2.3 General Location and Setting

The San Francisco Bay and the San Pablo Bay are a breach in the Coast Range that extends for much of the length of the state. The bays are an important geologic break in the range, providing an influential climatic and hydrological connection between the Pacific Ocean and the Central Valley. The San Francisco area abounds with environmental diversity as land meets water and salt water meets fresh water. The result is a collection of communities such as deep open water, sandy shore lines, dunes, oak woodlands, grasslands, scrub, salt flats, salt marshes, estuaries, brackish marshes, freshwater marshes, and riparian corridors. The range of habitats and transition zones result in a diverse assemblage of plant and wildlife species.

The land mass surrounding the coastal bay is largely urban with dense industrial, commercial, and residential development. However, it is not without undeveloped or abandoned lots, park land, and other patches of designated open space providing important habitat for common and special-status plant and wildlife species. Even in the urban and industrial landscape, many species have adapted and continue to persist in the presence of human disturbance and significant habitat modification.

The ocean influence and varied topography surrounding the San Francisco Bay Area result in a variety of microclimates. The geographical break in the Coastal Range channels wind through the bay and influences the climate east through the Central Valley and up the Sierra Nevada Range. The Bay Area experiences a typical Californian Mediterranean climate, modified by its ocean proximity. True to the Mediterranean climate, winters are characteristically mild (typically 45 to 60 degrees Fahrenheit [°F]) and moist. However, wind patterns and cold ocean water combine to produce fog and moderate summer temperatures (typically 50 to 70°F).

The proposed PPRP is located in a heavily industrialized area of the City of Richmond. The Project would occupy previously developed land within the existing Refinery which occupies approximately 2,900 acres of the San Pablo Peninsula (Figure 8.2-1). The Refinery is surrounded by a diverse group of natural habitats and intense development.

The Refinery has been in operation since the early 1900s and has drastically altered the natural habitat within its bounds, which occupy much of the San Pablo Peninsula. The PPRP construction sites have been used in the past as part of the Refinery operations and are devoid of vegetation. Both the proposed Project sites and laydown areas are graded flat and covered by either gravel, hardpack soil, or pavement. There are no remaining features that provide natural habitat for plant and wildlife species within the Project footprint. However, the Refinery is also within close proximity to significant biological resources including the San Francisco Bay, San Pablo Bay, and nearby estuaries and treatment wetlands (see Figures 8.2-1 and 8.2-2 located at the end of this section).

The San Francisco Bay and the San Pablo Bay are inlets where inland waters from various rivers meet the Pacific Ocean. The bays provide important habitat for fishes, migratory birds, and marine mammals. The San Pablo peninsula, on which the Refinery is located, divides the San Francisco and San Pablo Bays. Although the bay coast has been highly modified, salt water marshes or estuaries remain in some areas. A portion of the San Pablo River and Wildcat Creek marshes are located in the northeastern corner of the Refinery property. This tidal marsh and mudflat is identified in the Contra Costa General Plan as a Significant Ecological Area and provides important habitat for a variety of species including state and federal listed animals. Chevron has completed a project to restore tidal flow to approximately 250 acres of Wildcat Creek Marsh within the Refinery property.

Chevron has created its own treatment wetlands immediately south of the Wildcat Creek Marsh. Also referred to as the Water Enhancement Wetland project, Chevron's created wetlands are an experimental natural treatment and polishing system primarily for removal of solids and metals. Water is delivered to the first stage of the wetlands from the Refinery's bioreactor settling area and then goes through three stages before being pumped out of the wetlands to a final treatment. The treated water is then discharged into San Pablo Bay, approximately 2,000 feet offshore to the north of Point San Pablo. The treatment wetlands have been in use since 1988 and were created with the conversion of 90 acres of former effluent treatment ponds.

Although the proposed PPRP sites are previously disturbed and devoid of features that would provide habitat or other attraction for special-status and other local plant and wildlife species, the following subsections are provided to describe the types of habitat found adjacent to the Project areas. Special-status species that are known to have occurred or to have the potential to occur in those areas are listed in Table 8.2-1 (located at the end of Section 8.2) and described in Subsection 8.2.4.2.1. A comprehensive list of special-status species obtained from USFWS and CDFG that was used to evaluate Project impacts to sensitive biological resources is included in Appendix 8.2-A.

A more detailed description of the Project setting and current activities within the Refinery are included in Section 8.4 (Land Use).

## 8.2.4 Biological Setting

The following describes the biological conditions in the Project area, including vegetation and habitat types, local wildlife species, and special-status species known, or with a potential, to occur in the general Project vicinity.

### 8.2.4.1 Methods

The biological setting characterization is based on information gathered during a review of existing references, aerial photographs, an environmental impact report (EIR) prepared for the Chevron Richmond Refinery (ESA, 2006), and a November 16, 2006, site reconnaissance visit. Figure 8.2-1 exhibits the Project features on an aerial photograph background.

A list of federal and state special-status plant and wildlife species was developed for the Project based on database and literature searches, including agency consultation and site surveys. References searched included the California Natural Diversity Database (CNDDDB), the USFWS species list, and the California Native Plant Society (CNPS) Electronic Inventory. The CNDDDB and CNPS searches were performed for the San Quentin, Richmond, Mare Island, and Oakland 7.5-minute United States Geological Survey (USGS) quadrangles. The searches resulted in a list of special-status plant and wildlife species previously identified and/or potentially occurring in the vicinity of the proposed Project. The special-status species list is summarized in Table 8.2-1 (at the end of this section) and also includes suitable habitat typically associated with each species, critical seasonal periods associated with the species' natural history, and general comments. A Project vicinity map, including CNDDDB search results, is presented on Figure 8.2-2.

A reconnaissance-level survey of the site was conducted on November 16, 2006, with a CEC biologist and other representatives to review the Project and address probable concerns. The visit was also intended to verify characterizations made in the EIR that were used to determine the types of habitat present and the potential for supporting special-status species on the Project site and general vicinity. Based on the disturbed condition of the proposed Project site, review of the biological resources information previously gathered, consultation with the CEC staff biologist and the Project description, no protocol surveys were performed.

### 8.2.4.2 General Vegetation and Habitat

The PPRP sites, utility linears, access routes, and laydown areas are uniformly flat, gravel, dirt, and paved lots devoid of vegetation and situated within a large active refinery with a long history of operation and soil contamination. There are no remaining features that provide natural habitat for plant and wildlife species within the PPRP footprint.

Other areas of the Refinery are not without vegetation and habitat for local wildlife (Figure 8.2-1). The ridge line that runs down the center of the San Pablo Peninsula is characterized by large storage tanks surrounded by wooded, scrub, and non-native grassland vegetation. Capped landfill areas within the Refinery have been planted with a variety of tree species. Chevron has also constructed treatment wetlands that are within the Refinery and adjacent to the existing switchyard. Given their location immediately adjacent to San Pablo Bay, these treatment wetlands are unique in that they are entirely freshwater. Therefore they are characterized by wetland vegetation associated with freshwater marshes

in contrast with the salt marsh estuary habitat (known as Wildcat Creek and San Pablo Creek Marsh) located immediately north of the treatment ponds. The bio-reactor ponds within the Refinery and under the existing 115-kV transmission line are not an attractant to birds and other wildlife due to their caustic nature. Bird species using the bays or the surrounding wetlands, including the Chevron treatment wetlands, likely fly over the proposed site and heavy industrial areas of the Refinery. Other than the tank farm areas, the industrial areas of the Refinery do not provide likely shelter, forage, breeding, or movement corridor habitat for common or special-status wildlife. The habitat types within and adjacent to the Refinery are described below and are further considered in the effects determinations regarding special-status species.

**Vegetation Types and Wildlife Habitats Identified Within and in the Vicinity of the Project Area**  
The Draft EIR for the Richmond Renewal Project (ESA, 2006) (hereinafter referred to as “The Draft EIR”) describes the habitats within the Refinery as Barren, Urban, Eucalyptus/Monterey Pine Groves, Coastal Scrub, and Annual Grassland/Ruderal. Given the history of the Refinery, all habitats identified within the Refinery property are described in the EIR as either degraded or, in the case of the tree groves, the results of former landscaping and naturalization of tree grove plantings. The reconnaissance survey verified the degraded and manipulated condition of the habitats in the Refinery property.

Beyond the Refinery and towards the northern extremity of the peninsula are small areas of Coast Live Oak Woodland, Willow Scrub, Fresh/Brackish Water Marsh, Northern Coastal Salt Marsh and remnant patches of Coastal Terrace Prairie (City of Richmond, 1994). These areas were not further considered in the Draft EIR because they are at a sufficient distance from the proposed PPRP and will not be affected by the associated construction activities or operation.

1. *Barren*. The Draft EIR described the majority of the Refinery as Barren using the Wildlife Habitat Relationships (WHR) system, a community-level matrix model for predicting wildlife habitat relationships. This includes areas with buildings or pavement with less than 2 percent total herbaceous vegetative cover or less than 10 percent tree or shrub cover. The developed areas of the operating Refinery have, for the most part, been cleared of vegetation and are maintained this way for fire prevention purposes. Scattered ruderal plant species (non-native weedy vegetation) such as ripgut brome (*Bromus diandrus*), wild oat (*Avena* sp.), prickly ox tongue (*Picris echioides*), and wild radish (*Raphanus raphanistrum*) are weedy species found occasionally in gravel road shoulders and similar areas.

The Barren areas occupied by Refinery structures, roadways, and paved surfaces provide little to no habitat for plants or animals. While in theory some urban-adapted birds and other animals could make use of structures for roosts or other purposes, the high and constant amount of disturbance involved with operations, in addition to the large continuous areas lacking in vegetation and associated food resources and the numerous barriers to movement, are likely to dissuade even occasional use by wildlife.

2. *Urban*. The Draft EIR considered landscaped strips along Castro Street and Channel Street as Urban habitat. Urban habitat is defined as planted vegetation that includes tree groves, street strips, and other landscaped features in an urban setting. Landscaped areas around the Chevron offices within the Refinery can also be considered Urban.

While individual landscaped areas can be of limited habitat value, the overall mosaic can provide habitat of some value to common urban-adapted species such as rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*). These areas are probably too limited and isolated to be expected to support wildlife typically found in this setting, although they may provide habitat for occasional use.

3. *Eucalyptus/Monterey Pine Groves*. Round storage tanks are situated on the northeast hillside within the Refinery. This area is referred to as Tank Farm Hill. Growing amongst the tanks are gum trees (eucalyptus) and Monterey pine. The eucalyptus and pine are not native to the area and were planted. These trees are found throughout other areas along the hillsides of the San Pablo Peninsula. There is little understory vegetation in these areas but there are patches of scrub and non-native grassland that will be discussed later. The tank farms are not subject to the intensive activity that takes place in the low-land areas of the Refinery; therefore these trees serve as potential roost, perch, and nest sites for various bird species, including raptors. They also provide cover for other species such as raccoon (*Procyon lotor*) and Virginia opossum (*Didelphis virginiana*).
4. *Coastal Scrub*. The Coastal Scrub vegetation within the Refinery is also confined to the less-disturbed hillsides of the tank farm, amongst the eucalyptus and pine trees. The scrub is primarily composed of coyote brush (*Baccharis pilularis*) and California sagebrush (*Artemisia californica*). The scrub cover is dense in some areas. The scrub species also include poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and sticky monkeyflower (*Mimulus aurantiacus*). Invasive shrub species include French broom (*Genista monspessulana*) and pampas grass (*Cortaderia selloana*).
5. Common wildlife expected in this habitat type includes western fence lizard (*Sceloporus occidentalis*) and a large variety of birds including California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), western scrub jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), and California towhee (*Pipilo crissalis*).
6. *Non-native Grassland/Ruderal Vegetation*. Areas of Non-native Grassland and Ruderal Vegetation are also found within the tank farm area of the Refinery. This vegetation type is found primarily in disturbed areas amongst the tanks and along roadsides and other cleared areas within the Refinery and includes wild oats, ripgut brome, Italian ryegrass (*Lolium multiflorum*), and a large assortment of weedy non-native species including mustard (*Brassica* spp.), wild radish (*Raphanus raphanistrum*), fennel (*Foeniculum vulgare*) and many others.

Grasslands can provide refuge for reptiles and amphibians such as western fence lizard, southern alligator lizard (*Elgaria multicarinata*), and Pacific tree frog (*Pseudacris regilla*), as well as birds including mourning dove and western meadowlark (*Sturnella neglecta*). Grasslands also can be important foraging grounds for aerial and ground-foraging insect eaters such as Myotis bat species and pallid bat (*Antrozous pallidus*). Mammals such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*) may forage within annual grasslands. Small rodents attract raptors, including red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*).

### Contra Costa General Plan Significant Ecological Areas

The Contra Costa General Plan (Contra Costa County, 1996) designated 41 Significant Ecological Areas throughout the County, selected based on three criteria: (1) areas containing rare, threatened, and endangered species; (2) unique natural areas; and (3) wetlands and marshes. The following are Significant Ecological Areas that occur within 10 miles of PPRP, followed by the short description included in the general plan and the approximate distance from PPRP.

1. *Point Pinole*. Tidal and freshwater marshes, mudflat, grassland, eucalyptus plantation, and a fishing pier which extends ¼ mile into San Pablo Bay. Valuable for migrating waterfowl and shorebirds. Habitat for soft-haired bird's beak (*Cordylanthus mollis* ssp. *Mollis*), California clapper rail (*Rallus longirostris obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*), possibly for California black rail (*Laterallus jamaicensis coturniculus*), San Pablo song sparrow (*Melospiza melodia samuelis*) and white-tailed kite (*Elanus Leucurus*). The eucalyptus plantation serves as a resting place for migrating monarch butterflies (*Danaus plexippus*). Point Pinole is located approximately 4 miles north of PPRP.
2. *San Pablo Creek and Wildcat Creek Marshes*. This area of marsh is located adjacent to and north of the Refinery. Numerous special-status species have been recorded in these marshes including the salt marsh harvest mouse and the California clapper rail. Portions of these marshes are located within the Refinery property and are approximately 3,000 feet north from the closest PPRP site and 2,000 feet north from the associated switchyard.
3. *Brooks Island*. Tidal marsh, scrub/brushland and coastal prairie grassland. Important stop for migrating waterfowl including Canada goose (*Branta canadensis*). Supports a population of California vole (*Microtus californicus*) with apparent unique genetic features. Brooks Island is approximately 4 miles southeast of PPRP.
4. *Hoffman Marsh*. Tidal marsh habitat for migrating waterfowl and shorebirds, possibly for California clapper rail and salt marsh harvest mouse. Hoffman Marsh is approximately 5 miles southeast of PPRP.
5. *San Pablo Ridge*. The grassland areas on clay and clay loam soils on San Pablo Ridge support a population of Santa Cruz tarweed (*Holocarpha macradenia*) which was transplanted from a hillside in Pinole. The general plan identifies two locations along San Pablo Ridge and the closest of the two is approximately 4.5 miles northeast of PPRP.
6. *Wildcat Creek Canyon*. Grassy hillside with riparian woodland along Wildcat Creek. Habitat for ornate shrew (*Sorex ornatus*), western pond turtle (*Clemmys marmorata*), northern brown skink (*Eumeces gilberti placerensis*) and possibly for Alameda whipsnake (*Masticophis lateralis euryxanthus*). Wildcat Creek Canyon is in the East Bay Regional Parks and is approximately 6 miles southeast of PPRP.
7. *Lone Tree Point*. Stratified cliff face demonstrates the underlying trend of coastal uplift. Fossiliferous strata contain many marine-life fossils such as clams and oysters. Lone Tree Point is approximately 9 miles northeast of PPRP.

8. *Sobrante Ridge Manzanita Grove*. A unique “island” stand of chaparral that supports two and possibly three species of manzanita, including the Alameda manzanita (*Arctostaphylos pallida*). The Sobrante Ridge Manzanita Grove is approximately 6.5 miles east of PPRP.
9. *Mouth of Pinole Creek*. This coastal salt marsh area supports California black rail (*Laterallus jamaicensis coturniculus*). The mouth of Pinole Creek is approximately 6 miles northeast of PPRP.

### 8.2.4.3 Special-Status Species

Due to the lack of biological resources and associated habitat, it is unlikely that activities within the proposed PPRP construction sites, laydown areas, and access roads would result in significant impacts to special-status plant and wildlife species. The proposed PPRP site has been a part of the active Refinery operations for so long that the lack of historical records of special-status species in or immediately adjacent to these proposed work, laydown, and access areas is no surprise. Seasonal botanical and wildlife surveys were not performed due to the condition of the Project area. Occupied and potential habitat for special-status species is found nearby and within the other areas of the Refinery property. Therefore much of the remainder of this section will focus on those nearby habitats.

#### Special-Status Plant Species

Given the site condition, none of the special-status plant species included in Table 8.2-1 are likely to be found within the PPRP area. Database searches did indicate various special-status plants within 10 miles of the proposed PPRP. Of note, the Suisun Marsh aster (*Aster lentus*), a CNPS 1B plant, has been recorded on the San Pablo Peninsula, approximately 2 miles east of PPRP at Point Molate. This plant would not be affected by the PPRP as no marsh habitat is within the Project area.

#### Wildlife

The habitat quality and species diversity of the San Pablo Peninsula has been greatly reduced by the habitat loss resulting from the Refinery construction and operation. The proposed construction area, laydown area, and access routes for the PPRP are currently devoid of forage, shelter, or breeding habitat for wildlife. However, as discussed in Section 8.2.4.2, San Pablo Peninsula and less developed and frequented areas within the Refinery property still support suitable habitat for a variety of local wildlife species. Various migratory and resident wildlife species likely use the less disturbed and vegetated areas of the tank farms, treatment wetlands, and San Pablo and Wildcat Creeks marshes for roosting, shelter, foraging, and breeding. Due to current development and daily activities adjacent to the PPRP, it is unlikely that wildlife species would travel through the site. Therefore, the site does not likely function as part of a wildlife movement corridor.

#### Special-Status Wildlife Species

No federal or state-listed wildlife species have been reported to the CNDDDB for the San Pablo Peninsula. However, special-status species have been found in habitats nearby the Refinery, or have the potential to occur nearby or within the Refinery. As described in the 2006 EIR, this is especially true for the San Pablo and Wildcat Creek Marshes, the Chevron Treatment Wetlands, vegetated portions of the San Pablo Peninsula, and aquatic

habitat of the San Pablo and San Francisco Bays. Those species will be discussed relative to those habitat areas.

1. *San Pablo Creek and Wildcat Creek Marsh and Chevron Treatment Marsh Areas.* According to the Draft EIR, the final stretch of Wildcat Creek and its confluence with San Pablo Bay largely separates Chevron Treatment Wetlands from the northern coastal salt marsh habitat of Wildcat Creek Marsh. The marsh provides potential habitat for a relatively large number of special-status species typically restricted to this habitat type. Species that have been observed in the marsh (CDFG, 2006) include the federal and state endangered salt-marsh harvest mouse and California clapper rail, the state endangered and federal species of concern California black rail, the federal species of concern San Pablo song sparrow (*Melospiza melodia samuelis*) and white-tailed kite, and the state species of concern northern harrier (*Circus cyaneus*), San Pablo vole (*Microtus californicus sanpabloensis*), and short-eared owl (*Asio flammeus*). The marsh provides potential habitat for soft bird's beak, primarily found east of Carquinez Strait. A population recorded on the north shore of Point Pinole, about five miles north of the proposed Project area, is the most southwestern of the known occurrences of this plant species.

The snowy egret (*Egretta thula*) and the great blue heron (*Ardea herodias*) are local residents found throughout California. They typically nest communally in dense marshes and trees near water. These species likely forage in the surrounding wetlands but no potential rookery (nesting locations) sites were recorded or observed in the PPRP vicinity.

Portions of the marshes are located within the Refinery property and are approximately 3,000 feet north from the closest PPRP plant site and 2,000 feet north from the associated switchyard. The Chevron Treatment Wetlands are located between the operational Refinery and this estuary. The treatment wetlands have the potential to be occasionally used by some of the species, such as the clapper rail, that are more closely associated with saltwater marsh habitat and pickleweed; however, none were observed during relatively intensive bird surveys in the treatment marsh areas between 1994-2004 (ESA, 2006). This may be partially due to the treatment wetlands being non-tidal and freshwater, which is different than the estuaries associated with Bay wetland habitats.

2. *San Pablo Peninsula (Northern and Western Portions).* According to the Draft EIR, certain vegetated areas of San Pablo Peninsula immediately northwest of the Project area contain potential nesting habitat for Cooper's hawk (*Accipiter cooperi*) and various other raptors. Cooper's hawk prefers dense stands of live oak, riparian deciduous or other forest habitats near water. No appropriate tree and foraging habitat occurs in the vicinity of the PPRP, although potential habitat occurs towards the northern end of the peninsula. Tall trees in the vicinity of the tank fields may provide roosting or nesting habitat for other raptors, such as red-tailed hawk.

Loggerhead shrike (*Lanius ludovicianus*), a federal and state species of concern, forages and nests in grassland and adjacent shrubs. Potential habitat for this species occurs north and west of PPRP in less disturbed portions of the peninsula. The western burrowing owl (*Athene cunicularia hypugaea*), another federal and state species of concern, are found in low, open grasslands where large rodent burrows are available for

nesting. Grassland areas throughout the peninsula provide potential habitat, including the degraded grassland areas associated with the tank fields.

Groves of blue gum and eucalyptus adjacent and extending into some of the tank field areas may provide potential wintering sites for monarch butterfly (*Danaus plexippus*) although no wintering sites have been reported or observed on the peninsula.

According to the Draft EIR, a nesting colony of double-crested cormorant (*Phalacrocorax auritus*), a state species of concern, occurs on the eastern portion of the Richmond-San Rafael Bridge. Individual birds may make occasional use of trees within the Refinery in the vicinity of the bridge's base (e.g. along the southern edge of the Quarry Tank Field), but the trees are not suitable for nesting and the areas around the trees lack foraging habitat.

Bats, including the federal and state species of concern Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*) and greater western mastiff bat (*Eumops perotis californicus*) may roost in abandoned buildings or in suitable trees found on the peninsula. Trees in the vicinity of tank field areas may provide potential roosting sites.

According to the Draft EIR, fragrant fritillary (*Fritillaria lilacae*) is known in the Refinery vicinity by a historical record from Point Richmond, approximately one mile to the south. Potential coastal scrub or grassland habitat may occur in undisturbed areas further north on the San Pablo Peninsula but none is found within the Refinery.

3. *San Pablo Bay and San Francisco Bay.* According to the Draft EIR, a number of special-status fish species have potential to occur in the waters and brackish marshes adjacent to the Refinery. Many species of fish migrate through San Francisco Bay and San Pablo Bay waters, make use of marshes in the area for foraging and rearing habitat, and may use portions of Wildcat Creek for foraging and rearing habitat. Species that occur in the area include several runs of Chinook salmon (*Oncorhynchus tshawytscha*; federal and state endangered winter run, federal and state threatened fall/late-fall run, and federal candidate spring-run), two federally threatened steelhead trout (*Oncorhynchus mykiss* and *O. mykiss irideus*), and the federal species of special concern green sturgeon (*Acipenser medirostris*) and longfin smelt (*Spirinchus thaleichthys*). These species are all migratory and any one species is only present in the area for relatively short periods of time during the year.

## 8.2.5 Impacts

### 8.2.5.1 CEQA Environmental Checklist

Table 8.2-2 provides the CEQA Checklist questions that are used in this Small Power Plant Exemption (SPPE) Application to assess the potential significance of an impact.

### 8.2.5.2 Discussion of Impacts

As stated in the Section 8.4, Land Use, the proposed PPRP would include the replacement and upgrade of the power generating facilities within the Refinery and would not expand the Refinery boundary or the existing buffer between existing areas of operation and the Refinery boundaries. The PPRP would be constructed on disturbed soils within current and previously used process areas within the Refinery and all activities, including the

management and disposal of the wastes from the various construction activities, would be conducted in accordance with established procedures and the applicable regulatory requirements that the Refinery already follows.

TABLE 8.2-2  
Biological Resources CEQA Checklist

	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant	No Impact
<b>Would the project:</b>				
a) 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 CDFG or USFWS?				X
b) Have a substantial adverse effect on any riparian habitat, or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG USFWS?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident, or migratory fish, or wildlife species, with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

### Wetlands and Waters of the U.S.

Wetlands and waters of the United States are defined by the USACE by the presence of hydric soils, hydrophytic vegetation, and wetland hydrology (Environmental Laboratory, 1987). No jurisdictional wetlands or waters are present on the PPRP site, laydown, or access areas. Project construction would not cause loss or fill of any wetlands.

### Water Supplies and Discharges

Process water for the PPRP will be supplied through the existing Refinery system. This system is further discussed in Section 8.12, Water Resources. Water will be discharged to the Refinery wastewater treatment system. The Project will not involve any mechanism related

to securing or discharging water during operations that will affect fish or other aquatic biota.

Stormwater discharge from the PPRP will be directed into the Refinery's existing containment system and discharged under the Refinery's National Pollutant Discharge Elimination System (NPDES) permit. According to Chevron's current RWQCB NPDES permit, the Refinery's stormwater can be discharged directly to the San Francisco and San Pablo Bays or be directed through the Effluent Treatment System, depending on water quality.

Water will be applied to the site for dust control during construction. Eroded soils and sediment washed into surface waters would be potentially harmful to San Francisco Bay and San Pablo Bay water quality. As discussed further in Sections 8.9 (Agriculture and Soils) and 8.14 (Water Resources), the Applicant would be required to have a Stormwater Pollution Prevention Plan (SWPPP) as part of compliance with an NPDES construction permit. The permit specifies best management practices (BMPs) to avoid sediment runoff and erosion that would cause water quality degradation.

#### **Cooling Tower Drift**

Impacts to soils and vegetation associated with cooling tower drift are presented in Section 8.1, Air Quality.

#### **Combustion Turbine Emissions**

Impacts to soils and vegetation associated with combustion turbine air emissions are presented in Section 8.1, Air Quality.

#### **Noise and Lights from Plant Operations**

The PPRP site is zoned heavy industrial (see Section 8.4, Land Use) and is surrounded by industrial facilities within the Refinery. These facilities typically operate 24 hours per day, 7 days per week and have standard industrial lighting and noise emissions. Operation of the plant would produce some noise, as described in Section 8.5. Noise and construction activities would not adversely impact wildlife, due to existing noise levels and the lack of local wildlife attractants in the immediate vicinity.

Bright night lighting could disturb wildlife (e.g., nesting birds, foraging mammals, and flying insects). Night lighting is also suspected to attract migratory birds to some areas and, if the lights are on tall buildings or the combustion turbine exhaust stacks, collisions could occur. However, the exhaust stack height is currently estimated at 138.5 feet, which is lower in profile than much of the surrounding development.

Due to the existing level of lighting from the Refinery, the minimal increase in nighttime lighting from the PPRP facilities is not expected to be significant.

#### **Potential for Collision and Electrocution Hazard to Birds**

The Project would construct one exhaust stack, as high as 138.5 feet, and reconductor an existing electric transmission line that could potentially result in bird collisions. Most collisions involve nocturnal migrants flying at night in inclement weather and low-visibility conditions, colliding with tall guyed television or radio transmission towers (CEC, 1995; Kerlinger, 2000 in *Final Staff Assessment for Contra Costa Power Plant*). Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over

topographic features (e.g., ridge tops) or when inclement weather forces them down closer to the ground. A large number of birds migrate along the Pacific Coast, passing through the San Francisco Bay Area. The Refinery is within a known path for nocturnally migrating birds. However, there are no topographic or ecological features that would attract birds to this location or “funnel” them into the vicinity of the elevated features of the Project. Birds may collide with the approximately 4,000-foot-long 115-kV electrical transmission connections but risk of collision is not expected to be greater than the existing line.

Large raptors, herons, and egrets can be electrocuted by transmission lines when a bird’s wings simultaneously contact two conductors of different phases, or a conductor and a ground. The existing 115-kV line that will be reconducted as part of the PPRP spans the Refinery’s 165 million gallon bioreactor pond. Due to the effluent levels, birds and other wildlife are not known to use these ponds and they are not considered an attractant to wildlife. However, given the height of the lines and the location adjacent to the San Francisco and San Pablo Bays as well as productive wetland habitats, there is a potential for birds to strike the transmission line. The 115-kV electrical transmission lines for the Project will be constructed with at least a 5.5-foot span between conductor wires. The reconducted line is not expected to increase avian electrocutions in the area.

### 8.2.5.3 Conflict With Regional Habitat Conservation Plans

There are no countywide or regional Habitat Conservation Plans that would affect development in this industrial area of Richmond.

### 8.2.5.4 Cumulative Impacts

The proposed PPRP is part of a larger Energy and Hydrogen Renewal Project that would intensify the use of land on site that is developed for Refinery-related operations. However, the scope of the larger project will remain within the bounds of the existing operating Refinery boundaries, and the cumulative impacts of the proposed PPRP in relationship to existing land uses on site and in the Project vicinity would be considered less than significant.

The RWQCB has imposed limits on the Refinery that are intended to maintain resulting pollution discharge to receiving waters at a level that would be considered to have a less than significant affect on biological resources. The Refinery will be required to maintain these limits even with the addition of discharge associated with the PPRP.

A proposed future project at the Refinery in conjunction with the East Bay Municipal Utility District, the Richmond Advanced Recycling Expansion (RARE) project, would increase the amount of recycled water used at the Refinery, potentially increasing the amount of pollutant loading in the effluent discharge. Although exempt from the NPDES permit (see Section 8.13, Water Resources, the water from the RARE project would consist of water that is otherwise discharged to the bay, thus mass loading would remain the same.

Although potential increases in pollutants from the cumulative discharges could occur, compliance with the discharge requirements of the Refinery’s NPDES permit would reduce the Refinery’s contribution to these impacts to a level that is less than cumulatively considerable. The NPDES permitting process provides discharge standards that, when followed, limit this impact to less than significant. The Refinery’s contribution is controlled

by discharge limits in the NPDES permit and eventually will be considered by the RWQCB under the regional Total Maximum Daily Load (TMDL) program. Under either the NPDES or TMDL program, the RWQCB has the responsibility and authority to modify discharge limits for dischargers, such as the Refinery, in order to protect water quality. The PPRP impact would be substantially mitigated by discharge requirements established by the RWQCB for this and other projects considered under cumulative analysis. Accordingly, the potential contribution of pollutants as a result of the PPRP, together with other industrial development projects, is not considered a cumulatively significant biological impact. The NPDES permit limits are set by the San Francisco Bay Regional Water Quality Control Board (RWQCB) for protection of aquatic life and other beneficial uses in the San Francisco Bay, including San Pablo Bay. The PPRP will discharge water under the Refinery's NPDES permit limits, which are not expected to adversely affect beneficial uses in the bays. See also discussion in Section 8.13, Water Resources, and Section 8.11, Hazardous Materials and Waste.

### **8.2.6 Proposed Mitigation and Monitoring**

As described in the Section 8.8, Agriculture and Soils, erosion control measures would be required during construction to help maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity. Temporary erosion control measures would be installed before construction begins, would be maintained and evaluated during construction, and would be removed from the site after the completion of construction. These measures would also likely benefit surrounding natural habitats. More details of the temporary and permanent erosion control measures can be found in Section 8.8, Agriculture and Soils.

Similar measures will be implemented during the construction and operation of the PPRP to minimize the risks associated with the handling of and inadvertent spills or leaks of hazardous materials that could affect biological resources. Refer to Section 8.11, Hazardous Materials and Waste, for an outline of these measures, including a risk management plan and a spill prevention control and countermeasure plan.

### **8.2.7 Biological Resources of Commercial and Recreational Value**

The proposed PPRP will be contained within the Refinery property, which is off-limits to the public. Construction of the Project and indirect effects associated with its construction and operation are not expected to adversely affect any commercial activities such as fishing or recreational activities.

### **8.2.8 Involved Agencies and Agency Contacts**

The Project has no federal nexus, and will not impact any state or federal listed species or state species of concern and will not cross any jurisdictional streams or wetlands. The agency contacts to confirm the foregoing information for this Project are summarized in Table 8.2-3.

TABLE 8.2-3  
Biological Resources Agency Contacts

Biological Resource Agency	Contact	Title	Telephone/Email
U.S. Fish and Wildlife Service Federal Building 2800 Cottage Way, Room W-2605 Sacramento, California 95825	Ryan Olah	Sacramento Field Office Environmental Service Delta Branch Chief	(916) 414-6625 Ryan_Olah@fws.gov
California Department of Fish and Game 7329 Silverado Trail Napa, California 94558 Mail: P.O. Box 47, Yountville, California 94599	Scott Wilson	Conservation Planning Supervisor	(707) 944-5584 SWilson@dfg.ca.gov

## 8.2.9 Required Permits and Permit Schedule

Because no streams will be crossed and no special-status species would be affected, no federal, state or local permits are required for Biological Resources. The only related permit would be an NPDES construction permit that is addressed in Section 8.12, Water Resources.

## 8.2.10 References

- Avian Power Line Interaction Committee (APLIC). 1996. *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996*. Edison Electric Institute/Raptor Research Foundation. Washington, DC.
- California Department of Fish and Game (CDFG). 2006. *California Natural Diversity Database*. Search of the San Quentin, Richmond, Mare Island, and Oakland 7.5-minute U.S. Geological Survey quadrangles.
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- California Native Plant Society (CNPS). 2007. Online Inventory of Rare and Endangered Vascular Plants Of California.
- California Energy Commission (CEC). 1995. *Avian Collision and Electrocution: An Annotated Bibliography*. California Energy Commission. 114
- City of Richmond. 1994. *Richmond General Plan: Goals, Policies, Guidelines, Standards, and Implementation Programs*. Volume One. Includes revisions through May 1998. City of Richmond Planning Department. August 1994. Available online: <http://www.ci.richmond.ca.us/index.asp?NID=684>
- Contra Costa County. 1996. *Contra Costa County General Plan 1995 - 2010*. July 1996.
- ESA Associates, Inc. (ESA). 2006. *Chevron Energy and Hydrogen Renewal Project Administrative Draft EIR* (State Clearinghouse No. 2005072117). Prepared for City of Richmond, CA. October.

- Kerlinger, Paul. 2000. *Avian Mortality at Communication Towers: A Review of the Recent Literature, Research, and Methodology*. Prepared for the U.S. Fish and Wildlife Service Office of Migratory Bird Management. 38 pp.
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- Pahwa, S. and B. Shipley. 1979. A Pilot Study to Detect Vegetation Stress around a Cooling Tower. Presented at the 1979 Cooling Tower Institute Annual Meeting, Houston, Texas. Paper TP7903.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
<b>Plants</b>				
Soft bird's beak	<i>Cordylanthus mollis</i> ssp. <i>Mollis</i>	FE/CR/1B	Soft-haired bird's beak is found in heavy clay soils of either coastal salt or brackish marshes of northern San Francisco Bay.	<b>Low.</b> Slight potential habitat in Wildcat Marsh, but species occurs mostly east of Carquinez Straits. There is no marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to marsh habitat.
Fragrant fritillary	<i>Fritillaria liliacea</i>	--/--/1B	This species is associated with coastal scrub, grassland, and coastal prairie communities, often associated with serpentine substrate.	<b>Low.</b> There is no appropriate habitat for this species within the Project Area and the Project is not expected to result in direct or indirect affects to its appropriate habitat outside the Project footprint.
California seablite	<i>Suaeda californica</i>	FE/--/1B	This species is an evergreen shrub found in coastal saltwater marshes and swamps. Formerly known from San Francisco Bay area, where it is thought to have been extirpated by development; now extant only in Morro Bay and near Cayucos Pt.	<b>Low.</b> Slight potential habitat in Wildcat Marsh, but species occurs mostly east of Carquinez Straits. There is no marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to marsh habitat.
Alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>	--/--/1B	This species is an annual herb that is associated with playas, valley and foothill grasslands, and alkaline vernal pool communities.	<b>Low.</b> There is no appropriate habitat for this species within the Project Area and the Project is not expected to result in direct or indirect affects to its appropriate habitat outside the Project footprint.
Suisun Marsh aster	<i>Aster lentus</i>	--/--/1B.2	This species is a rhizomatous herb associated with brackish and freshwater marshes and swamp communities.	<b>Low.</b> Slight potential habitat in Wildcat Marsh, but species occurs mostly east of Carquinez Straits. There is no marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to marsh habitat.
Coastal bluff morning-glory	<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	--/--/1B.2	This species is a perennial herb associated with coastal dune, coastal scrub, and North Coast coniferous forest communities.	<b>Low.</b> There is no appropriate habitat for this species within the Project Area and the Project is not expected to result in direct or indirect affects to its appropriate habitat outside the Project footprint.
<b>Fishes</b>				
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE/CSC/NA	This species is associated with shallow waters of bays and estuaries, in lower stream reaches, in coastal stream lagoons	<b>Low.</b> There is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
Delta smelt	<i>Hypomesus transpacificus</i>	FT/CT/NA	This species is associated with shallow, open waters of estuaries where salinities range from 2-7 ppt. They spawn and rear in sloughs and shallow edge waters of channels in upper Delta and Sacramento River, Suisun Marsh and Bay.	<b>Low.</b> There is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Coho salmon – Central California coast ESU	<i>Oncorhynchus kisutch</i>	FE/CE/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to spawn in the same river systems. This species is associated with accessible Bay Area and coastal rivers and streams with cover, cool water and sufficient dissolved oxygen. They require beds of loose, silt-free gravel for spawning.	<b>Low.</b> There is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Steelhead – Central California Coast ESU	<i>Oncorhynchus mykiss irideus</i>	FT/CSC/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to in the same river system. This species is associated with accessible Bay Area and coastal rivers and streams with cover, cool water and sufficient dissolved oxygen. They require beds of loose, silt-free gravel for spawning.	<b>Low.</b> Although this fish is known to spawn in tributaries to San Francisco and San Pablo Bays, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Steelhead – Central Valley ESU	<i>Oncorhynchus mykiss</i>	FT/--/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to spawn in the Sacramento and San Joaquin Rivers and their tributaries.	<b>Low.</b> Although this fish is known to migrate through San Francisco, San Pablo, and Suisun Bays, as well as the Delta region to spawning grounds, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Chinook salmon – Central Valley spring-run	<i>Oncorhynchus tshawytscha</i>	FT/CT/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to spawn in a few tributaries to the Sacramento River basin.	<b>Low.</b> Although this fish is known to migrate through San Francisco Bay and Sacramento-San Joaquin Delta to spawning streams, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
Chinook salmon – Central Valley fall/late fall-run	<i>Oncorhynchus tshawytscha</i>	FC/CSC/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to spawn in lowland reaches and tributaries to the Sacramento River basin.	<b>Low.</b> Although this fish is known to migrate through San Francisco Bay and Sacramento-San Joaquin Delta to spawning streams, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Chinook salmon – winter run	<i>Oncorhynchus tshawytscha</i>	FE/CE/NA	This species spends its early years in the freshwater stream system in which it was born and then migrates out to the Pacific Ocean before returning to spawn in the Sacramento River basin.	<b>Low.</b> Although this fish is known to migrate through San Francisco Bay and Sacramento-San Joaquin Delta to spawning streams, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Green sturgeon	<i>Acipenser medirostris</i>	FP/--/NA	This species is associated with estuaries, lower reaches of large rivers, and salt or brackish water off river mouths. They spawn in deep, fast water of fresh water streams.	<b>Low.</b> Although this fish is known to migrate through the San Francisco Bay estuaries and spawn in the Sacramento River, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	FSC/--/NA	This species is found in slow moving rivers and dead end sloughs. They require flooded vegetation for spawning and rearing. They spawn in freshwater in the lower Delta. Once common in San Pablo Bay and Carquinez Strait following high winter flows, they are now largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the Sacramento-San Joaquin Estuary.	<b>Low.</b> Although this fish was once common in San Pablo Bay and the Carquinez Strait following high winter flows, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.
Longfin smelt	<i>Spirinchus thaleichthys</i>	FSC/--/NA	This species is found in open waters of estuaries. They spawn in freshwater streams from February to April. Larval rearing habitat consists of brackish estuarine waters.	<b>Low.</b> Although this fish is known to use the estuaries of the Suisun and San Pablo bays, there is no aquatic habitat within the Project Area and the Project is not expected to result in direct or indirect affects to aquatic habitat.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
<b>Insects and Crustacea</b>				
Monarch butterfly	<i>Danaus plexippus</i>	Wintering sites protected by CDFG	In California this species is associated with over-wintering roost sites that are typically located within eucalyptus groves.	<b>Low.</b> Although wintering roosts are known to occur at Point Pinole, approximately 5 miles north of the Refinery, the species has not been observed on the San Pablo Peninsula. The eucalyptus and other trees within the adjacent tank farm may provide potential roosts for this butterfly. There is no appropriate habitat for this species, however the Project is not expected to result in direct or indirect affects to this potential habitat.
<b>Reptiles and Amphibians</b>				
California red-legged frog	<i>Rana aurora draytonii</i>	FT/CSC/NA	This species is associated with aquatic habitat such as stock ponds, pools, and slow moving streams with emergent vegetation for breeding, foraging, and cover. It also uses adjacent upland habitats for foraging, movement, and cover.	<b>Low.</b> There is no appropriate fresh water habitat or associated upland habitat within the Project Area and the Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Western pond turtle	<i>Emys (=Clemmys) marmorata</i>	--/CSC/NA	This species is typically associated with freshwater slack- or slow-water aquatic habitat with adequate deep water cover and basking sites. They use surrounding uplands for foraging, aestivation, and nesting.	<b>Low.</b> There is no appropriate fresh water habitat or associated upland habitat within the Project Area and the Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
<b>Birds</b>				
California black rail	<i>Laterallus jamaicensis coturniculus</i>	FSC/CT/NA	This species nests and forages in tidal emergent wetland with pickleweed.	<b>Low.</b> This species has been recorded in the nearby Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE/CE/NA	This species nests and forages in emergent wetlands with pickleweed, cordgrass, and bulrush.	<b>Low.</b> This species has been recorded in the nearby Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
Caspian tern	<i>Sterna caspia</i>	MB/--/NA	This bird is the largest tern species. It is associated with large lakes and coastal areas where it forages on fish, aquatic invertebrates, and the occasional small or young bird or egg. They breed by themselves or in small colonies where they make their nests on the ground or on floating material.	<b>Low.</b> This species has the potential to nest and forage along the nearby coastline. However, there is no appropriate foraging or nesting habitat within the Project Area and the Project is not expected to result in direct or indirect affects to their habitat.
Double-crested cormorant	<i>Phalacrocorax auritus</i>	MB/CSC/NA (Rookery sites)	This species nests along coast on isolated islands or in trees along lake margins or on bridges. They often forage inland on lakes, ponds, and estuaries	<b>Low.</b> Nesting colony occurs on Richmond-San Rafael Bridge and this bird may roost in nearby trees. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Snowy egret (rookery)	<i>Egretta thula</i>	FP, MB/--/NA	This species is found throughout California where it is associated with estuaries, wetlands, ponds, rivers, irrigation ditches, and flooded agricultural fields. They nest communally in dense marshes and trees. Breeding season typically is from March-May.	<b>Low.</b> Although this species may forage in nearby marshes and open areas, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Great blue heron (rookery)	<i>Ardea herodias</i>	MB/--/NA	This species is primarily associated with marshes, lagoons, streams, lakes, and pond habitat and is also found in fields and meadows. They typically nest communally in tall trees near water. Breeding typically begins in March.	<b>Low.</b> Although this species may forage in nearby marshes and open areas, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Black-crowned night heron	<i>Nycticorax nycticorax</i>	MB/--/NA	This species is associated with wetland and large aquatic habitat throughout much of North America. They typically nest colonial in trees. They are opportunistic feeders.	<b>Low.</b> Although this species may forage in nearby marshes and open areas, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
White tailed kite	<i>Elanus leucurus</i>	FSC, MB/FP/NA	This raptor species is typically associated with California's Central Valley but can also be found in appropriate habitat within the Bay Area. It is commonly associated with riparian and open habitats. They typically breed between January and August. Their platform nests are located in trees or shrubs. This species is primarily a local resident and is known to form communal roosts in the fall and winter.	<b>Low.</b> Although this species may forage in nearby marshes and open areas and may even nest in trees within the Refinery, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Northern harrier	<i>Circus cyaneus</i>	MB/CSC/NA	This raptor species is a ground nester that is associated with fresh water and salt marshes and swamps, lowland meadows, and irrigated fields.	<b>Low.</b> Although this species may forage in nearby marshes and open areas and possibly nest in nearby marshes, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Cooper's hawk	<i>Accipiter cooperi</i>	MB*/NA (nest sites)	This raptor species forages in a variety of habitats but is most often associated with wooded areas.	<b>Low.</b> Although this species may forage in nearby marshes and open areas and may even nest in trees within the Refinery, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Short-eared owl	<i>Asio flammeus</i>	MB/CSC/NA	This raptor species is a ground nester that is associated with fresh water and salt marshes and swamps, lowland meadows, and irrigated fields.	<b>Low.</b> Although this species may forage in nearby marshes and open areas and possibly nest in nearby marshes, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
Western burrowing owl	<i>Athene cunicularia</i>	MB, FSC/CSC/NA	This raptor species is associated with open grassland habitat with mammal burrows, typically ground squirrels. They use these burrows for cover and natal dens. Breeding season is typically from February through August.	<b>Low.</b> Although this species may forage in nearby marshes and open areas and may even nest on the hillsides or other areas on the Peninsula, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
San Pablo song sparrow	<i>Melospiza melodia samuelis</i>	MB/CSC/NA	This subspecies is currently found in marshes around San Pablo Bay and throughout the extensive marshes along the Petaluma, Sonoma and Napa rivers.	<b>Low.</b> This species has been recorded in the nearby Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.
Alameda song sparrow	<i>Melospiza melodia pusillula</i>	MB/CSC/NA	This subspecies is currently found in marshes from Coyote Creek, at the southern extremity of the Bay, northward along the west shore of south San Francisco Bay to Belmont Slough and along the east shore to San Lorenzo. Small populations also occur in small marshes at the northeast shore of Richmond Inner Harbor at El Cerrito, along the shoreline from Emeryville to the Oakland Bay Bridge Toll Playa, and at Arrowhead Marsh at the mouth of San Leandro Creek in San Leandro Bay.	<b>Low.</b> There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.
Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	MB,FSC/CSC/NA	This species is typically found in moist saltmarsh habitats and willow thickets with dense, low cover.	<b>Low.</b> This species has a high potential to occur within Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.
Loggerhead shrike	<i>Lanius ludovicianus</i>	MB,FSC/CSC/NA	This species is commonly associated with shrublands and open grasslands.	<b>Low.</b> Although this species may forage in nearby open habitat and possibly nest in nearby trees, the Project site is heavily industrial and does not support forage habitat for this bird. The Project is not expected to result in direct or indirect affects to any suitable habitat for this species outside the Project footprint.
<b>Mammals</b>				
Salt marsh harvest mouse	<i>Reithrodontomys raviventris raviventris</i>	FE/CE/NA	This species is associated with saline emergent marshlands with dense pickleweed.	<b>Low.</b> This species has been recorded in the nearby Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.

TABLE 8.2-1  
Special-Status Species Potentially Occurring in Project Vicinity

Common Name	Scientific Name	Status Federal/State/CNPS	Primary Habitat and Critical Seasonal Periods	Likelihood for Occurrence in Project Area and Comments
Bats including: Townsend's western big-eared bat	<i>Corynorhinus townsendi townsendi</i>	FSC/CSC/NA	These bat species are found in various habitats; roosting sites include buildings and other man-made structures and trees.	<b>Low.</b> Although these species may forage in nearby open habitat and roost in nearby trees, and structures, the Project site is heavily industrial and does not support forage habitat for these bats. The Project is not expected to result in direct or indirect affects to any suitable habitat for these species outside the Project footprint.
Greater western mastiff bat	<i>Eumops perotis californicus</i>			
Pallid bat	<i>Antrozous pallidus</i>			
Also several <i>Myotis</i> spp.				
San Pablo vole	<i>Microtus californicus sanpabloensis</i>	--/CSC/NA	This species is typically found in grassy habitats associated with salt-marshes.	<b>Low.</b> This species has been recorded in Wildcat Marsh. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.
Salt marsh wandering shrew	<i>Sorex vagrans halicoetes</i>	FSC/CSC/NA	This species is associated with salt marsh habitat with abundant pickleweed and driftwood.	<b>Low.</b> This species has been recorded in San Pablo Creek marsh, about 1 mi north. There is no appropriate marsh habitat within the Project Area and the Project is not expected to result in direct or indirect affects to this marsh habitat.

**Notes:**

\* Federally-listed in Santa Barbara and Sonoma Counties only

**Key to Status Codes:**

<b>Federal:</b>	<b>State:</b>	<b>Other:</b>
FC = Federal Candidate Species	CE = State Endangered	CNPS = California Native Plant Society Listed
FE = Federal Endangered	CR = State Rare	1B = Plants, rare, threatened or endangered in California and elsewhere and are rare throughout their range.
FP = Federal Protected	CT = State Threatened	According to CNPS, all of the plants constituting List 1B meet the definitions of Section 1901.
FPE = Federal Proposed Endangered	CSC = California Species of Special	1B.2 = Fairly endangered in California
FSC = Federal Species of Concern	Concern	FP = Fully Protected
FT = Federal Threatened		R = Rare
MB = Federal Migratory Bird Treaty Act		NA = Not Applicable

**Sources:** CDFG. 2007. *California Natural Diversity Database*. Search of San Quentin, Richmond, Mare Island, and Oakland 7.5-minute U.S. Geological Survey quadrangles. January 2007.  
California Native Plant Society. 2007. *Online Inventory of Rare and Endangered Vascular Plants Of California*.



**LEGEND**

-  Plant Area
-  Laydown Area
-  Transmission Lines
-  Refinery Boundary

N

0      1,000      2,000  
Feet

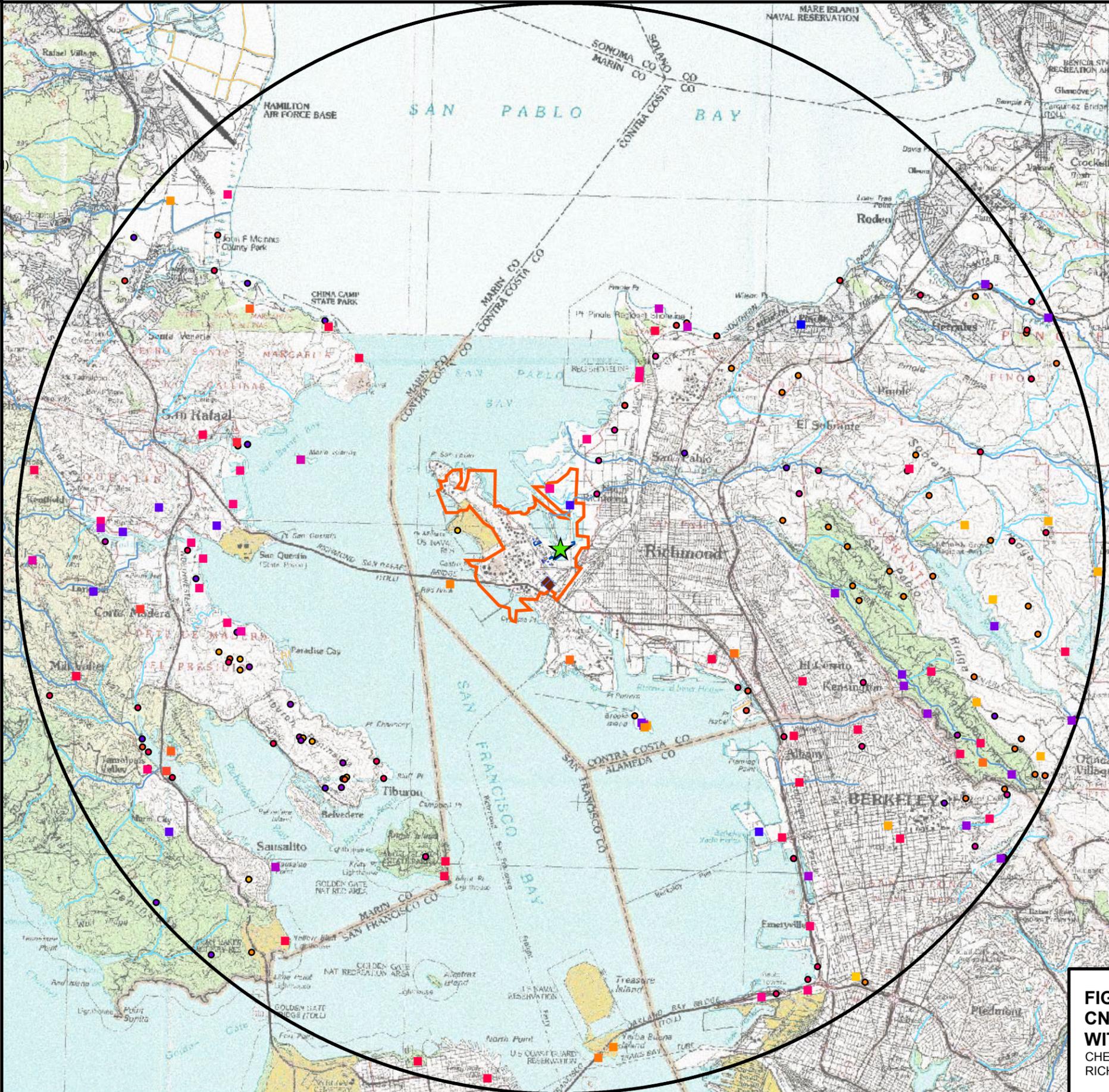
SCALE IS APPROXIMATE

**FIGURE 8-2.1**  
**AERIAL VIEW OF SITE**  
 CHEVRON POWER PLANT REPLACEMENT PROJECT  
 RICHMOND, CA

**LEGEND**

- Plant Area
- Laydown Area
- Alameda song sparrow
- Angel Island mole
- Berkeley kangaroo rat
- Bridges' coast range shoulderband (snail)
- California black rail
- California clapper rail
- California red-legged frog
- California seablite
- Caspian tern
- Coastal Brackish Marsh
- Coastal Terrace Prairie
- Contra Costa goldfields
- Cooper's hawk
- Diablo helianthella
- Franciscan thistle
- Lee's micro-blind harvestman
- Loma Prieta hoita
- Marin hesperian
- Marin knotweed
- Marin western flax
- Mission blue butterfly
- North Coast semaphore grass
- Northern Coastal Salt Marsh
- Northern Maritime Chaparral
- Oregon meconella
- Point Reyes bird's-beak
- Sacramento perch
- San Pablo song sparrow
- San Pablo vole
- Santa Cruz microseris
- Santa Cruz tarplant
- Serpentine Bunchgrass
- Suisun Marsh aster
- Tamalpais oak
- Tiburon Indian paintbrush
- Tiburon jewel-flower
- Tiburon mariposa lily
- Tiburon micro-blind harvestman
- Valley Needlegrass Grassland

- alkali milk-vetch
- bald eagle
- bent-flowered fiddleneck
- big free-tailed bat
- black-crowned night heron
- burrowing owl
- coastal bluff morning-glory
- double-crested cormorant
- dune gilia
- fragrant fritillary
- great blue heron
- great egret
- hairless popcorn-flower
- marsh microseris
- California brackishwater snail
- minute pocket-moss
- monarch butterfly
- northern harrier
- pallid bat
- pallid manzanita
- robust monardella
- round-leaved filaree
- salt-marsh harvest mouse
- salt-marsh wandering shrew
- saltmarsh common yellowthroat
- short-eared owl
- showy indian clover
- small groundcone
- snowy egret
- soft bird's-beak
- southern sea otter
- tidewater goby
- western leatherwood
- western pond turtle
- white-rayed pentachaeta
- white-tailed kite
- yellow-headed blackbird



**FIGURE 8.2-2**  
**CNDDB OCCURRENCES**  
**WITHIN 10 MILES OF PROJECT SITE**  
 CHEVRON POWER PLANT REPLACEMENT PROJECT  
 RICHMOND, CA