

Chapter 6—Biology

6.1 Introduction

This chapter describes biological resources in the Project Area and identifies potential impacts to habitats and species that could result from construction of the proposed Project. Special-status species surveys were conducted within a 100-foot-wide survey corridor centered on the current existing 50-foot-wide right-of-way (ROW) during the spring and summer of 2001 and 2002. Areas outside the existing 100-foot-wide survey corridor that were not previously surveyed for special-status species surveys (e.g., cable pull sites, staging areas, additional ROW width) will be surveyed as indicated prior to construction.

Additional reconnaissance level surveys of specific Project elements (e.g., tower sites, cable pull sites) were conducted during the summer of 2002 to obtain additional information on vegetation, wildlife habitat, and potential wetland resources within these areas.

Construction of the Project could result in potentially significant impacts to botanical resources, wildlife, and aquatic species. However, these impacts will be mitigated to less than significant levels through avoidance of sensitive resources and/or through other mitigation measures described in this chapter.

6.2 Regulatory Background

6.2.1 Federal Regulations

Federal Endangered Species Act. The Federal Endangered Species Act (FESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. Section 9 of FESA prohibits the taking of endangered wildlife, where taking is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging-up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity provided the action will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits to private parties provided a habitat conservation plan is developed.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any

of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the Migratory Bird Treaty Act, the U.S. Fish and Wildlife Service issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Department of Fish and Game (CDFG) Code.

Federal Clean Water Act. The Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, the territorial seas, ponds, lakes and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (U.S. EPA) also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board.

6.2.2 State or Local Regulations

California Endangered Species Act. The California Endangered Species Act (CESA) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the CDFG Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill". CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with DFG to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

Fully Protected Species. The State of California first began to designate species as "Fully Protected" prior to the creation of the California Endangered Species Act (CESA) and the Federal Endangered Species Act (FESA). Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians and reptiles, birds and mammals. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (Fish and Game

Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, the California Department of Fish and Game (CDFG) prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

Native Plant Protection Act. The Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Sections 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State”. The NPPA is administered by the Department of Fish and Game (CDFG). The Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. The California Endangered Species Act of 1984 (Fish and Game Code Section 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

California Streambed Alteration Notification/Agreement. Sections 1601 through 1606 of the California Fish and Game Code require that a Streambed Alteration Application be submitted to the CDFG for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFG reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the Applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

Local Tree Ordinances. Standards for maintenance, management, and preservation of native and indigenous trees are established in the San Mateo County Heritage Tree Ordinance, Section 11000 (1991), and the San Mateo County Significant Tree Ordinance, Section 12000 (1990). Criteria used in defining a heritage tree include: location (relative to Skyline Boulevard), species, and size. Trees encompassed by the ordinance vary in diameter at breast height (dbh) measurements from Oregon ash (12 inches), to Coast live oak (*Quercus agrifolia*) (48 inches). East of Skyline Boulevard, trees of slightly smaller size qualify for inclusion in these ordinances. A 3.5-mile-long portion of the route, between Ralston Substation and the Carolands Substation, is located east of Skyline Boulevard.

A San Mateo County significant tree is any live woody plant with a single stem that is greater than 38 inches dbh. A permit is required to remove, trim, or encroach into the dripline of a heritage tree, or to remove any significant tree. In one location, trees will be removed from within the Town of Hillsborough limits; the town has guidelines stating that the removal of trees larger than 36 inches is subject to a permit.

Copies of the San Mateo Tree Ordinance and Town of Hillsborough Tree Ordinance are provided in Appendix B.

6.3 Survey Methodology

6.3.1 Overview

Several surveys were conducted for the overhead transmission line during 2001 and 2002. A summary of methods employed during these surveys by resource type is provided in the following sections. The underground transmission line route was not surveyed. It will be constructed within city streets or the San Francisco Bay Area Rapid Transit (BART) ROW, and the extremely limited vegetation and wetland resources present in this portion of the Project Area lack habitat elements suitable for special-status species occurrence.

At the time surveys were conducted, construction methods had not been finalized, and the locations of components such as cable pull sites and staging areas were not known. These areas were not surveyed in 2001 and 2002 unless they fell within the 100-foot-wide transmission line corridor. Any unsurveyed areas will be surveyed prior to construction to determine the presence or absence of special-status plants and wildlife. Additionally, a wetland delineation will be performed within the entire Project Area.

6.3.2 Vegetation Methods

Several vegetation maps that encompass portions of the Project Area were available and were reviewed prior to the preparation of this report. These include: digital vegetation maps of Edgewood Park and Preserve and San Bruno Mountain provided by the San Mateo County Parks Department (Rana Creek Habitat Restoration 2002) and draft vegetation maps showing the Crystal Springs Watershed produced by the Golden Gate Natural Recreation Area (GGNRA) (2001) provided to PG&E by the GGNRA. In addition, vegetation within Project elements (towers, cable pull sites and most access roads) was ground-truthed in the field by two CH2M HILL biologists on July 24, 25, and 26, 2002. During this field investigation, the vegetation types present within the study area boundaries for each Project element were compared to the existing vegetation maps as referenced above, discrepancies were noted, and the vegetation was photographed.

The GGNRA vegetation maps were produced using a combination of aerial photographic interpretation and field verification. Some discrepancies between the vegetation types as shown in these draft maps and existing field conditions were observed. The vegetation types as depicted on the GGNRA maps are based on the vegetation classification system developed by Sawyer and Keeler-Wolf (1995). The vegetation types identified at towers, cable pull, and access road sites during 2002 described in this report rely on vegetation classification methodologies developed by Sawyer and Keeler-Wolf, and Holland (1986).

In some instances, only one vegetation classification is applicable. For example, there is no Holland equivalent for the Eucalyptus series (Sawyer and Keeler-Wolf 1995); therefore, only one classification is provided.

6.3.3 Wetlands and Aquatic Resources Methods

The location of wetlands and aquatic resources observed within the Project Area were noted in the field by two CH2M HILL biologists on July 24, 25, and 26, 2002. This investigation was conducted concurrent with vegetation ground-truthing of towers, cable pull sites and access roads. A wetland delineation of these features will be conducted prior to construction

in order to more accurately determine actual wetland boundaries needed for project permitting. The majority of these features occur within the existing ROW, and very few resources occur within the tower, access road, cable pull site, or staging areas.

6.3.4 Wildlife Survey and Habitat Assessment Methods

A variety of common wildlife species were observed during special-status species surveys conducted within the overhead portion of the Project Area. All common wildlife species identified during the surveys were recorded, and the list is contained in Appendix B.

A review of the existing literature was also conducted for local and regional wildlife distribution and habitat information on common wildlife species that would be expected to occur in the Project Area. Literature sources reviewed included the Draft Peninsula Watershed Management Plan (SFPUC 1998) and San Francisco Watershed Management Plan Peninsula Watershed Resources Report (ESA 1994) which used the Wildlife Habitat Relationships (WHR) (CDFG 1998) system to predict species occurrence based on habitat types.

6.3.5 Special-Status Species Methods

6.3.5.1 Special-Status Rare Plant Species Survey Methods

Surveys for special-status plants and their habitats were conducted within a 100-foot-wide survey corridor during the spring and summer of 2001 and 2002 by John Stebbins, a consulting botanist. The objectives of the special-status plant surveys were to locate, document, and assess all threatened, endangered, and sensitive plant populations using agency appropriate field survey methods. Prior to conducting surveys, he reviewed the California Natural Diversity Data Base (CNDDDB) (CDFG 2001 and 2002). In addition, he also contacted knowledgeable botanists to obtain information on special-status species that might be found in the Project Area. Pertinent literature from the general vicinity of the project was also consulted.

Field surveys were performed on April 5-6, May 10-12, June 16-17, and July 20-21, 2001, and March 10, March 26, and April 20, 2002. In addition to the 100-foot-wide corridor, areas of potential impact near the ROW and access routes were also surveyed. All the tower sites and access routes were surveyed on foot. Vehicles were used on existing roads to coordinate and facilitate access in some locations. Photographs documenting plant species and habitats were taken.

In addition to the areas surveyed during 2001 and 2002, any newly defined project work areas (e.g., cable pull sites or staging areas that are located outside the 100-foot-wide survey corridor) that have not yet been surveyed will be surveyed prior to construction. Surveys will follow accepted agency protocols and will be conducted during the appropriate time of year necessary to identify the presence or absence of species.

6.3.5.2 Special-Status Wildlife Species Survey Methods

Habitat assessments were conducted in 2001 and 2002 to assess and evaluate potential impacts for special-status wildlife species within the proposed Project Area. Certain species warranted more intensive studies:

- The California red-legged frog (*Rana aurora draytonii*)
- The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)
- Special-status invertebrate species

Summaries of the methods employed during these surveys or habitat assessments are provided below.

Special-Status Vertebrate Species Survey Methods. Special-status habitat assessment surveys of the overhead portion of the transmission line from Jefferson Substation to Sneath Lane were conducted by biologists from Garcia and Associates (GANDA). Prior to conducting the surveys, the CNDDDB (CDFG 2001) was reviewed for the records of special-status vertebrates potentially occurring in the Project Area and local experts and literature sources were consulted.

During the August 2001 surveys, a survey form was completed for each tower, describing the surrounding habitat (s) and topography, noting special-status species for which the habitat appeared suitable, any special-status species that were observed, additional surveys or monitoring required, and common wildlife species observed. A site map was sketched on the back of each form. Particular focus was placed on habitats within 100 feet of the towers and transmission lines, but important habitat features at greater distances were noted as well. Locations of special-status species were recorded by differentially-corrected global positioning system (GPS). Photos were taken of representative habitats in which special-status species were found. A complete list of species detected during surveys was kept.

During spring and summer 2002, habitat surveys for the California red-legged frog were conducted according to protocols published by the USFWS (1997). These surveys are described in the following section.

In addition to the areas surveyed during 2001 and 2002, any newly designated work areas that may support special-status wildlife will be surveyed prior to construction. Surveys will follow accepted agency protocols and will be conducted during the appropriate time of year for the species.

San Francisco Garter Snake and the California Red-Legged Frog. Special consideration was warranted for the threatened California red-legged frog and the endangered San Francisco garter snake, both known to occur in the area. For both the San Francisco garter snake and the California red-legged frog, a status review was conducted based on available information. Sources for the review included two field surveys commissioned by the CDFG, one in the late 1970s conducted by S. Berry (Berry 1978) and the other conducted by Sam McGinnis between 1986 and 1987 (McGinnis 1987). Additional information included trapping survey data collected from 1988 to 2000 by Sam McGinnis. Due to concerns regarding the sensitivity of this species, locational information for the San Francisco garter snake is suppressed per the policy of the California Natural Diversity Database (CNDDDB). The specific locations of these populations were submitted to the CPUC's Energy Division under separate cover on a confidential basis pursuant to the protections of Public Utilities Code Section 583.

The presence or absence of California red-legged frog was recorded for all of the San Francisco garter snake surveys conducted by Sam McGinnis because it is one of the two main prey species for the San Francisco garter snake and to a large extent it determines the

distribution of the San Francisco garter snake. After the listing of California red-legged frog as Federally Threatened in 1996, surveys for California red-legged frog were conducted using the USFWS protocol (two daytime surveys and two nighttime flashlight surveys for adult frogs). In addition, surveys for California red-legged frog egg clusters were conducted in late winter and for California red-legged frog larva in late spring and summer at survey locations.

Special-Status Invertebrate Survey Methods. The Project Area historically supported and continues to support numerous special-status invertebrate taxa. Surveys were conducted by Entomological Consulting Services. A master list of special-status invertebrate species potentially occurring in the Project Area was completed using the following sources:

- The program Rarefind, which summarizes information on special-status animals and plant species contained in the CNDDDB and is maintained by the California Department of Fish & Game (January, 2001);
- The Buggy database, which summarizes information on rare and special-status invertebrates (Entomological Consulting Services 2001);
- Pertinent entomological literature; and
- Animal Notices of Review, published by the USFWS (1984, 1989, and 1991) which lists federally listed and candidate insects, plus subsequent publications in the Federal Register.

Eleven special-status insects and other invertebrates, whose historical or present-day geographic ranges include the general vicinity of this alignment, were identified as potentially occurring in the Project Area. An initial site assessment survey was conducted within the ROW alignment from Jefferson Substation to Sneath Lane during April, 2001. The site assessment survey consisted of viewing habitat types along the alignment and identifying areas that supported suitable habitat that would require subsequent surveys to determine the presence or absence of invertebrates.

Focussed surveys were conducted for those species for which suitable habitat was present. During the assessment and focussed field surveys, much of the ROW and existing service roads were driven using a four wheel drive vehicle and selected portions were walked to more closely inspect habitats. Visual presence-absence surveys were conducted over a period of eight days between April 8 and May 4, 2001. For the two harvestmen and serpentine phalangid, presence-absence surveys were performed on February 9 and 15, 2002, shortly after rain storms. The survey technique involves turning over rocks. For the remaining other potentially occurring species, a total of 16 surveys were conducted during March, April, and May, 2002.

Larval and adult food plants observed during the surveys were mapped in March and April, when the food plants were most conspicuous, using a Trimble XR Pro GPS with real-time, submeter precision. After post-processing, the data were transferred to a geographic information system (GIS), ArcView (ESRI) to prepare maps depicting the location of larval and adult food plants.

6.4 Existing Conditions

6.4.1 Overview of the Overhead Transmission Line

The overhead transmission line portion of the Proposed Project route begins at the Jefferson Substation, near Edgewood County Park and Preserve, and extends north across the serpentine grasslands of the park. North of Edgewood Park, the line traverses the San Francisco Water Department Peninsula Watershed lands (see Figure 6-1). The watershed has remained relatively undisturbed by the surrounding urban development and serves as an important biological preserve for the region. Along the Town of Hillsborough, the transmission line is situated near residential properties and city streets, in an area comprised of non-native grassland, oak woodland and scrub habitats, Monterey pine and Monterey cypress trees in addition to landscaping species; areas to the west of the line include some serpentine grasslands.

The climate in this region is strongly influenced by its proximity to the coast, with ocean winds and fog particularly present along the exposed ridgelines. The diverse climate, topography, geology and soils are reflected in the diverse vegetation communities present. It is an important regional wildlife habitat, and is used as a travel corridor and as a stopover along the Pacific Flyway.

This portion of the Project is bisected by the San Andreas fault line. Several reservoirs now fill the long linear valley of the fault trace. Upper Crystal Springs Reservoir, Lower Crystal Springs Reservoir, and San Andreas Lake are linear water bodies that are situated west of the existing transmission line.

6.4.2 Overview of the Underground Transmission Line

Most of the underground transmission line portion of the Proposed Project route is generally situated in urban developed areas of San Mateo County. Within the cities of San Bruno, Daly City, Brisbane, and South San Francisco and the Town of Colma, the transmission line will be constructed either within existing city streets or within the disturbed BART ROW. The northern portion of the transmission line will be constructed within Guadalupe Canyon Parkway in Daly City, which crosses San Bruno Mountain and the City of Brisbane. San Bruno Mountain is a biological island in the urban area, and supports a relictual assemblage of plants sometimes called Franciscan chaparral or Franciscan scrub. Among its endemics are several rare or endangered species. After leaving Guadalupe Canyon Parkway, the transmission line follows Bayshore Boulevard in Brisbane to the Martin Substation.

6.5 Vegetation Types

6.5.1 Overhead Transmission Line

Eleven vegetation types occur within the portion of proposed Project Area that contains the overhead transmission lines. These include eight upland vegetation types (grassland, forest, and scrub or chaparral types), and three wetland or riparian (streamside) vegetation types (wetlands, marsh, and willow riparian forest). Table 6-1 provides a tabular summary of the vegetation types observed during the field reconnaissance at towers, cable pull sites and

along access roads, and the percentage of Project Areas where these types were found. More detailed tables are found in Appendix B. Vegetation types described below include:

- Chamise Chaparral
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Eucalyptus Forest
- Freshwater Marsh
- Mixed Willow Series
- Monterey Cypress Forest
- Monterey Pine Forest
- Non-Native Grassland
- Seasonal Wetland
- Serpentine Grassland

In addition, portions of the Project Area (e.g., some northern portions of Segment 1, and within Segments 2, 3, 4 and 5) have undergone substantial disturbance. These areas are cleared, graded, or paved, and are generally devoid of vegetation except for plant species typical of landscaped environments. These areas are referred to in this report as urban/disturbed and they are not further characterized in this report. For example, towers located within the Crystal Springs Golf Course are included in the urban/disturbed category.

6.5.1.1 Upland Vegetation Types

Chamise Chaparral (Chamisal) (Holland 1986)—Chamise Series (Sawyer and Keeler-Wolf 1995).

Holland (1986) describes the chamise chaparral vegetation type as a chaparral that is overwhelmingly dominated by chamise (*Adenostoma fasciculatum*). Stands of this type are very dense, with little understory vegetation or litter, and they can reach 3 to 10 feet in height. This chaparral type is found on dry, exposed sites, and is adapted to repeated fires by stump sprouting. The Sawyer and Keeler-Wolf (1995) description of the chamise series generally corresponds to Holland (1986), except that emergent trees may be present. Species that can be present in the chamise chaparral and chamise series include: bigberry and Eastwood manzanita (*Arctostaphylos glauca*, *A. glandulosa*), black sage (*Salvia mellifera*), California buckwheat (*Eriogonum fasciculatum*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and California lilac (*Ceanothus cuneatus*).

Chamise chaparral is the most limited habitat type in the Project Area. Chamise chaparral was sited at only one tower location, but is also presumed to be present at an additional two tower locations that could not be accessed (due to a prevalence of poison oak).

Coast Live Oak Woodland (Holland 1986) - Coast Live Oak Series (Sawyer and Keeler-Wolf 1995).

According to Sawyer and Keeler-Wolf (1995), the coast live oak series is typically located on upland slopes or on raised stream banks and terraces at elevations ranging between 0 to 4000 feet. Holland describes this vegetation type as occurring on north-facing slopes and shaded ravines in the south, and more exposed sites in the north (Holland 1986). Coast live oak (*Quercus agrifolia*) is often the only tree species present. Subdominant species consistent with both Holland and Sawyer and Keeler-Wolf descriptions and that were observed in the

Project Area include: poison oak, madrone (*Arbutus menziesii*), California bay (*Umbellularia californica*), toyon, coffeeberry (*Rhamnus californica*), and snowberry (*Symphoricarpos albus var. laevigatus* [*S. rivularis*]). The trees may grow to 100 feet in height, with an open, intermittent, or continuous canopy. Depending on the degree of shade and other variables, the shrubs mentioned above and/or a grassy understory (as described in the annual grassland series below) may or may not be present.

Coast live oak woodland occurs in 30 percent of the tower study areas, cable pull sites, and staging areas as well as within the ROW. However, due to ongoing fire hazard vegetation clearing, few oaks occur next to the tower footings, and those that are present are generally small in size (e.g., seedlings or saplings).

Coyote Brush Scrub (Holland 1986) - Coyote Brush Series (Sawyer and Keeler-Wolf 1995).

According to Holland (1986) the coyote brush scrub vegetation type is contained within the description of northern (Franciscan) coastal scrub. Sawyer and Keeler-Wolf (1995) describe the coyote brush series as typically located on stabilized dunes of coastal bars, river mouths, spits along the coastline, coastal bluffs, open slopes and/or terraces, at elevations ranging between 0 to 3,300 feet. This is a shrub-dominated habitat, with the shrub cover usually reaching less than 6 feet in height. This series may have either a continuous or an intermittent canopy.

Species composition and coverage of the ground layer is highly variable (Sawyer and Keeler-Wolf 1995). Within the Project Area, coyote brush (*Baccharis pilularis*) is often the only shrub species present, but subdominant shrub species observed onsite that are consistent with those described in Holland (1986) and Sawyer and Keeler-Wolf (1995) include: California blackberry (*Rubus ursinus*), poison oak, California sagebrush (*Artemisia californica*), California coffeeberry, and sticky monkeyflower (*Mimulus aurantiacus*). In some areas, a noxious weed, French broom (*Genista monspessulana*), is prevalent as an understory shrub. Coyote brush scrub is found at 57 percent of the tower, cable pull, access road, and staging areas, combined. It also occurs in scattered patches within the ROW.

Eucalyptus Series (Sawyer and Keeler-Wolf 1995).

There is no Holland equivalent for this vegetation type. The Eucalyptus series is described in Sawyer and Keeler-Wolf (1995) but is not included in the CDFG List of Terrestrial Natural Communities Recognized by the CNDDDB (2002). Eucalyptus forest is not a natural community type, and is included on the California Exotic Pest Plant Council (CALEPPC) List A-1, most invasive wildland pests (CALEPPC 1999). The Town of Hillsborough encourages the removal of blue gum (Town of Hillsborough 2002).

According to Sawyer and Keeler-Wolf (1995) the Eucalyptus series may be located on any upland slope at elevations ranging between 0 to 1,000 feet. Eucalyptus species (*Eucalyptus* spp.) are usually the only tree species present. Species that may occur in this series include blue gum (*Eucalyptus globulus*), red gum (*Eucalyptus camaldulensis*), silverleaf gum (*Eucalyptus pulverulenta*) and silver dollar gum (*Eucalyptus polyanthemus*). Eucalyptus typically reach heights of 160 feet and have continuous canopy coverage. Shrubs are infrequently found in association with the Eucalyptus Series, and the ground layer is typically very sparse (Sawyer and Keeler-Wolf 1995).

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Blue gum occurs as a dense forest stand, with little understory, or as individual trees, with scattered herbaceous and shrub species wherever the dense blue gum leaf cover does not preclude plant establishment and growth. Blue gum is mapped within the Crystal Springs Watershed GGNRA (2001), was observed within the proposed Project Area, and is on the list of plant species noted in Edgewood County Park (T. Corelli 1996). Eucalyptus forest is found at 7 percent of the tower, cable pull and access road areas, combined.

Monterey Cypress Forest (Holland 1986) - Monterey Cypress Unique Stand (Sawyer and Keeler-Wolf 1995).

According to Holland (1986) and Sawyer and Keeler-Wolf (1995) there are only two natural stands of Monterey cypress forest remaining, one on the Monterey Peninsula, and the second near Point Lobos Natural Reserve. These stands are considered a sensitive resource by the CDFG and California Native Plant Society (CNPS), and are protected. Elsewhere, Monterey cypress has been widely planted as a landscaping tree or as a forestry tree during the Civilian Conservation Corps days, where much of the Water Board stands came from, and has naturalized. Forest stands or individual trees are not afforded protection.

This forest habitat (natural stands) is described by Holland as a moderately dense forest up to 65 feet in height that is found in sheltered locations. Monterey cypress (*Cupressus macrocarpa*) occurs as the sole dominant tree, with an understory of dwarf shrubs and herbaceous species (Holland [1986] and Sawyer and Keeler-Wolf [1995]).

Within the Project Area, Monterey cypress is widely distributed within the overhead portion of Segment 1 as a landscape species. It occurs at 10 percent of the tower, cable pull and access road areas, combined. Monterey cypress is found either in monotypic or mixed stands with several co-dominant species. Other tree species that are co-dominant with Monterey cypress include Monterey pine (*Pinus radiata*), coast live oak, and blue gum. The prevalence and density of understory vegetation varies according to canopy density but can include species from the coyote brush scrub and non-native grassland vegetation types.

Monterey Pine Forest (Holland 1986) - Monterey Pine Series (Sawyer and Keeler-Wolf 1995).

According to Sawyer and Keeler-Wolf (1995) Monterey pine is the sole or dominant tree in this forest canopy, although coast live oak, madrone, and other species may also be important. A shrub cover can be absent, infrequent, or common, depending on stand density. Similarly, the understory can vary from sparse to abundant (Sawyer and Keeler-Wolf 1995). Plantations exist in the state and world-wide, but only three natural areas exist in California, all located at or nearby the California coastline. Outside of these natural stands of Monterey pine, this species has no special status, and it may be considered an invasive non-native. Monterey pine is included on the CALEPPC list of plants for which more information is needed (CALEPPC 1999).

In addition to Monterey pine, species that were observed in this vegetation type that are consistent with Holland (1986) and Sawyer and Keeler-Wolf (1995) include: coast live oak, madrone, and California coffeeberry. In forest openings, scattered shrub and grass species from the coyote brush and non-native grassland vegetation types were also present. Several non-native species were also observed in this vegetation type, including: French broom, blackwood acacia (*Acacia melanoxylon*) and blue gum. Monterey pine forest is found at 30 percent of the tower, cable pull and access road areas, combined.

Non-Native Grassland (Holland 1986) - California Annual Grassland Series (Sawyer and Keeler Wolf).

This grassland is characterized as a dense to sparse cover of annual grasses (Holland 1986). Often this vegetation type is associated with numerous species of showy-flowered, native annual forbs (“wildflowers”), especially in years of favorable rainfall. Non-native grassland is distributed in most of the valleys and foothills of California, usually below 3,000 feet (Holland 1996). This extensive series is found in uplands and is composed of many alien and native annual species. Trees and shrubs may also be present (Sawyer and Keeler-Wolf 1995). This type is prevalent as a stand-alone vegetation type or as an understory component throughout much of the Project Area. Large stands of predominantly native grasses were observed in areas in which soils derived from serpentinite occur (e.g., at Edgewood County Park and Preserve Park), and this native grassland habitat is described separately below. However, in some of the non-native grasslands, native grass and forb species similar in composition to those observed in the serpentine grassland habitat also occur within the non-native grass cover, but the native grass species are generally less prevalent.

As described in this report, non-native grassland is typically found within the ROW in areas that are dominated by non-native grasses and ruderal (weedy) species, or that have been plowed, cleared or substantially disturbed but are not paved. Plant species observed in the non-native grassland vegetation type within the Project Area that are consistent with both the Holland and Sawyer and Keeler-Wolf descriptions includes: wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), European hairgrass (*Aira caryophylla*), yellow star thistle (*Centaurea solstitialis*), Italian and perennial ryegrass (*Lolium multiflorum* and *L. perenne*), and narrow-leaved flax (*Linum bienne*). In small numbers, native grass species also occur such as foothill and purple needle grass (*Nassella pulchra* and *N. lepida*), and California oatgrass (*Danthonia californica*), and native forbs such as California plantain (*Plantago erecta*), California poppy (*Eschscholzia californica*), Davy’s centaury (*Centaureum davyi*), and Muhlenberg’s centaury (*Centaureum muehlenbergii*).

As shown in Table 6-1, non-native grassland occurs at almost all of the tower, cable pull and access road locations (88 percent). Non-native grassland is also very prevalent within the ROW and is found at the transition station.

Serpentine Bunchgrass (Holland 1986 and CDFG 2002) – Foothill Needlegrass or Purple Needlegrass (Sawyer and Keeler-Wolf 1996).

Serpentine grasslands are of high floristic value because many endemic plants are restricted to serpentine soils. Serpentine grasslands also support several special-status plants. According to Holland (1986), the serpentine bunchgrass vegetation type is an open grassland dominated by perennial bunchgrasses. Total cover typically is low, but is markedly dominated by native species (usually much more so than in non-native grassland). This grassland type is restricted to serpentine soils. It is scattered widely through the Coast Ranges but is less common in the Sierra Nevada (Holland 1986).

In the Project Area, this vegetation type occurs only in areas in which soils are derived from serpentinite (e.g., Edgewood County Park and Preserve, Ralston-Pulgas Ridge, and Haynes Road-Black Mountain areas). In addition to occurring within a limited portion of the ROW, serpentine grassland is found on average at 11 percent of tower, cable pull and access road areas, combined.

Native grass species observed or known to occur in this habitat within the Project Area include: purple needlegrass, foothill needlegrass, California oatgrass, squirrel tail (*Elymus multisetus*), California melic (*Melica californica*), and Torrey's melic (*Melica torreyana*). Annual non-native grasses also occur in this type. Non-native grass species observed in this area include: soft chess, Italian and perennial ryegrass, riggut brome, annual fescue (*Vulpia myuros*), slender wild oat (*Avena barbata*), red brome (*Bromus madritensis* ssp. *rubens*), and little quaking grass (*Briza minor*). Herbaceous species include: yarrow (*Achillea millefolium*), tidy tips (*Layia platyglossa*), goldfields (*Lasthenia californica*), Davy's centaury, phacelia (*Phacelia distans*), blue-eyed grass (*Sisyrinchium bellum*), sickle-leaf onion (*Allium falcifolium*), harvest brodiaea (*Brodiaea elegans* ssp. *elegans*), and California plantain.

6.5.1.2 Wetland or Riparian Vegetation Types

Seasonal Wetland - Vernal Marsh (Holland 1986).

This vegetation type does not have a corresponding series equivalent. Holland characterizes this vegetation type as having mostly low growth consisting primarily of annual herbs (contrasting with the taller perennials in more permanent marshes). These areas have standing water early in the season after winter rains, but ponded water is greatly reduced or completely lacking by summer (Holland 1986). Within the Project Area, this vegetation type occurs most frequently within intermittent creeks or swales, but also occurs in microdepressional terrain within upland vegetation types. Plant species observed in this vegetation type within the Project Area include: Italian and perennial ryegrass, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum* [*H. hystrix*]), curly dock (*Rumex crispus*), rushes (*Juncus patens* and *J. xiphioides*), Harding grass (*Phalaris aquatica*), bristly ox-tongue (*Picris echioides*), spikerush (*Eleocharis montevidensis*), and rabbit's foot grass (*Polypogon monspeliensis*). Wetlands occur at 2 percent of tower, cable pull, and access road areas, combined (Table 6-1).

Coastal and Valley Freshwater Marsh (Holland 1986) - Cattail Series (Sawyer and Keeler-Wolf 1995).

According to Holland (1986), this wetland type is dominated by perennial emergent monocots that can reach 12 feet in height. Vegetation in these wetlands can be very dense, and they often form closed canopies. This marsh type is found in areas that are permanently flooded and without significant current. The Sawyer and Keeler-Wolf (1995) description of this habitat is consistent with Holland's except that it includes areas that are regularly flooded or seasonally flooded. Within the Project site, this vegetation type is found within the bed and bank of the few intermittent drainages that contain water into the summer months, or in depressional wetland areas that pond for long duration. Species found in this wetland type include broad-leaved cattail (*Typha latifolia*), as well as several low-growing perennial species. The latter include: rushes (*Juncus effusus*, *J. patens*, and *J. balticus*), tall nutsedge (*Cyperus eragrostis*), and spikerush (*Eleocharis montevidensis*). Freshwater marsh is found adjacent to the access road in between towers 12/79 and 12/80, but is not found at any tower, cable pull and access road areas.

Mixed Willow Series (Sawyer and Keeler-Wolf 1995).

There is no geographically equivalent Holland vegetation type that encompasses the mixed willow habitat present within the Project Area. Sawyer and Keeler-Wolf (1995) describe a mixed willow series as a dense stand with a closed canopy that can be dominated by more than one willow species. The mixed willow series is found in wetland habitats that are

seasonally flooded or saturated or along streams or rivers. Depending on the density of the canopy, the groundcover may be sparse to dense. Species within the Project Area that are consistent with the Sawyer and Keeler-Wolf (1995) description include: red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), big-leaf maple (*Acer macrophyllum*), California blackberry, snowberry, poison oak, California buckeye (*Aesculus californica*), and upslope from the creek waters, California bay. Mixed willow habitat occurs at 1 percent of tower, cable pull, access road, and staging areas, combined (Table 6-1) and also is found adjacent to six intermittent creeks and San Mateo Creek.

6.5.2 Underground Transmission Line

The portion of the Project Area that contains the underground transmission line is located entirely within paved city streets and the cleared BART ROW. No vegetation occurs along the paved streets. The BART ROW was hydroseeded following completion of the BART project, and currently supports a mix of non-native grass species. This area will be reseeded with a similar blend of grass species, following construction. Therefore, no further discussion is provided regarding vegetation, or impacts to vegetation, within the underground portion of the transmission line.

6.6 Wetland and Aquatic Resources

6.6.1 Overview

Wetlands and aquatic resources within the Project Area include seasonal wetlands, freshwater marshes, perennial creeks, intermittent creeks, ditches and swales. A summary of wetland resources by milepost is presented in the Appendix B. Mixed willow riparian forest, as described in the Vegetation Resources Section, also occurs adjacent to some of these creeks. The majority of wetlands and aquatic features occur in the southern portion of the Project Area, between Jefferson Substation and the Transition Station.

Wetland and aquatic resources are described in the following section. The amount of wetlands and aquatic resources present within the Project Area was estimated during the July 2002 field reconnaissance. These field estimates are intended to represent the worst-case condition. A wetland delineation of these features will be conducted prior to construction in order to more accurately determine actual wetland boundaries and acreages present.

The majority of these features occur within the ROW, and very few resources occur within a tower study area, access road, cable pull site, or staging area; therefore, direct and indirect impacts to these resources will be limited. The location of wetlands and aquatic resources is depicted on Figure 6-1.

6.6.2 Seasonal Wetland and Freshwater Marsh

Seasonal wetlands are habitats that are inundated and/or saturated for a sufficient duration to support hydrophytic (wetland) vegetation and hydric soils (soils that exhibit characteristics of frequent or prolonged saturation). In this report, areas of seasonal wetlands pond for less time and at shallower depths than freshwater marshes.

6.6.2.1 Overhead Transmission Line

Wetlands are most prevalent within the overhead portion of Segment 1 (Figure 6-1). Two freshwater marshes and eight seasonal wetlands occur within the overhead portion of the Project Area (including wetlands found within the banks of swales, creeks, and drainages). Generally, these features are associated with ditches, intermittent creeks or swales and occur in microdepressional terrain. Ditches, intermittent creeks, and swales are described in the following section. Seasonal wetlands are typically dominated by a mixture of non-native grass species such as perennial ryegrass and forbs such as curly dock and rush. However, a few wetlands are adjacent to roads that function as impoundment barriers and pond for longer duration. These wetlands support perennial emergent species such as cattails, and better fit the description of a freshwater marsh.

In addition to the wetlands described above, a few seasonal wetlands occur within Segment 3, within the proposed McLellan Drive (Figure 6-1). These wetlands will be lost during the construction of the proposed roadway and therefore are not included as extant wetland features.

Floristic elements of these habitats have been described in the vegetation resources section, but a brief summary of these wetland and aquatic resource types and a tabular summary detailing the resource type and location is provided in the Appendix B. Figure 6-1 shows the generalized location of the wetland or aquatic resource.

6.6.2.2 Underground Transmission Line

In addition, one seasonal wetland will be restored along the underground portion of the Project Area (at South Spruce Avenue, within the BART ROW). This wetland will shortly be restored as mitigation for the temporary disturbance at that location during construction of the BART alignment.

6.6.3 Intermittent Creeks, Ditches, and Swales

A total of 16 intermittent creeks and 9 ditches or swales occur in the Project Area. The majority of intermittent creeks, ditches and swales occur in the southern portion of Segment 1 (Figure 6-1). All of these except one intermittent creek and two ditches/swales are found in the overhead portion of the Project Area.

6.6.3.1 Aboveground Transmission Line

Almost all of these intermittent features were dry at the time of the July field reconnaissance; however, the largest creeks supported puddles in the creek bottoms. Occasionally, seasonal wetlands occurred within the bed and bank of these features, or in depressional terrain adjacent to the banks or slopes. In creeks with more substantial flows, a sparse to dense thicket of mixed willow riparian forest habitat extends along the upper creek banks.

The intermittent creeks, swales and ditches are generally narrow, ranging in size from one to two feet. However, in a few locations, the creek canyon width extends to 50 to 75 feet as measured at the top of the canyon banks. The creek, ditch, and swale slopes vary, with some features possessing gently sloping banks, and others with steep eroding banks. The bottom

substrate is generally a mixture of dirt and cobbles; however, some have been stabilized with sac-crete or are rock-lined.

Several concrete-lined “V” ditches occur throughout the Project Area. These appear to have been constructed within uplands and function solely as surface water drainage and conveyance. These features are not described further in this report.

6.6.3.2 Underground Transmission Line

In the underground portion, along Segment 5, one intermittent creek parallels the roadway and flows through a culvert beneath Guadalupe Canyon Parkway. A dense mixed willow riparian forest flanks both sides of this intermittent creek.

Two additional ditches/swales are located along the underground Segment 3 at South Spruce Avenue. One is within an area disturbed by the BART project. Seasonal wetlands will be restored here by planting willows along the drainage banks. The restored wetlands will not be affected by the proposed Project because the transmission line will be placed over an existing culvert. The second drainage is along the western edge of the BART ROW and flows parallel to the first drainage. This drainage was not directly impacted during the BART construction and is currently vegetated primarily with willow and blackberry. This drainage will not be affected by the transmission line Project.

6.6.4 Perennial Creeks

6.6.4.1 Overhead Transmission Line

San Mateo Creek is the only perennial creek within the Project Area that has natural creek topography. San Mateo Creek occurs in the overhead portion of Segment 1, and is spanned by the transmission line. San Mateo Creek occurs at the bottom of a wide ravine that is several hundred feet in width as measured from the top of banks. The actual creek channel is much smaller. The existing transmission lines span San Mateo Creek, and towers are located high above the steep creek slopes. A dense corridor of mixed willow riparian forest lines both sides of the creek and provides substantial wildlife habitat.

6.6.4.2 Underground Transmission Line

Colma and Twelve Mile Creeks occur within the underground segment in Segment 2. Water flows year-round in both creeks, although summer flows are very low. These creeks are channelized, and the creek flows are contained within concrete-lined channels. Colma Creek is approximately 15 to 20 feet in width at the channel bottom and 30 to 50 feet at the top. Twelve Mile Creek has vertical concrete walls, that vary from 10 to 12 feet in width. No wetland vegetation is present within these concrete channels and their wildlife habitat value is minimal.

6.6.5 Open Water Habitat

6.6.5.1 Overhead Transmission Line

The open waters of San Andreas Lake are just west of towers 13/83 and 13/84. The towers are located 5 to 10 feet east of the lake shoreline. The shoreline in this area has been partially stabilized with rock and is devoid of wetland vegetation.

6.6.4.2 Underground Transmission Line

No open water habitat occurs within the underground portion of the transmission line.

6.7 Wildlife Species

6.7.1 Overhead Transmission Line

The overhead transmission line route is located primarily within Edgewood Park or the San Francisco Water Department Peninsula Watershed lands. The area is relatively undisturbed by the urban development around it. The diversity in climate, topography, geology and soils are reflected in the diverse vegetation types present. These undeveloped lands are an important regional wildlife habitat and are a CDFG wildlife refuge.

Wildlife habitats within the Project Area are listed in Table 6-2, below, and are described in the following section. Each wildlife habitat corresponds directly to a vegetation type discussed in the Vegetation Section of this report. Wildlife habitats as shown in Table 6-2 are generally based on the Wildlife Habitat Relations (WHR) system. In general, the wildlife habitat descriptions are based on information obtained from the San Francisco Watershed Management Plan (Environmental Science Associates [ESA] 1994). While vegetation types are defined by species composition, wildlife habitats, although based on vegetation types, are modified to include other physical environmental characteristics (e.g., rock outcrops, etc.). Animals are mobile and may move from one vegetation type to another for life cycle needs.

Common wildlife species associated with each wildlife habitat within the Project Area are discussed below. The name of the corresponding vegetation type appears in parenthesis after each wildlife habitat.

TABLE 6-2.
Wildlife Habitats and Corresponding Vegetation Types

| Wildlife Habitat | Vegetation Type |
|----------------------------------|-------------------------------------|
| Exotic forest – Monterey cypress | Monterey cypress forest |
| Exotic forest – Monterey pine | Monterey pine forest |
| Exotic forest – eucalyptus | Eucalyptus series |
| Willow riparian forest | Mixed willow series |
| Coast live oak woodland | Coast live oak woodland |
| Coastal scrub | Coyote Brush Scrub |
| Chamise chaparral | Chamise chaparral |
| Serpentine barrens | Serpentine bunchgrass |
| Annual grassland | Non-native grassland |
| Seasonal wetland | Seasonal wetland-vernal marsh |
| Fresh emergent wetland | Coastal and valley freshwater marsh |
| Open Water | No equivalent (not vegetated) |

TABLE 6-2.
Wildlife Habitats and Corresponding Vegetation Types

| Wildlife Habitat | Vegetation Type |
|------------------|-----------------------------|
| Urban | Urban/Residential/Developed |

Source: Environmental Science Associates, 1994.

Coast Live Oak Woodland (*Coast Live Oak Woodland*)

Oak woodlands are important to wildlife as they provide an abundant food supply as well as cover for many mammals. Many birds and small mammals depend upon the annual acorn crop as a food supply. Raccoons (*Procyon lotor*) may use hollow oaks for den sites, while fallen trees provide cover for small rodents. Hollow snags are important roosting habitat for bats. Oaks also provide habitat for several other mammals including the pocket gopher (*Thomomys bottae*), shrew mole (*Neurotrichus gibbsii*), western gray squirrel (*Sciurus griseus*) and mule deer (*Odocoileus hemionus*), which forage on leaves and twigs. Coyote (*Canis latrans*) are also common residents.

Common bird residents of oak woodland that would be expected to occur within the overhead portion of the transmission line include: acorn woodpecker (*Melanerpes formicivorus*), plain titmouse (*Parus inornatus*), and scrub jay (*Aphelocoma coerulescens*). Reptiles and amphibians that are found in oak woodlands include western fence lizard (*Sceloporus occidentalis*), western toad (*Bufo boreas*), California slender salamander (*Batrachoseps attenuatus*), and Coast Range newt (*Taricha torosa torosa*). These species forage and seek cover in the debris and herbaceous ground cover environment created by the oaks, which support a variety of invertebrate prey.

Coastal Scrub (Coyote Brush Scrub - Coyote Brush Series)

Coyote brush scrub is very prevalent in the overhead portion of the Project Area, but is not found in underground transmission line segment. Coyote brush scrub can occur either as a stand alone habitat type or at the edges of grasslands, oak woodland and chaparral. Species that occur in all of these habitats may use the scrub habitat for foraging and nesting. The dense shrub canopy provides a secure, often impenetrable wildlife cover while fruits, berries, and insects provide a food source. Typical wildlife species found in this scrub habitat include small mammals such as the brush rabbit (*Sylvilagus bachmani*), and black tailed- hare (*Lepus californicus*). Large mammals may include the gray fox (*Urocyon cinereoargenteus*) and coyote. Bird species include the California towhee (*Pipilo crissalis*), California quail (*Callipepla californica*), and Bewicks wren (*Thryomanes bewickii*).

Exotic Forest- Eucalyptus (*Eucalyptus Series*)

Exotic forest is found either in dense stands or as single trees in the overhead portion of the Project Area. The canopy of eucalyptus forests offer perching, roosting, and nesting sites for a variety of avian species, including raptor nesting sites. Species commonly encountered in the exotic forest habitat include Anna's hummingbird (*Calypte anna*), rufous hummingbird (*Selasphorus rufus*) and red-tailed hawk (*Buteo jamaicensis*). The lack of understory growth does not provide substantial habitat for insects; therefore limited species would be expected

to forage in these areas, but they would provide limited cover and resting areas for smaller species.

Exotic Forest - Monterey Cypress (Monterey Cypress Forest/Monterey Cypress Unique Stand)

The Monterey cypress forest canopy provides perching and roosting sites for a variety of avian species, including raptors such as the red-tailed hawk. Where the understory is sparse, general wildlife use is minimal.

Exotic Forest – Monterey Pine (Monterey pine forest/ Monterey Pine Series)

As with the non-native Monterey cypress and eucalyptus forests, Monterey pine forests provide a dense tree canopy that is used for perching and roosting sites by a variety of species, including birds of prey. The understory is generally sparse, and this provides little foraging, nesting, or hiding cover for wildlife.

Seasonal Wetland (Seasonal Wetland - Vernal Marsh)

Seasonal wetlands and their associated seasonal open water habitat provide important habitat for several small mammals, birds, reptiles, amphibians, and invertebrates. Some wildlife species are adapted to survive in this habitat throughout the year, while others are present only during the winter and spring when open water is present, (e.g., amphibians and aquatic insects). Waterfowl and shorebirds nest and forage in seasonal wetlands. The wetlands provide food or cover to small mammals and a water source for larger mammals. Typical wildlife species using the seasonal wetlands in the Project Area include the mallard (*Anas platyhynchos*), common egret (*Casmerodias albus*) western meadowlark (*Sturnella neglecta*), Pacific treefrog (*Hyla regilla*), and gopher snake (*Pituophis melanoleucus*). These areas may also be used by two special-status species, the California red-legged frog and San Francisco garter snake, which are discussed in the Special-Status Species Section of this report.

Fresh Emergent Wetland (Coastal and Valley Freshwater Marsh/Cattail Series)

Fresh emergent marsh, including associated open water (i.e., creek, reservoir) habitats, is important because it offers a permanent water source, food, and cover to a variety of wildlife species. Marsh vegetation provides cover for nesting and a food supply to many bird species. Wading birds and ducks forage on aquatic invertebrates and wetland plants. Reptiles and amphibians feed on small fish and also breed in these marshes. Typical wildlife species found in these habitats include mammals such as mule deer, grey fox, and raccoons. Bird species include the mallard, American coot (*Fulica americana*), marsh wren (*Cistothorus palustris*), great blue heron (*Ardea herodias*) and common egret (*Casmerodias albus*). Marshes generally support high insect densities, and therefore are also important foraging areas for many bats.

The value of a marsh to water-dependent species depends on the annual flow of seasonal and intermittent streams, as well as the seasonal water retention in ponds. Therefore, the occurrence of amphibian species such as the Pacific treefrog varies according to the depth and duration of ponded or flowing water. Amphibians attract reptilian predators such as the common garter snake (*Thamnophis sirtalis*). These habitats may also be used for reproduction by several special-status species, including the California tiger salamander

(*Ambystoma californiense*) California red-legged frog, and San Francisco garter snake, which are discussed in the Special-Status Species Section.

Willow Riparian Forest (Mixed Willow Series)

Riparian areas are critical to many species of wildlife, including birds, small and large mammals, reptiles, and amphibians, for the cover, food, water, and foraging and nesting habitat they provide. Riparian areas are also critical for wildlife migration and dispersal. Their linear configuration creates corridors for animal movement. Typical species expected to occur in this habitat type within the Project Area includes ash-coated flycatcher (*Myiarchus cinerascens*), bushtit (*Psaltriparus minimus*) black phoebe (*Sayornis nigricans*), California quail, red-shouldered hawks, raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), gray fox, coast range newt (*Taricha torosa*), and western toad.

Annual Grassland (Non-Native Grassland/California Annual Grassland Series)

Annual grassland habitat occurs throughout the overhead portion of the Project Area, and within the BART ROW portion of the underground transmission line. Open grassland is an important habitat for raptors because they require unobstructed line-of-sight for courtship, hunting, and territorial defense. Raptors that frequent this habitat type and would be expected to occur in the Project Area include the red-tailed hawk and American kestrel (*Falco sparverius*). California quail, mourning dove (*Zenaidura macroura*), and meadowlarks (*Sturnella neglecta*) are a few seed eaters that use grasslands for nesting. Insect eaters such as scrub jays (*Aphelocoma californica*), barn swallows (*Hirundo rustica*) and mockingbirds (*Mimus polyglottos*) use the habitat only for foraging. Mammals such as the California vole (*Microtus californicus*), broad-footed mole (*Scapanus latimanus*), and black tailed jackrabbit (*Lepus californicus*) forage and nest within grasslands. California ground squirrels (*Spermophilus beecheyi*) create burrows that also shelter other species, including a special-status species, the burrowing owl (*Athene cunicularia*). Mule deer use grasslands for grazing and resting at night.

Serpentine Barrens (Serpentine Bunchgrass/Foothill Needlegrass or Purple Needlegrass)

Serpentine barrens (rock outcrops) occur interspersed with grassland habitat in the southern portion of the overhead transmission line segment. Wildlife species occurring in serpentine barrens are similar to those found in other grassland habitats (see annual grassland, above). However, due to the sparse vegetation cover, serpentine barrens (rocky outcrops) do not offer abundant cover or food for wildlife, except for a few specially adapted invertebrates that require specialized microhabitats or food plant species. In the Project Area, these special-status invertebrate species may include the Bay checkerspot butterfly (*Euphydryas editha bayensis*), Olper's longhorn moth (*Adela oplerella*), the Edgewood blind harvestman (*Calicina minor*) and the Edgewood Microblind harvestman (*Microcina edgewoodensis*). These special-status species are discussed further in the Special-status Species Section.

Urban (Urban/Residential/Developed)

The underground portion of the Project will be constructed within a highly urbanized area. These areas generally support a relatively low diversity and abundance of wildlife species compared to natural habitats (such as those occurring within the overhead route). Wildlife species characteristic of urban areas include the house mouse (*Mus musculus*), raccoon,

opossum (*Didelphis virginiana*), striped skunk, and many bird species including starling (*Sturnus vulgaris*), mourning dove and house sparrow (*Passer domesticus*).

Open Water (No Corresponding Vegetation Type).

Open water habitat is defined as areas that are permanently inundated with standing water, such as lakes, reservoirs and ponds. In the overhead portion of the alignment, this includes San Andreas Lake, which is directly adjacent to a few towers of the overhead transmission line, and the Upper and Lower Crystal Spring Reservoirs, which are located near the Project. Upper and Lower Crystal Spring Reservoirs are separated from the alignment by roadways, disturbed areas, and a golf course. Between MP 0.0 to MP 4.4, Cañada Road is located between the alignment and the reservoirs. In the middle section of the overhead alignment, between MP 4.4 to MP 8.9, Hwy 280 is located between the alignment and the reservoir. The Crystal Springs Golf Course is situated between the alignment and reservoirs between MP 8.9 to MP 10.0.

Open water habitat within the underground portion of the project is found only in the flowing creek waters of Twelve Mile and Colma creeks. Both creeks are unvegetated concrete-lined channels and provide limited wildlife habitat. Open water areas (such as the reservoirs and San Andreas Lake) provide habitat for a variety of wildlife species, including amphibians, fish, waterfowl, and other resident and migratory bird species. The high biological activity of open water habitat provides a rich source of food for insect-eating birds and other wildlife. It provides reproductive habitat for amphibians and reptiles and a permanent source of water for resident terrestrial wildlife, including deer, foxes, coyote and other mammals. Species that frequent the reservoirs are mobile and some species would be expected to use the terrestrial habitats within the ROW.

Ducks, including mallards, gadwalls (*Anas strepera*), pintails (*A. acuta*), common mergansers (*Mergus merganser*), as well as the American coot use the reservoirs for feeding, bathing, and roosting. Other birds include killdeer (*Charadrius vociferus*) and belted kingfisher (*Ceryle alcyon*). Amphibians include Pacific tree frog, western toad, and Coast Range newt.

The fishery resources of the Peninsula Watershed appear to be quite limited. In recent years, native species such as the rainbow trout (*Oncorhynchus mykiss*), Sacramento Sucker (*Catostomus occidentalis*), tule perch (*Hysterocarpus traski*), and various sculpin species (*Cottus spp.*) appear to be few in number (ESA 1994). Exotic species such as the mosquitofish (*Gambusia affinis*) and largemouth bass (*Micropterus salmoides*) occur in all the reservoirs. Fish species collected from San Andreas Lake include rainbow trout (stocked), largemouth bass, mosquito fish, Sacramento Sucker, tule perch, prickly sculpin (*Cottus asper*), Coast range sculpin (*Cottus aleuticus*) and threespine stickleback (*Gasterosteus aculeatus*).

Perennial and Intermittent Creeks (No Corresponding Vegetation Type).

There are three perennial creeks within the Project Area, only one of which, San Mateo Creek, has a natural creek substrate and riparian vegetation. Colma and Twelve Mile Creeks are both unvegetated, channelized creeks and they have very low wildlife habitat value.

The existing transmission line spans San Mateo Creek. Towers are located on opposite sides of the creek, about 800 feet upslope from the water. Riparian forest lines both creek banks and it provides substantial wildlife habitat. Fish associated with this creek include rainbow

trout, threespine stickleback, and mosquitofish. One special-status species, the California red-legged frog has also been observed at San Mateo Creek. Special-status fish species are also known or expected to occur in San Mateo Creek, as described in Subsection 6.8.2.1, Aquatic Species.

6.7.2 Underground Transmission Line

The underground transmission line portion of the Proposed Project route is generally located within a heavily urbanized and developed area, and wildlife species diversity and density occurring in this part of the route reflect these urban conditions. With the exception of the disturbed non-native grassland along the BART ROW construction areas, no wildlife habitats occur along the underground portion of the alignment.

6.8 Special-Status Species

For the purposes of this PEA, the term “special-status species” is defined as including species that are:

- Listed, proposed for listing, or candidates for listing, as threatened or endangered under the federal Endangered Species Act (50 CFR 17.11 for wildlife; 50 CFR 17.12 for plants; 67 FR 40658 for candidates) and various notices in the Federal Register for proposed species);
- Listed, or proposed for listing by the State of California as threatened or endangered under the California Species Act (California Administrative Code, Title 14, Section 670.5);
- Identified by the CDFG as species of concern (fish and wildlife species that do not have state or federal threatened or endangered status but may still be threatened with extinction);
- Protected by the Migratory Bird Treaty Act (MBTA) (U.S.C. 703-712; CH. 128; July 13, 1918; 40 Stat. 755, as amended);
- Species that otherwise meet the definition of rare, threatened, or endangered under the California Environmental Quality Act (1970).

A discussion of special-status plants and wildlife is contained in the following sections.

6.8.1 Special-Status Plants

6.8.1.1 Overhead Transmission Line

Nine special-status plant species were identified as potentially occurring within the overhead portion of the Project Area (Table 6-3). Of these, three are federally-listed as endangered and two are proposed for listing as threatened or endangered.

One special-status plant species, Marin flax (*Hesperolinon congestum*), was observed during field surveys conducted in 2001 and 2002. Marin flax is state-listed as threatened and is proposed for federal listing as threatened. It is included on CNPS List 1B (CNPS 2001). Approximately 50 plants were observed on May 10, 2001 on Pulgas Ridge, about 130 feet

west of the existing ROW and north of the Ralston Substation outside the Project Area. This population was observed again during 2002 surveys. No other special-status plant species were observed within the areas surveyed in 2001 and 2002.

This Marin flax population is probably part of the CNDDDB (CDFG 2001) occurrence Number 3 which has been reported periodically from the ridges between Highlands School and Hillcrest Detention Home, east of Highway 280.

No other special-status plants were observed within the 100-foot-wide survey corridor during the 2001 and 2002 field surveys although sensitive habitats such as riparian and wetlands are present. The riparian wetlands areas near San Mateo Creek and the small seeps near Crystal Spring reservoir between Cañada Road and Highway 280 are spanned by the transmission line. No towers are situated near these sensitive habitats.

6.8.1.2 Underground Transmission Line

The underground transmission line portion of the Proposed Project route is generally located primarily along paved city streets, with a small portion within the BART ROW, which contains disturbed non-native grassland. No rare plants, or habitat for rare plants occurs within the ROW. Therefore, no further discussion is provided regarding rare plants, or impacts to rare plants, within the underground portion of the transmission line.

6.8.2 Special-Status Wildlife

6.8.2.1 Overhead Transmission Line

Based on literature review, searches of the CNDDDB, consultations with experts, and field surveys, a target species list of special-status wildlife species was compiled. The species, their habitat requirements, federal and state listing status, and the potential of occurrence in the Project Area are summarized in Table 6-4. A summary of special-status wildlife survey results is provided below, with vertebrate and invertebrate species described in separate sections.

TABLE 6-3
Sensitive Plant Species Potentially Occurring in the Jefferson-Martin 230 kV Transmission Line Project Area.¹

| Common Name | Scientific Name | USFWS Status | CDFG Status | CNPS Status | Habitat in Study Area | Occurrence Potential | Observed in Field |
|---------------------------|------------------------------------|--------------|-------------|-------------|-----------------------|----------------------|-------------------|
| San Mateo Thornmint | <i>Acanthomintha duttoni</i> | E | E | 1B | Yes | Moderate | No |
| Fountain Thistle | <i>Cirsium fontinale fontinale</i> | E | E | 1B | Yes | Low | No |
| Western Leatherwood | <i>Dirca occidentalis</i> | - | - | 1B | Yes | Moderate | No |
| San Mateo Sunflower | <i>Eriophyllum latilobum</i> | E | E | 1B | Yes | Low | No |
| Fragrant Fritillary | <i>Fritillaria liliacea</i> | - | - | 1B | Yes | Moderate | No |
| Marin Flax | <i>Hesperolinon congestum</i> | PT | T | 1B | Yes | Moderate | Yes |
| White Rayed Pentachaeta | <i>Pentachaeta bellidiflora</i> | PE | E | 1B | Yes | Moderate | No |
| Crystal Springs Lessingia | <i>Lessingia arachnoidea</i> | - | - | 1B | Yes | Moderate | No |
| San Francisco Campion | <i>Silene verecunda verecunda</i> | - | - | 1B | Yes | Moderate | No |

Notes:

¹ List was developed based upon herbaria records, CNDDDB records and habitat conditions present in the Project Area.

Status Codes:

U.S. Fish and Wildlife Service (USFWS) ranks are:

E = Endangered

T = Threatened

PE = Proposed for Endangered Status

PT = Proposed for Threatened Status

C1 = Candidate List 1; C2 = Candidate List 2

California Department of Fish and Game (CDFG) ranks are:

E = Endangered; T = Threatened; R = Rare

California Native Plant Society (CNPS) ranks are:

1A = plant presumed extinct in California, based on 2001 inventory

1B = plants rare and endangered in California and elsewhere

2 = plants rare, threatened or endangered in California but more common elsewhere

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Table 6-4 lists 27 vertebrate species and 10 invertebrates that could occur within the Project Area. This list includes two fish, three amphibians, three reptiles, twelve birds, and seven mammals. Of these species, one is federally endangered, four are federally threatened, and three are species of special concern which have designated critical habitat traversed by the alignment. Three of the federally-listed species are also state-listed as threatened or endangered.

This list and the results of the reconnaissance field surveys and habitat assessments were analyzed to determine the potential occurrence (high, moderate or low) for each of the special-status species in the Project Area. Species included in Table 6-4 are described in the following sections: aquatic wildlife species, terrestrial wildlife species, and invertebrate wildlife species. Within each section, those species that are federally-listed are described first, followed by species of special concern.

Aquatic Species

Results of wildlife habitat assessments and surveys for aquatic species are included in the following section. Information provided in this section is based on the surveys that were conducted by PG&E and their consultants.

Threatened and endangered species

Three threatened and endangered aquatic species are known to occur adjacent to the Project Area, and could potentially occur in the Project Area. These are: the California red-legged frog (California red-legged frog), San Francisco garter snake (San Francisco garter snake) and steelhead (*Onchorhynchus mykiss*).

Steelhead. Although steelhead are known from San Mateo Creek (also designated as Critical Habitat for the steelhead), the creek is situated at the bottom of a deep, steep-sided canyon 200 feet in elevation below the transmission lines at the location of the alignment crossing. Existing towers 6/38 and 6/37, located on the north and south slopes of San Mateo Creek, respectively, are near the canyon rim and are located approximately 800 lineal feet upslope from the creek waters.

California Red-legged Frog. This species is primarily associated with still or slow moving water, and both permanent and ephemeral streams and ponds may be used. Long-distance terrestrial movements are believed to be rare, but adults may travel short distances in spring between oviposition and foraging sites (Jennings and Hayes 1994). Postmetamorphic dispersal of subadults occurs from July to September, and frogs may move upslope in fall to hibernate in terrestrial riparian thickets. The subspecies persists west of the Central Valley from Marin County to Los Angeles County but has been virtually extirpated elsewhere (Jennings and Hayes 1994).

It was designated Federally Threatened in 1996 and critical habitat was designated in April, 2001. In July 2002, the U.S. District Court in Washington, D.C., approved an agreement to nullify most of the 4.1 million acres in California that was designated in 2001. Therefore, no areas within the project area are within critical red-legged frog habitat.

During spring and summer, 2002, habitat surveys for the California red-legged frog were conducted according to protocols published by the USFWS (1997). California red-legged frogs were identified in a pond at the Crystal Springs Golf Course, west of the Project alignment, but approximately 100 feet west of a proposed cable pulling site.

During surveys performed in 2002, two adult and seven subadult California red-legged frogs were observed in this pond. The habitat between the tower and pond is maintained as a golf course and does not provide suitable aestivation habitat for the frogs; however, it is possible that California red-legged frogs could move through the cable pull site or the alignment.

Per Dr. McGinnis, there are five other areas supporting a breeding population of California red-legged frogs located near the Project Area. These sites are located between 800 feet and 0.7 miles from the alignment.

Two additional potential breeding sites for California red-legged frogs located nearby the Project Area were identified by both Dr. McGinnis and by GANDA. One is nearby a maintained access road, and the other is about 200 feet away from the alignment. **San Francisco Garter Snake.** Historically, the San Francisco garter snake occurred in scattered wetland areas on the San Francisco Peninsula. The range extended from approximately the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains, at least to the Upper Crystal Springs Reservoir, and along the coast south to Año Nuevo Point, San Mateo County, and Waddell Creek, Santa Cruz County. All known populations of this species occur in San Mateo County (CDFG 2002a).

The snakes' preferred habitat is a densely vegetated pond near an open hillside where they can sun themselves, feed, and find cover in rodent burrows; however, considerably less ideal habitats can be successfully occupied. Temporary ponds and other seasonal freshwater bodies are also used. The snakes avoid brackish marsh areas because their preferred prey, California red-legged frogs, cannot survive in saline water (USFWS 2002).

Nearby upland areas may be utilized in fall and winter (Biosystems Analysis 1994). This snake was designated State Endangered in 1971 and Federally Endangered in 1993; no critical habitat has been designated (USFWS 2002).

There is high potential for this species to occur in the Project Area. The potential for occurrence is greatest in the vicinity of the San Francisco watershed lands. San Francisco garter snake breeding populations have been documented at several locations near the ROW. However, only one population would be potentially affected by the project. Two additional populations occur nearby the Project Area, but they are not expected to be affected by the project because locations are at least one half-mile east of the proposed route and are separated from the route by annual grassland, coastal scrub and oak woodland habitats. There are no ponds or other wetlands within these habitats or beyond them to the east which would conceivably produce seasonal CRF movement across the route area.

Species of Concern

Three aquatic species of concern may potentially occur within the Project Area. One species, the river lamprey (*Lampetra ayresi*), is assumed present in San Mateo Creek. The creek will not be directly affected during construction or operations and maintenance. Two other aquatic species of concern have low potential for occurrence within the Project Area,

including the California tiger salamander (*Ambystoma californiense*) and western pond turtle (*Clemmys marmorata*). These species are discussed below.

California Tiger Salamander (*Ambystoma californiense*). This species breeds in temporary rain pools and permanent waters of grassland and open woodland of low hills and valleys (Stebbins 1985). Adults spend most of the year in mammal burrows. Migration to breeding sites occurs at night, during or shortly after rains, primarily from December to February (Stebbins 1985). They may be found under cover objects located near water during

migration. They occur in disjunct locations in the Central Valley and in the Coast Ranges from the Bay Area to Santa Barbara.

Marginal habitat may occur in patches within the Project Area, primarily in the southern half of the alignment, but no specific breeding sites were identified during field surveys. Most grassland areas that could provide potential habitat are in serpentine soils that are unsuitable for most burrowing animals, including California ground squirrel, whose empty burrows provide aestivation habitat. The nearest record of California tiger salamander to the Project Area is more than five miles south of the project in Lagunita Lake on the Stanford University campus.

Southwestern Pond Turtle (*Clemmys marmorata pallida*). The southwestern pond turtle inhabits ponds, marshes, small lakes, ditches, and streams with quiet or sluggish water and a sandy or muddy bottom supporting aquatic plants (Stebbins 1985). Basking sites such as mudbanks, logs, and rocks are an important habitat component (Stebbins 1985). These turtles are more terrestrial than formerly believed, possibly spending up to 70 percent of their time in woodland and grassland habitats. Oviposition sites are typically in upland habitats. The population on the San Francisco Peninsula belongs to the southwestern subspecies, *C. m. pallida* (Stebbins 1985).

San Andreas Lake and the Crystal Springs Golf Course pond provide marginal aquatic habitat, and some adjacent upland habitats are potentially suitable. There are no records in the CNDDDB and southwestern pond turtles are not expected to occur in the Project Area.

Terrestrial Species

Threatened and Endangered Species

One threatened and endangered terrestrial species, the bald eagle (*Haliaeetus leucocephalus*), is known to winter in the general Project Area. No other terrestrial threatened and endangered species are expected to occur.

Bald Eagle (*Haliaeetus leucocephalus*). The bald eagle winters near large bodies of water including lakes, reservoirs, rivers, marshes, and seacoast throughout California (Biosystems Analysis 1994; Small 1994). It is regularly present in the Bay Area from November to March and is considered locally rare in San Mateo County (Richer 1985, 1996). It was designated Federally Endangered in 1967 and State Endangered in 1971 (CDFG 2001). It was downgraded to Federally Threatened in 1995 and proposed for delisting in 1999 (CDFG 2001).

Upper and Lower Crystal Springs Reservoir and San Andreas Lake are considered the best locations on the San Francisco Peninsula for finding this species (Sequoia Audubon Society (SAS) 1996). Most winters, one individual is present in treetops, on snags and open ground along the shorelines of these lakes, particularly at Upper Crystal Springs Reservoir (SAS 1996). Several existing towers, particularly 13/83 to 13/87, are within the area that could be used as eagle perches.

Species of Concern

Eighteen terrestrial species of concern have been identified as potentially present within the Project Area (Table 6-4). This table provides a summary description of the habitat requirements, federal and state status, and the potential for occurrence for all species of

concern. A more detailed summary of life history information and ecological requirements for the species identified in Table 6-4 that are known to occur, are assumed to be present, or that have the potential to occur is included below. Species for which suitable habitat is lacking or that do not have the potential to occur onsite are not described further in this report.

Raptors.

White-tailed Kite (*Elanus leucurus*). The centers of breeding distribution in San Mateo County are Año Nuevo State Reserve, Pescadero Marsh, and the Baylands from Foster City south to Palo Alto (SAS 1996, 2001). Although the alignment is outside these areas, the species was recorded as a possible, probable, or confirmed breeder in five of the seven San Mateo County Breeding Bird Atlas (SMCBBA) blocks traversed by the alignment (SAS 2001). Nesting activity is from February to October, peaking from May to August (Zeiner, et al. 2001). The combination of dense trees, especially coast live oaks, adjacent to extensive farmland or marshland preferred by this species for nesting appears to be lacking in the Project Area, thus the potential for nesting occurrence is low; however, this species may forage within the Project Area.

Northern Harrier (*Circus cyaneus*). The Northern Harrier is recorded as a possible breeder in the San Mateo County Bird Breeders Atlas (SMCBBA) block containing part of San Andreas Lake (SAS 2001). Nesting activity is from April to September, peaking June to July (Zeiner, et al. 2001). The marsh at the north end of the lake also appears to be suitable nesting habitat. There is also potential for harriers to nest within one-quarter mile of the alignment between existing towers 12/77 and 14/95.

Sharp-shinned Hawk (*Accipiter striatus*). This species is recorded as a probable or possible breeder in five of the seven SMCBBA blocks traversed (SAS 2001). Nesting occurs from April to August, peaking from late May to July (Zeiner, et al. 2001). Suitable nesting habitat appears to exist in dense stands of Monterey pine (*Pinus radiata*) near existing towers 11/72 and 12/76 to 12/82.

Cooper's Hawk (*Accipiter cooperi*). Cooper's hawk is recorded as a possible, probable, or confirmed breeder in all seven of the SMCBBA blocks traversed by the alignment (SAS 2001). Nesting activity occurs from March to August, peaking from May to July (Zeiner, et al. 2001). Distribution of suitable nesting habitat is probably similar to that described above for sharp-shinned hawk.

Ferruginous Hawk (*Buteo regalis*). The ferruginous hawk winters in California from September to April (Small 1994). The only part of San Mateo County in which this species is expected is the coast from Half Moon Bay south, and there only briefly and in very small numbers (SAS 1996). Marginal habitat exists south of Bunker Hill Drive in open grasslands, especially existing towers 0/4 to 1/8 and 4/26 to 6/34, but the species is unlikely to occur within the Project Area with any regularity.

Golden Eagle (*Aquila chrysaetos*). The golden eagle is an uncommon resident or winter visitor in open, hilly habitats throughout California (Small 1994, Zeiner, et al. 2001). Occasional individuals may forage in the grassland habitat present in the southern portion of the Project Area, but the prey base is probably insufficient to support them and disturbance probably too intensive for them to nest within the Project Area.

Merlin (*Falco columbarius*). A few merlins may occur in the Project Area during the winter. Some have been observed near the reservoirs from fall to spring and often perch on the transmission towers, especially near San Andreas Lake (SAS 1996).

Other Avian Species. There is suitable nesting habitat for the California yellow warbler (*Dendroica petechia brewsteri*) and the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) within the Project Area. These species are discussed below. No suitable nesting habitat was found during surveys for the purple martin (*Progne subis*) or Vaux's swift (*Chaetura vauxi*).

California Yellow Warbler (*Dendroica petechia brewsteri*). This warbler is a summer visitor to the coast and northern interior of California (Grinnell and Miller 1944). It nests in riparian deciduous habitats with dense understory in lowland areas from mid-April to early August, peaking in June (Zeiner, et al. 2001). It is fairly common in San Mateo County (SAS 1996) with breeding activity concentrated in the south (SAS 2001). This species is recorded as a possible or probable breeder in three of the seven SMCBBA blocks traversed by the alignment (SAS 2001). Suitable habitat seems to be limited to willows in the small wetland northwest of existing tower 14/95 and on the shore of San Andreas Lake near existing tower 13/83.

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*). A resident in the vicinity of San Francisco Bay, it winters south along the coast to San Diego (Grinnell and Miller 1944). The species is found nesting in freshwater marshes and, to a lesser extent, saltwater marshes, where it favors tall grasses, tule patches, and willow thickets (Grinnell and Miller 1944). Nesting activity occurs from early April to mid July, peaking in May and June (Zeiner, et al. 2001). In winter, the species gravitates more towards saltwater and brackish habitats (Grinnell and Miller 1944). It is fairly common and breeds locally in San Mateo County (SAS 1996).

There are several CNDDDB records from Upper Crystal Springs Reservoir. It is recorded as a possible, probable, or confirmed breeder in five of the seven SMCBBA blocks traversed by the alignment (SAS 2001). Several individuals were heard in the wetland northwest of existing tower 14/95 south of the Sneath Substation during the habitat assessment. Marginal habitat also exists at San Andreas Lake near existing tower 13/83.

Mammals.

Seven mammal species of concern potentially could occur in the Project Area, including six species of bats and the San Francisco dusky-footed wood rat (*Neotoma fuscipes annectens*). The San Francisco dusky-footed wood rat is assumed present and is discussed below. Although there is low potential for bats to occur, there may be some roosting habitat along the alignment.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*). This species inhabits forest and chaparral throughout the Bay Area (CDFG 2001, Zeiner, et al. 2001). It prefers a moderate canopy and brushy understory where it builds conspicuous stick houses on the ground and in trees (Zeiner, et al. 2001). These houses may be hundreds of years old.

Within the Project Area, there is high potential for occurrence of this species in the oak woodland habitat that is concentrated south of San Mateo Creek, especially around existing towers 2/13, 2/15, 2/16, 3/18, 3/22, and 6/36 to 6/38. Two stick houses were found next to

existing tower 3/22 during habitat assessments. Although no trapping was conducted to confirm species identification, it is believed that the stick houses represent occupied habitat for the San Francisco dusky-footed woodrat.

Bats. Six bat species may potentially occur within the Project Area. These include long-eared myotis (*Myotis evotis*); fringed myotis (*Myotis thysanodes*); long-legged myotis (*Myotis volans*); Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*); pallid bat (*Antrozous pallidus*); and western mastiff bat (*Eumops perotis*). A brief description of the habitat requirements for these bat species is included below.

Long-eared Myotis (*Myotis evotis*). This species roosts in a variety of sites including buildings, crevices, snags, and under bark (WBWG 1998, Zeiner, et al. 2001). The Project Area provides moderate quality habitat for bats. The potential for occurrence of roosting bats may be greatest in stands of Monterey pine located near the reservoirs.

Fringed Myotis (*Myotis thysanodes*). Hardwoods and mixed woodlands in foothills seem to be preferred habitats (Zeiner, et al. 2001). This species roosts in caves, mines, buildings, and crevices (Zeiner, et al. 2001). The Project Area probably supports some bat habitat areas of at least moderate quality. The potential for fringed myotis to occur is greatest in oak woodlands located mainly in the southern portion of the overhead alignment. Although they may roost in these areas, no known or potential roost sites are in the immediate vicinity of any project towers.

Long-legged Myotis (*Myotis volans*). This species roosts in a very wide variety of sites (WBWG 1998, Zeiner, et al. 2001). The Project Area may support roosting habitat for long-legged myotis, however none are expected to occur in areas where construction activities would occur.

Townsend's Western Big-eared Bat (*Corynorhinus townsendii townsendii*). This species roosts exclusively in caves and anthropogenic sites (WBWG 1998, Zeiner, et al. 2001). Suitable roost sites probably are lacking from the Project Area. There are no records of occurrence in the CNDDDB, and the species probably does not occur in the Project Area.

Pallid Bat (*Antrozous pallidus*). This species roosts in caves, mines, crevices, and occasionally trees (Zeiner, et al. 2001). There is low habitat potential for roost sites in the oak woodland area located in the southern portion of the Project Area. There is little to no habitat suitable for roosting in the northern portion of the Project Area.

Western Mastiff Bat (*Eumops perotis*). This species is considered a cliff-roosting species (WBWG 1998). Western mastiff bat probably does not occur in the Project Area due to a lack of suitable roost sites. There are no records in the CNDDDB and the Project Area lacks cliffs areas that could serve as roost sites.

Invertebrates

Based on literature review, searches of the CNDDDB and other databases, consultations with experts, and a habitat assessment survey, a target species list of 10 potentially occurring special-status invertebrates was compiled. The species, their habitat requirements, federal and state listing status, and the potential for occurrence in the Project Area are summarized in Table 6-4.

Most of these species have status only at the federal level, as invertebrates are generally not recognized as rare or endangered by the state of California. However, all of these invertebrates satisfy the criteria of a rare species as defined by CEQA.

Based on results of the habitat assessment survey, it was determined that no suitable habitat for the Mission blue butterfly, San Bruno elfin butterfly, callippe silverspot, Leech's skyline diving beetle, or monarch butterfly occurs along the overhead portion of the line. As shown in Table 6-4, six special-status invertebrates potentially occur in the Project Area.

Focused surveys were performed only for those taxa for which potential habitat was observed, namely, the Bay checkerspot butterfly, Opler's longhorn moth, the serpentine phalangid, and two harvestmen. Ricksecker's water scavenger beetle is known from an unnamed stream near the Pulgas Water Temple. Because this stream is culverted beneath the roadway it will not be disturbed by the project. Focused surveys for Ricksecker's water scavenger beetle were not conducted.

Since all of the potentially occurring taxa for which species surveys were conducted are associated with serpentine grasslands, surveys were focused in the three portions of the proposed alignment that support such habitat, including Edgewood County Park and Preserve, Ralston-Pulgas Ridge, and the Haynes-Black Mountain Road areas of Hillsborough. Results of surveys for Opler's longhorn moth indicated that this species is not present within the Project Area, and this species is not described further in this report.

Focused surveys indicated that four of the potentially occurring species do occur within the alignment at Edgewood County Park and Preserve. These include the Bay checkerspot butterfly, the two harvestman, and the Serpentine phalangid. In addition, the Serpentine phalangid was observed at the Ralston-Pulgas Ridge and Haynes Road-Black Mountain areas of the proposed alignment. A description of each species occurring in the Project Area, its habitat requirements, and occurrence within the Project Area is described below.

Bay Checkerspot Butterfly (*Euphydras editha bayensis*). The Bay checkerspot butterfly is a nymphalid butterfly that occurs in serpentine grassland habitats, especially those characterized by bunch grasses. Its larval food plants are *Plantago erecta* and *Orthocarpus densiflorus*. Adults nectar on *Layia platyglossa*, two species of *Lomatium*, two species of *Allium* and *Lasthenia californica*. Today the checkerspot is known only from a handful of localities in San Mateo and Santa Clara counties, but it formerly also occurred in Alameda, Contra Costa, and Marin Counties, and possibly in San Francisco County (Ehrlich et al. 1975). The checkerspot is a federally-listed, threatened species. The adult flight season is typically from late March through early May. One of the remaining checkerspot populations occurs at Edgewood County Park and Preserve. The checkerspot was also formerly known to occur in the Ralston portion of the proposed alignment.

Focused visual presence-absence surveys for the Bay checkerspot were conducted during the spring of 2001 and 2002 in serpentine grassland habitats within the Project Area including Edgewood County Park and Preserve, Ralston-Pulgas Ridge and the Haynes-Black Mountain Road areas of Hillsborough. The 2001 surveys yielded negative findings for the Bay checkerspot. However, during a total of 16 2002 surveys, 42 adult Bay checkerspots were observed at Edgewood County Park and Preserve between the Jefferson substation and Edgewood Road. The first individuals were observed on March 31, while additional

adults were observed on April 6 and 13. Bay checkerspots were not detected during 13 of the 16 survey days. No other survey dates yielded positive results. No adults or other life stages of the checkerspot were observed at the Ralston-Pulgas Ridge or Haynes-Black Mountain Road areas.

Edgewood Blind harvestman (*Calicina minor*); Edgewood Microblind harvestman (*Microcina edgewoodensis*); and Serpentine phalangid (*Calicina serpentinea*). Harvestmen in the genera *Calicina* and *Microcina* are generally found under serpentine rocks, particularly in association with serpentine grassland or woodland vegetation. Unfortunately, little is known about their life history and natural history. As its common name implies, the serpentine phalangid occurs primarily in serpentine habitats, including grassland and oak woodland, but it has also been found in redwood, broadleaf evergreen, and digger pine-oak associations (Ubick and Briggs 1989). The serpentine phalangid is one of the more widespread harvestmen in the San Francisco Bay Area, having been recorded from several locations in Contra Costa, Santa Clara, Santa Cruz, San Mateo, and San Benito counties.

Calicina (formerly *Sitalcina*) *minor*, which is commonly known as the Edgewood blind harvestman, is known only from two localities in San Mateo County, Edgewood County Park and Preserve and 0.75 miles north of Crystal Springs Dam at a spring along San Mateo County Road No. 14 (Briggs 1968; Ubick and Briggs 1989). The known distribution of the Edgewood microblind harvestman (*Microcina edgewoodensis*) is also centered at Edgewood County Park and Preserve (Briggs and Ubick 1989).

Presence-absence surveys for the phalangid and the two harvestmen were conducted in February, 2002. All three taxa were observed under partially buried serpentine rocks along the proposed alignment at Edgewood County Park and Preserve. The two harvestmen and serpentine phalangid were found between existing towers 0/2 and 0/4, and in the vicinity of existing tower 0/6. Only the serpentine phalangid, a species with no special status, was observed at the serpentine grassland of the Ralston-Pulgas Ridge and Haynes-Black Mountain Road area.

All three taxa were observed under partially buried serpentine rocks along the proposed alignment at Edgewood County Park and Preserve. Specifically, the two harvestmen and serpentine phalangid were found between towers 0/2 and 0/4, and in the vicinity of tower 0/6. Only the Serpentine phalangid was observed at the Ralston-Pulgas Ridge and Haynes Black Mountain Road two areas of serpentine grassland. At Edgewood County Park and Preserve, results of the focussed surveys suggest that all three of these phalangodids occur along the proposed alignment between towers 0/1 to 0/5 and in the immediate vicinity of tower 0/6. These taxa do not occur in the drainage channel and non-serpentine grassland vegetation between towers 0/5 and 0/6.

Ricksecker's Water Scavenger Beetle (*Hydrochara rickseckeri*). Specific details of the beetle's natural history are unknown. However, some inferences can be made based on knowledge of the natural history of related species. Other members of this genus are aquatic scavengers as adults, while larvae feed as predators on soft-bodied aquatic invertebrates. Larvae must hold their prey above the water surface to feed; thus they are usually found in relatively calm, shallow water of ponds, streams, marshes, or lakes.

Ricksecker's Water Scavenger beetle is known only from the immediate San Francisco Bay Area. In addition to the type specimen, less than 20 specimens have been collected at various times during the past century. All are housed at the California Academy of Sciences in San Francisco. Most of the specimens at the Academy were collected during the 1940s and 1950s in Alameda County (Oakland and Livermore), Marin County (Bolinás), San Mateo County (San Mateo and Woodside at the Pulgas Temple [within the Crystal Springs Reservoir watershed], and Sonoma County (near Penngrove). More recently a single specimen was found at Olcott Lake of the Jepson Prairie Preserve in Solano County. Collection dates include the months of January through July, but the beetle's actual period of activity in a particular year is probably more closely tied with the timing of winter rains and ponding of seasonal wetlands.

This beetle has previously been observed at the Pulgas Temple of the Crystal Springs Reservoir watershed, which is located west of towers 2/17 and 3/18 and the ROW. Its natural habitat at this location may be a perennial, unnamed stream (which is crossed by the transmission line) or the reservoir. Because this creek will not be affected during construction, focused surveys for this species were not conducted.

6.8.2.2 Underground Transmission Line

The underground portion of the transmission line is located entirely along paved city streets and the BART ROW. The BART ROW is comprised of a mix of non-native grass species. The wildlife habitat value within the ROW for the underground transmission line is minimal, and no suitable habitat for special status species exists, with the exception of the areas located along the Guadalupe Canyon Parkway.

Guadalupe Parkway passes through San Bruno Mountain, which supports populations of three federally-listed butterfly species: Callippe silverspot, Mission blue, and San Bruno elfin. Both sides of the Guadalupe Canyon Parkway have paved shoulders with adjacent gutters and an asphalt curb. Vegetation occur approximately five feet beyond the curb, and it appears to be mowed regularly. During a recent field survey, no perennial lupine species (*Lupinus albifrons*, *L. variicolor*, and *L. formosus*) (larval host plant for the Mission blue butterfly), or *Sedum spathulifolium* (larval host plant for the San Bruno elfin) were observed growing within this area (de Becker, S. pers. comm. September 23, 2002). Lupines have been established on the steep road cuts along the Parkway. The host plant for the Callippe silverspot, *Viola pedunculata*, has no above-ground parts from early summer through early winter, but it is doubtful that this species would grow along the Parkway.

6.9 Potential Impacts

The methodology used for determining standards of significance for biological resources was derived from Appendix G of the CEQA Guidelines. Impacts to biological resources are separated into those likely to occur from construction (both short-term and long-term, and direct and indirect impacts) and those that could occur as a result of transmission line and substation operation and maintenance. Potential impacts to vegetation, wildlife, wetlands and aquatic resources, and special-status plant and wildlife species are discussed in the following sections.

6.9.1 Significance Criteria

A project is considered to have potentially significant biological impacts if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as threatened or endangered, or as a candidate, sensitive, or special-status species (including Migratory Bird Treaty Act species) in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community (e.g., serpentine grassland) identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- 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, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Result in the introduction or spread of a noxious weed or substantially increase the dispersal and spread of existing populations of noxious weeds such that an existing plant community or wildlife habitat is substantially degraded.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other governmental habitat conservation plan.

Significant impacts to biological resources are not limited to projects affecting only state or federally listed endangered species. A species that is not listed will also be considered rare or endangered if it can be shown to meet the following criteria (CEQA Guidelines 15380):

- 1) When its survival and reproduction in the wild are in immediate jeopardy from one or more causes, or
- 2) It is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens, or
- 3) It is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

6.9.2 Impact Assessment Methodology

Impacts to terrestrial and aquatic resources resulting from the construction or replacement of transmission towers, access roads, staging areas, and cable pull sites depend primarily on the proximity, and quality of the habitat; the presence of special-status species, the presence

of breeding habitat; and the effectiveness of measures instituted to protect these habitats and species from direct or indirect exposure to project activities.

The discussion of impacts is divided into two main sections: Overhead Transmission Line and Towers and Underground Transmission Line and Towers.

Direct impacts from construction activities include the displacement of vegetation due to larger tower footings, the temporary loss of habitat, removal or trimming of trees around tower study areas or within cable pull sites, the potential for transport or introduction of noxious weeds, temporary impacts to wetlands and aquatic resources due to vehicle access or clearing within the ROW, and potential adverse effects to the breeding or dispersal of special-status species.

Indirect impacts resulting from construction activities include potential introduction of contaminants from construction equipment, degradation of habitat and/or water quality, and increased erosion and sedimentation. Specific impacts and mitigation measures are described below. Mitigation measures are numbered and cross-referenced where they apply to more than one impact.

6.9.3 Construction Impacts - Overhead Transmission Line

Impacts to biological resources due to construction of the overhead portion of the transmission line and towers and other project elements are described in this section and in Table 6-5. Impacts are less than significant with incorporation of mitigation measures provided in the Mitigation Section of this report.

Permanent impacts include the removal of a few trees due to the installation of new or larger tower footings. No permanent impacts to wetlands or other waters will occur.

Temporary impacts anticipated to occur as a result of construction include the temporary disturbance of serpentine grassland and other vegetation types, the potential for erosion and increased sedimentation, and the potential for introduction or spread of invasive plant species and/or sudden oak death as a result of movement of equipment and workers. In addition, a small amount of open water habitat at San Andreas Lake may be temporarily disturbed due to the potential need for work below the highwater line at the two tower locations.

Impact 6.1. Tree Removal and Tree Trimming. A limited number of trees may need to be permanently removed or trimmed to install the new tower footings. Due to ongoing fire hazard vegetation clearing, few trees occur next to the existing tower footings. New towers generally have been sited in areas that do not support trees. Therefore, few trees are expected to be permanently lost due to the installation of towers. During construction, temporary impacts to trees will occur within the ROW and Project elements such as the cable pull sites, access roads, and staging areas due to clearing or grading of these elements.

Tree trimming may also be required on slopes adjacent to San Mateo Creek or along existing access roads in order to provide sufficient clearance between the tree tops and the conductors or for safe vehicular transport.

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Currently, trees continually re-establish throughout the ROW after fire hazard removal, and it is expected that this would continue after Project implementation. A substantial number of trees occur in the extensive Water Department lands adjacent to the Project Area. Because some limited natural revegetation will occur after removal, and there are extensive stands of trees nearby, the permanent or temporary loss of a few trees, many of which are not native, is not considered significant.

Standards for maintenance, management, and preservation of native and indigenous trees are established in the San Mateo County Heritage Tree Ordinance and the San Mateo County Significant Tree Ordinance. As described in Mitigation Measure 6.1, pre-construction tree surveys will be conducted prior to construction to determine the number and species of trees to be removed and if trees to be removed are protected by local ordinances.

Per County ordinances, tree trimming and encroachment into the dripline of a heritage or significant tree is prohibited without obtaining prior approval or a permit. Mitigation Measures 6.1, Pre-Construction Tree Surveys, will be implemented to ensure that no heritage or significant trees are adversely affected without obtaining proper approvals. Appropriate mitigation, should any be needed, will be implemented to reduce potential impacts to a less-than-significant level.

With incorporation of Mitigation Measure 6.1, impacts due to tree removal will be less than significant.

Impact 6.2. Impacts to Serpentine Grassland Habitat. Serpentine grasslands, a rare plant community will be encountered primarily in Edgewood County Park and at the interface of the eastern edge of Watershed Lands next to urban development. In Edgewood Park, these serpentine grasslands are located in an area where star thistle is relatively common, and treatment plots for the Park's Invasive Species Removal Test Program are located close to Towers 0/3 through 0/5. Temporary disturbance in these serpentine areas consists of disturbance around existing and new tower footings. No new access roads, cable pulling sites, or staging areas are planned in Edgewood Park.

Along Ralston-Pulgas Ridge and Haynes-Black Mountain Road (a portion of Buri-Buri Ridge), identified tower locations and access roads are located in and along a mowed firebreak area at the edge of the Watershed Lands. Three pulling sites occur in these areas, in addition to the tower sites.

Temporary disturbance in Edgewood Park is expected to be limited to less than one acre. This grassland supports several special-status species including the endangered Bay Checkerspot butterfly. Temporary work areas will be further limited through implementation of Mitigation Measures 6.3, 6.4, and 6.5, including seasonal and access restrictions. With implementation of these mitigation measures, impacts will be less than significant.

The remaining affected serpentine grasslands do not support special-status species, although these areas do support the Bay Checkerspot butterfly's larval food plant and one rare plant population situated away from planned work areas. With implementation of Mitigation Measures 6.3, 6.5, and 6.4 (Topsoil Salvage, Revegetation, and Restricted Access), impacts will be less than significant.

The new tower footings will be installed primarily below ground, with typically only a 2.5-foot diameter footing exposed at the ground surface. Since the existing towers currently use a 2-foot diameter footing, the total additional above-ground area that will be occupied by the new tower footings is expected to be on the order of 8 square feet per tower.

During construction, serpentine grassland habitat could be trampled or otherwise disturbed by foot traffic and/or construction equipment. After construction is complete, topsoil salvaged from the area will be re-spread across the disturbed area and revegetated with native grass species as described in Mitigation Measures 6.3 and 6.5.

With the incorporation of Mitigation Measures 6.4 (Restricted Access), 6.3 (Topsoil Salvage), and 6.5 (Revegetation), the impact to serpentine grasslands will be less than significant.

Impact 6.3. Clearing of Other Vegetation Types. Clearing of non-serpentine vegetation will be needed in some locations in order to clear access roads or clear project elements prior to construction (e.g., cable pull sites or staging areas). In order to access the towers, it is expected that five existing unpaved access roads will need to be extended. In areas that do not require clearing or grading, vegetation could be temporarily disturbed by foot traffic and/or construction equipment.

The majority of the new tower footings are being installed in grassland and shrub-dominated habitat. As described earlier, the total above-ground area that will be occupied by the new tower footings (8 square feet per tower) is expected to be only marginally greater than that occupied by the existing tower footings. Total permanent loss of habitat to occur as a result of construction would be on the order of 800 square feet for the overhead line.

Temporary disturbance would occur in work areas around the tower sites and at cable pull sites and staging areas. Total work area disturbed is expected to be roughly 20 acres for work areas immediately around the towers, and another 20-40 acres of temporary pull sites and/or staging areas. The temporary disturbance of such a small area vegetation, some of which is already disturbed for firebreaks, is very small compared to the extensive undisturbed communities within the Watershed Lands.

With incorporation of Mitigation Measures 6.3 (Topsoil Salvage), and 6.5 (Revegetation), temporary clearing and temporary disturbance of vegetation is not considered a potentially significant impact.

With incorporation of Dust Control Measures during construction (refer to the Air Quality Section), impacts to vegetation due to dust emissions will be less than significant.

Impact 6.4. Impacts to Rare Plants. No rare plants were found within work areas and no further mitigation will be required, beyond implementation of Mitigation Measure 6.2, Flagging of Environmentally Sensitive Areas.

Impact 6.5. Introduction of New Invasive Plants or the Spread of Existing Invasive Species or the Sudden Oak Death Pathogen. The Project ROW already contains several invasive species such as yellow star-thistle and French broom. However, it is possible that construction could result in the introduction of new invasive plants or the spread of invasive species into portions of the Project Area in which invasive species do not already occur. For example, the seeds of invasive species could be transported to other areas by the tires of trucks used during construction. Additionally, the fungal pathogen that causes sudden oak death

(*Pytophthora ramorum*) has been reported in Crystal Springs Reservoir, nearby the Project Area (University of California, Berkeley 2002; R. Breuer, August 20, 2002). It is possible that construction equipment and foot traffic could spread the pathogen, should it be present within the ROW.

During construction, Mitigation Measure 6.6, Invasive Species and Sudden Oak Death Control, will be implemented. These measures will include specific measures that will be employed during construction to minimize the potential spread or introduction of invasive plant species and/or pathogens. With incorporation of Mitigation Measure 6.6, these potential impacts will be less than significant.

Impact 6.6. Disturbance to or Loss of Wetlands and Aquatic Resources. The total estimated area of potential wetlands and waters within identified work areas is provided in Appendix B. No wetlands are expected to be permanently affected as a result of the Project. Up to 0.2 acres of wetlands and up to 0.1 acres of other waters (including open water habitat and unvegetated creeks) could be temporarily affected during construction.

Temporary impacts to wetland and aquatic resources located within or adjacent the ROW or other project elements could occur during construction primarily as a result of vehicular and equipment traffic between the towers and other sites. Minor clearing or grading of cable pull or staging sites could also result in temporary impacts to a few wetland or aquatic resources. No permanent impacts to these resources are expected to occur as a result of construction.

Final tower engineering plans are not available, but two towers adjacent to San Andreas Lake may require work below the highwater line. An estimated 1000 square feet per tower location of open water could be temporarily affected during construction. The temporary disturbance of up to 2000 square feet of open water is not viewed as significant with implementation of Mitigation Measure 6.7.

Prior to construction, wetland delineations will be implemented to confirm the precise location and extent of wetlands and aquatic resources, identify areas to be avoided and to obtain calculations of wetlands unavoidably impacted. Mitigation Measure 6.7 (Avoidance and Restoration of Wetlands) will be implemented to minimize impacts to the maximum degree possible. Should revegetation of riparian habitat be required, Mitigation Measure 6.5 details how this will be accomplished. Additionally, Mitigation Measure 6.5 (Revegetation Plan and Erosion Control Measures), will be implemented during and after construction to minimize the potential for erosion or sedimentation into the lake or other wetlands and aquatic resources.

With the incorporation of the above mitigation measures, potential impacts to wetlands and aquatic resources are considered less than significant.

Impact 6.7. Impacts to General Wildlife Species. Direct mortality of general wildlife species could occur during construction as a result of increased vehicular and foot traffic, use of heavy construction equipment, grading and excavation of tower footings, pulling of transmission lines, and other project activities. In addition, a limited amount of wildlife habitat will be temporarily lost due to construction.

In general, many wildlife species would be expected to leave the immediate vicinity of the Project Area once construction starts and use the substantial amount of nearby unaffected habitat. As a result, only a minimal amount of direct mortality is expected to occur. Impacts to general wildlife populations will be temporary and less than significant. Therefore, no mitigation is required.

As described in the vegetation impacts section, a few trees will be removed, and/or trimmed, and other vegetation types may be temporarily lost or affected. Although these vegetation types provide habitat for a variety of wildlife species, extensive amounts of forested and wooded habitat occur nearby in the Watershed Lands. Therefore, this is not considered significant and mitigation is not required.

Impacts 6.8 to 6.20. Special-Status Wildlife Species Impacts. A summary of impacts to known or potentially occurring special-status wildlife species as a result of project construction is provided below. A detailed assessment of impacts and mitigation measures to special status wildlife species is provided in Table 6-5, including Mitigation Measures 6.9 through 6.19.

Threatened and Endangered Species. Due to the close proximity of two threatened or endangered species to the Project Area, the California red-legged frog and the San Francisco garter snake, consultation with the USFWS and CDFG pursuant to the federal and state Endangered Species Acts will be required.

Other Special-Status Wildlife Species. For the non-listed potentially occurring special-status wildlife species, mitigation measures as shown in Table 6-5 will be implemented. With the implementation of these measures, it is expected that impacts to special-status wildlife species due to construction will be less than significant.

6.9.4 Operations and Maintenance Impacts – Overhead Transmission Line

Operations and maintenance activities are defined as those that will be conducted on an on-going basis over the long term in order to operate and maintain Project elements and facilities. Regular inspections of transmission lines, instrumentation and control, and support systems will be conducted as they are critical for safe, efficient, and economical operation. During inspections, the access roads will be used by vehicles, equipment, and foot traffic, similar to current operations.

Impact 6.21. Impacts to Vegetation. Areas around existing structures will be mowed, plowed, or cleared, on an as-needed basis, similar to clearing, trimming, and mowing that is currently conducted under existing ROW permits. As described in Chapter 2, the current easement owned by PG&E and used for the existing 60 kV power line is typically 50 feet. The ROW will need to be expanded to approximately 100 feet in width, which is typically required for 230/60 kV double-circuit transmission lines. However, the easement width may vary slightly in some specific locations, depending on final engineering. The new transmission line towers and poles will generally be larger and taller than the existing structures, to support the heavier weight of the new line and also due to greater separation between the conductor phases (cross arms). Tree trimming will need to be conducted within the ROW width for fire hazard reduction. However, due to the taller towers, the conductors will be raised farther off the ground, and trees will be allowed to grow taller. Therefore, it is anticipated that the total amount of tree trimming needed will be similar to the existing condition.

Existing access roads within the ROW will be maintained on an as-needed basis similar to what is currently implemented to allow for safe vehicular passage when required for operation and/or maintenance. However, similar to the existing condition, it is expected that these roads will partially revegetate when out of service.

As described above, ongoing operations and maintenance activities will be similar in frequency and type to those currently conducted for the existing 60 kV power line. No substantial change in the frequency, duration, or pattern of operations and maintenance activities will occur as a result of the project as compared to the existing condition. Therefore, it is anticipated that no new impacts to vegetation will occur as a result of operations and maintenance.

Impact 6.22. Bird Electrocutions. Electrocutions occur when a bird simultaneously contacts two conductors of different phases or a conductor and a ground. This happens most frequently when a bird, especially raptors, attempts to perch on a structure with insufficient clearance between these elements. Though the wing span of golden and bald eagles (both of which could potentially occur in the Project Area) can exceed seven feet, the effective reach from the fleshy parts of the wing (wrists) that might directly contact the conductors is under five feet (APLIC 1996). On a 230 kV transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds (APLIC 1996). Because the clearances on the 60 kV side will be as large as those on the 230 kV side, no impacts are expected.

Similarly, in most taps and other appurtenant structures for a 230 kV line, clearances between conductor and ground are expected to be sufficient to protect all perching birds. Therefore, no impacts are expected. Regardless, Mitigation Measure 6.8 (Construction of Bird-Safe Towers) will be implemented to further reduce the potential for impacts to birds due to electrocution.

Impact 6.23. Bird Collisions. Bird collisions with man-made structures have been reported in the scientific literature for over a century (see Avery, et al. 1980 and Herbert and Reese 1995 for extensive annotated bibliographies). A number of bird collision studies have been done at transmission lines. Many of these are of limited scope, but several recent studies have been both well designed and complete (Hartman, et al. 1992; Faanes 1987; Pearson 1993). These studies indicate that the primary factor in determining the number of birds colliding with a transmission line is the number of birds flying through the area. For instance, the Mare Island study (Hartman, et al. 1992) found that both bird flights and collision mortality were much greater on a section of a 115 kV pole line that paralleled a tidally influenced salt pond than on a section that passed through a hayfield. Other factors that influence the rate of bird collision are species, age, flocking behavior, weather conditions, land use, topography, vegetation structure, and line placement and visibility (APLIC 1994).

Based on these considerations, bird collisions with the transmission line are expected to be rare. No part of the line crosses an important bird movement corridor. The most concentrated bird use areas in the vicinity are the Crystal Springs reservoirs and San Andreas reservoir. These reservoirs provide resting and feeding habitat for gulls, wintering habitats for dabbling and diving ducks, and feeding habitat for herons and egrets in the shallower parts of the lakes. They are not heavily used by shorebirds. Much of the shoreline of the lakes supports little wetland vegetation, because the shore drops off steeply and

because the withdrawal of water in summer and fall discourages the growth of shoreline plants. Movement of birds to and from the reservoir is seasonal or is influenced by diurnal cycles elsewhere, but activity does not approach the busy movements found on tidal feeding grounds. Birds in the reservoir fly mostly parallel to the shoreline (and the transmission line), or over the hills to the east or west. The transmission line approaches the shore only in the northern half of San Andreas Lake. Even here it is separated from the shore by trees, except for a short distance of two or three spans. The hill rising of the east of the line provides an additional visual barrier to birds. Lines that are below the height of nearby trees or are adjacent to topographical features such as hills rarely present a collision hazard to birds (APLIC 1994). Thus, local topography and vegetation are expected to ameliorate any collision potential of the transmission lines.

Furthermore, the upgrade from a 60 kV to a 230 kV transmission line will require a total of six conductors, the same number of conductors currently in use. The conductor diameter will increase slightly from the current range of 0.78" to 0.97", to the planned 0.85" for the 60 kV and 1.2" for the 230 kV conductors, and the lines will generally be situated farther off the ground than the existing condition. However, these modifications are very small, and it is not anticipated that the amount of bird strikes will increase over what currently occurs.

6.9.5 Impacts - Underground Transmission Line

Impact 6.24. Construction Impacts. The majority of the underground transmission line portion of the Proposed route will occur within existing roadways (Segments 1, 3, 4, and 5). Along the BART ROW (Segment 2), limited areas of non-native grassland will replace the currently largely unvegetated active BART construction area. During construction, this non-native grassland will be disturbed during trenching and boring activities in the ROW. No permanent or temporary wetland impacts will occur.

Suitable habitat for special-status wildlife species is lacking with the exception of areas located along Guadalupe Canyon Parkway. Potential impacts in this area are addressed in Table 6-3. No temporary or permanent impacts to wildlife, wildlife habitat, or special-status plant or wildlife species will occur as a result of construction or operation and maintenance of the underground portion of the Project.

Impact 6.25. Operation and Maintenance Impacts. During operation and maintenance, vehicles may need to travel along the BART ROW to maintain the underground transmission line, and this traffic may result in a small amount of disturbance to this habitat. These impacts are not viewed as potentially significant, and mitigation is not required.

6.10 Mitigation

Mitigation Measure 6.1. Pre-Construction Tree Surveys. Standards for maintenance, management, and preservation of native and indigenous trees are established in the San Mateo County Heritage Tree Ordinance and the San Mateo County Significant Tree Ordinance.

Tree removal permits or approvals for lost heritage or significant trees will be obtained and mitigation will be coordinated, as required, with the appropriate public and resource agencies. Mitigation for lost trees may not be implemented within the ROW due to fire

safety concerns, and instead may be implemented in an alternative, agency-approved location.

Mitigation Measure 6.2: Environmentally Sensitive Areas. Environmentally sensitive areas, such as the rare plant population in the vicinity of the Ralston Substation, will be identified in the field to minimize the possibility of inadvertent encroachment.

Mitigation Measure 6.3: Topsoil Salvage. The topsoil from the new footing locations in serpentine grasslands will be salvaged and stockpiled in identified upland work areas within the ROW or other project elements such as substations. After construction is complete, the salvaged topsoil will be spread over the disturbed area. The area will be graded to match the pre-construction natural grade. Once the salvaged topsoil has been spread and the area returned to the pre-existing topography, the area will be revegetated with locally collected, native grass species.

Mitigation Measure 6.4. Restricted Tower Access at Edgewood County Park. Towers that are located in the sensitive serpentine grassland habitat at Edgewood County Park and Preserve will be accessed during construction only by helicopter or by foot from existing access roads, except in the event of an emergency. Helicopters will be used to move construction equipment and workers to and from the site to minimize construction-related impacts to this sensitive habitat. No new access roads will be constructed. In addition, construction activities will be restricted or minimized during the rainy season and spring, when the Bay checkerspot butterfly is feeding and in flight, and sensitive arachnid species are active (See Mitigation Measures 6.10).

Mitigation Measure 6.5. Erosion Control and Revegetation Plan. Following the completion of construction, all affected habitats will be restored, using a mixture of custom-collected native grass species appropriate to the area. A preliminary revegetation plan is contained in Appendix B.

The Best Management Practices (BMPs) included in the Stormwater Pollution Prevention Plan (SWPPP) will be implemented during construction to minimize impacts associated with erosion. BMPs will include the installation of sediment and erosion control structures to protect biological resources, including streams, as well as roadways and adjacent properties. Watering for dust control during construction will also be employed.

Mitigation Measure 6.6. Invasive Species and Sudden Oak Death Control. BMPs will also include measures to reduce the potential introduction or spread of noxious weeds or pathogens, such as sudden oak death. Sudden oak death management protocols are currently being developed for the San Francisco Watershed lands. Coordination with the San Francisco Watershed and resource and public agencies regarding sudden oak pathogen management and invasive plant species will be conducted prior to construction. For example, BMPs could include the establishment of tire wash stations at the main entry points so that vehicle tires can be washed before entering the construction area.

Mitigation Measure 6.7. Wetlands Avoidance and Restoration. A wetland delineation per the *US Army Corps of Engineers (Corps) Wetlands Delineation Manual* (USACE 1987) will be conducted prior to construction. The delineation will use a three-parameter approach that includes an examination of vegetation, soils and hydrology to determine the presence of wetlands. A wetland report will be prepared and submitted to the USACE for verification.

Through this process, final calculations of wetland area present in the Project Area will be obtained for project permitting.

Wetlands and aquatic resources such as intermittent and perennial creeks, drainages, and swales that occur within the ROW will be denoted as environmentally sensitive areas and will be avoided during construction to the degree practicable. Many of the larger creeks flow through culverts beneath existing roads and they will not be directly impacted. However, smaller creeks and resources flow across the ROW and could be affected. If the existing wetland or aquatic resource topography is altered by construction, the topography of the area will be restored to match the preexisting condition. For herbaceous and grass-dominated wetlands, it is expected that revegetation will naturally occur once the topography is restored. However, if mixed willow riparian vegetation is lost during construction, this habitat would not be expected to naturally revegetate. A mitigation plan will be prepared detailing riparian restoration activities and this plan will be submitted to the resource agencies for their review and approval before restoration activities are initiated. In addition to planting details, the restoration plan will include information on performance criteria and monitoring.

Mitigation Measure 6.8. Construction of Bird-Safe Towers. PG&E will construct the new overhead portion of the electric transmission line to ensure that it is bird-safe. The configuration for each tower will meet or exceed APLIC guidelines (APLIC 1996).

Mitigation Measures 6.9 through 6.19. These mitigation measures are found in Table 6-5.

6.11 References

Avery, M.L., P.F. Springer, and N.S. Dailey. 1980. *Avian Mortality at Man-made Structures: An Annotated Bibliography (revised)*. U.S. Fish and Wildlife Service Biological Services Program, National Power Plant Team. FWS/OBS-80-54.

Avian Power Line Interaction Committee (APLIC). 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*. Edison Electric Institute. Washington, D. C. 78 pp.

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, D.C.

Berry, S. 1978. Status of the San Francisco garter snake. California Department of Fish and Game Inland Fisheries Endangered Species Report 78-2.

BioSystems Analysis, Inc. 1994. *Life on the Edge*. BioSystems Books, Santa Cruz, CA.

Boland, Mary E. and Richard D. Williams. 1994. *Animal Damage Control at Transformer Substations: Problem Analysis 1993*. Pacific Gas and Electric Company, Department of Research and Development, Report No. 009.4-94.7. San Ramon, California.

Briggs, T.S. 1968. Phalangids of the laniatorid genus *Sitalcina* (Phalangodidae: Opiliones). Proc. California Acad. Sci. 36:1-32.

BUGGY Database Report. 2001. Maintained by Entomological Consulting Services, Ltd.

- California Department of Fish and Game. 1998. *A Guide to the California Wildlife Habitats of California*. (March, 1988). Edited by Kenneth E. Mayer and William F. Laudenslayer, Jr.
- California Department of Fish and Game. 2000. *The Status of Rare, Threatened, and Endangered Animals and Plants of California*, San Francisco Garter Snake. <http://www.dfg.ca.gov/hcpb/species>
- California Department of Fish and Game. Natural Diversity Data Base Program "Rarefind". 2001. California Natural Diversity Database. The Resources Agency, Sacramento.
- California Department of Fish and Game. 2001a. State and federally listed endangered and threatened animals in California. Wildlife and Habitat Data Analysis Branch, Sacramento. Online Information on the Bald Eagle. <http://www.dfg.ca.gov/hcpb/species>
- California Department of Fish and Game. 2002. Wildlife and Habitats Data Analysis Branch. California Natural Diversity Database. List of California Terrestrial Natural Communities Recognized the California Natural Diversity Database. May 2002 Edition.
- California Department of Fish and Game. 2002a. Habitat Planning and Conservation Branch. Online Fact Sheet on the San Francisco Garter Snake. http://www.dfg.ca.gov/hcpb/species/t_e_spp/tespp.shtml
- California Exotic Pest Plant Council (CALEPPC). 1999. Exotic Pest Plants of Greatest Concern. List available at: <http://www.caleppc.org/info/plantlist.html>.
- California Native Plant Society. 2001. California Native Plant Society's Inventory of Rare and Endangered Plants of California. Special Publication #1. Sixth Edition.
- Corelli, Tony. 1996. List of Plant Species at Edgewood County Park. List available at: <http://www.stanford.edu/~rawlings/edge.htm#E>.
- Ehrlich, P.R., R.R. White, M.C. Singer, S.W. McKechnie, and L.E. Gilbert. 1975. Checkerspot butterflies: a historical perspective. *Science* 188:221-228.
- Electrical World. 1996. *Keep One Step Ahead of Critters in Substations*. December 1996. Pp. 42-44.
- Environmental Science Associates (ESA) 1994. Prepared for EDAW under contract to the San Francisco Water Department. San Francisco Watershed Management Plan. Peninsula Watershed Natural and Cultural Resources.
- Faanes, C. A. 1987. *Bird Behavior and Mortality in Relation to Powerlines in Prairie Habitats*. Fish and Wildlife Service Technical Report 7. 24 pp.
- Golden Gate Natural Recreation Area. 2001. Vegetation Map for San Francisco Water Department Lands. Preliminary data in GIS format provided to PG&E. August.
- Grinnell, J., and A. H. Miller. 1944. *The Distribution of the Birds of California*. Cooper Ornithological Club, Berkeley (reprinted 1986 by Artemisia Press, Lee Vining).
- Hartman, Paula A., Sheila Byrne, and Mark F. Dedon. 1992. *Bird Mortality in Relation to the Mare Island 115 kV Transmission Line: Final Report*. Prepared for Department of the Navy, Western Division, June.

- Hartman, Paula A., Sheila Byrne, and Mark F. Dedon. 1993. *Bird Mortality in Relation to the Mare Island 115 kV Transmission Line: Final Report: 1988-1991*. Pacific Gas and Electrical Company Technical and Ecological Services Report 443-91.3. San Ramon, California.
- Herbert, E. and E. Reese. Avian Collision and Electrocutation. An Annotated Bibliography. California Energy Commission. Publication Number: P700-95-001. 48 pp. 1995.
- Hickman, James C., Editor. 1993. *The Jepson Manual. Higher Plants of California*. University of California Press. Berkeley, California. 1400 pp.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Sacramento, CA. 156 pp.
- Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Sacramento.
- Leitner, Philip. 1981. South San Francisco Bay Wildlife Studies, Pittsburg 8 and 9 Project. Prepared for Pacific Gas and Electric Company, Department of Engineering Research. San Ramon, California.
- McGinnis, S. M., 1987. The Distribution and feeding habitat requirements of the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). California Department of Fish and Game Report for Interagency Agreements C-673 and C-1376.
- National Rural Electric Cooperative Association (NRECA). 1996. *Animal-caused Outages*. Prepared by Southern Engineering Company for Rural Electric Research, National Rural Electric Cooperative Association. Arlington, Virginia.
- Nelson, J.R. 1994. Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities: page 29 in California Native Plant Society, Inventory of Rare and Endangered Vascular Plants of California (5th Edition). California Native Plant Society, Sacramento, CA.
- Nobel, Teah, Myra Fraser, and Becky Ruckman. 1996. *Substation Outages Caused by Wildlife: A Survey*. Presented by EEI Biologists Task Force Workshop, Jupiter Beach, Florida. April 24-26.
- Pearson, Daniel C. 1993. Avifauna Collision Study in the San Jacinto Valley of Southern California. *Electric Power Research Institute Proceedings: Avian Interactions with Utility Structures*. Palo Alto, California.
- Rana Creek Habitat Restoration. 2002. San Mateo County Parks Vegetation Resources. Prepared for: County of San Mateo Environmental Services Agency, Parks & Recreation Division. March.
- San Francisco Public Utilities Commission (SFPUC). 1998. Draft Peninsula Watershed Management Plan (SFPUC, 1998) April.
- San Mateo County. 1991. San Mateo Ordinance. Regulation of the Removal of Heritage Trees. Section 11000. City of San Mateo. March 22.
- San Mateo County. 1990. San Mateo Ordinance. Regulation of the Removal of Significant Trees. Section 12000. City of San Mateo. June 11.

- Sequoia Audubon Society (SAS). 1996. *San Francisco Peninsula Birdwatching*. SAS, San Mateo.
- Sequoia Audubon Society (SAS). 2001. *San Mateo County Breeding Bird Atlas (SMCBBA)*. SAS, Redwood City.
- Sawyer, John O., and Todd Keeler-Wolf. 1995. *A Manual of California Vegetation*. Published by the California Native Plant Society.
- Small, A. 1994. *California Birds: Their Status and Distribution*. Ibis Publishing Company, Vista.
- Stebbins, R. C. 1985. *A Field Guide to Western Reptiles and Amphibians* (second edition). Houghton Mifflin Company, Boston, MA.
- Town of Hillsborough. 2002. Tree Removal Guidelines. San Mateo Department of Community Services. Municipal Code Chapters 14.04 and 17.72.
- U.S. Fish & Wildlife Service. 1984. Endangered and threatened wildlife and plants; review of invertebrate wildlife for listing as endangered or threatened species. Federal Register 49:21664-21673.
- U.S. Fish & Wildlife Service. 1989. Endangered and threatened wildlife and plants; animal notice of review. Federal Register 54:554-579.
- U.S. Fish & Wildlife Service. 1991. Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species. Federal Register 56:58804-58836.
- United States Fish and Wildlife Service. 1997. Guidelines On Site Assessment and Field Surveys for the California red-legged frog (*Rana aurora draytonii*).
- United States Fish and Wildlife Service. 2002. San Francisco Garter Snake. Online Fact Sheet – Threatened and Endangered Species System.
<http://ecos.fws.gov/servlet/SpeciesProfile?spcode=C002>
- Ubick, D. and T.S. Briggs. 1989. The harvestman family Phalangodidae. 1. The new genus *Calicina*, with notes on *Sitalcina* (Opiliones: Laniatores). *Proceedings of the California Academy of Sciences* 46:95-136.
- University of California, Berkeley. 2002. California Oak Mortality Task Force. Web site accessed at: <http://hilda.espm.berkeley.edu/OakMapper/viewer.htm>
- United States Fish and Wildlife Service (USFWS). 2002. Endangered Species Division, Sacramento Fish and Wildlife Office. Fact Sheet on the San Francisco Garter Snake.
http://sacramento.fws.gov/es/animal_spp_acct/sf_garter_snake.htm.
- Western Bat Working Group (WBWG). 1998. Western bat species: Regional priority matrix.
- Zeiner, D., W. Laudenslayer, K. Mayer, and M. White, eds. 2001. *California's wildlife*. CD-ROM. California Department of Fish and Game, Sacramento.

6.11.2 Personal Communications

Breuer, Robin. 2002. SF Watershed Conversation with Deborah Waller regarding Sudden Oak Death. August 20.

De Becker, Sally. 2002. Email text provided regarding suitable special-status butterfly habitat along Guadalupe Canyon Parkway. September 24.