

Chapter 4A. Environmental Setting for Point Arena to Robbins

INTRODUCTION

This chapter provides an overview of the existing environmental conditions (i.e., the environmental baseline) at the time this analysis was prepared. The project addressed in this setting section is to install, operate, and maintain a fiber optic cable system from Point Arena (Mendocino County) to Robbins (Sutter County). The project route would follow primarily state and county road rights-of-way, railroad rights-of-way, and a few private roadways. Three optical amplification (OP-AMP)/regenerator stations would be located on private land along the project route, including one in Ukiah, one in Clearlake Oaks, and one in Arbuckle. The central portion of the project route, between Calpella (Mendocino County) and Walnut Drive (Colusa County), would use an existing dark fiber optic cable installed along an existing overhead Pacific Gas and Electric (PG&E) transmission line. Because this aerial portion of the project route is existing, it is not included as part of this environmental setting (**Figure 3-1**).

This chapter is organized by resource topic, corresponding to the Environmental Checklist Form of the State California Environmental Quality Act (CEQA) Guidelines, as amended. A completed checklist for the project is provided in **Appendix A**.

I. AESTHETICS

Aesthetics typically refers to the perceived visual character of an area, such as of a scenic view, open space, or architectural facade. The aesthetic value of a given area depends on a combination of viewer response and the visual character and scenic quality of the area. This combination may be affected by the components of a project (e.g., buildings constructed at a height that obstructs views, hillsides cut and graded, open space changed to an urban setting), as well as changing elements, such as light, weather, and the length and frequency of viewer exposure to the setting.

The visual setting of this project route would be variable and traverse a variety of landscapes. The project route would pass through visual settings of rural coastal forest lands in Mendocino County and rural and urbanized inland valleys in Mendocino and Lake Counties; grazing and agricultural lands in Colusa County; and agricultural and marsh lands in Yolo and Sutter Counties. Although the project route would be largely rural, it would pass through urbanized areas in Manchester, Booneville, Ukiah, Calpella, and Robbins. Generally, the project route would be parallel to county and railroad rights-of-way. State Route (SR) 1 is a designated scenic highway within Mendocino County. The project route would parallel SR 1 for approximately 2.1 miles.

The Ukiah OP-AMP/regenerator station would be located in a light industrial area and does not require any county permits (Tigh pers. comm.). The Clearlake Oaks OP-AMP/regenerator station would be located near SR 20, a Lake County scenic corridor. This corridor is not listed as a California State Designated Scenic Highway. In addition, as stated in Section IX, **Land Use and Planning**, this OP-AMP/regenerator station would be located in an area currently zoned for commercial highway use. The Arbuckle OP-AMP/regenerator station would be constructed in a visually open agricultural area and require a conditional use permit from Colusa County.

Regulations, Approvals, and Permits Applicable to Aesthetics

No state or federal aesthetics permits or regulations are applicable to the project. The project route would be located predominantly in state highway, county road, and railroad rights-of-way, with a few short private road segments. OP-AMP/regenerator stations would not be constructed on state or federal lands.

At the local level, some jurisdictions would require approval of a conditional use permit before construction of OP-AMP/regenerator stations. Minimizing visual impacts would be one consideration in the granting of the permit application. In addition, any county and local jurisdiction maintaining policies to preserve and protect visual and scenic resources within its sphere of influence would be consulted during the design of OP-AMP/regenerator stations.

II. AGRICULTURAL RESOURCES

California is the nation's leading agricultural state, with \$26.8 billion worth of total production and income in 1997 (California Department of Food and Agriculture 1997). The variety of climates and soils in the state, together with the long growing season and availability of water, make California suitable for growing a wide variety of crops.

The loss of agricultural land is an increasingly important issue in California. The state's growing population is resulting in the conversion of agricultural lands to suburban and urban uses. According to the 1994 to 1996 Farmland Conversion Report of the California Department of Conservation's Farmland Monitoring and Mapping Project, approximately 15,400 acres (24 square miles) of prime farmland and farmland of statewide importance was converted to nonagricultural uses between 1994 and 1996 (California Department of Conservation 1998).

As land is converted to other uses and agriculture enters into increasing competition with urban and natural resource users for water (increasing the cost of water and reducing its reliability), the agricultural economy of some parts of the state is being adversely affected.

The road and railroad rights-of-way, used by the project route, would cross agricultural lands in Mendocino, Colusa, Yolo, and Sutter Counties. Orchard crops occur along the project route in Mendocino and Lake Counties, whereas the Central Valley land is used for livestock grazing and production of numerous crops, such as grapes, row crops, and rice.

The OP-AMP/regenerator sites at Ukiah, Clearlake Oaks, and Arbuckle are not identified as prime farmland by the Farmlands Mapping and Monitoring Project (FMMP). Because of insufficient soil information, substantial parts of California have not been mapped by the FMMP. Prime farmland has the best combination of physical and chemical features able to sustain long-term production of agricultural crops. The Ukiah and Clearlake Oaks sites are classified as urban and built-up land (land in urban or residential uses). The Arbuckle OP-AMP/regenerator site is designated as prime farmland.

Regulations, Approvals, and Permits Applicable to Agricultural Resources

The California Farmland Protection Act (the Williamson Act) is the state's primary method for conserving farmland. This voluntary program is administered at the county level and offers property tax incentives to farmers who promise to keep their land in agricultural use. Under the act, owners of farm and grazing lands may enter into a contract with their county limiting the use of their land to agriculture for a period of at least 10 years. In response, the county will assess the land at its productive value rather than its fair market value. This reduces property taxes that would otherwise increase from speculation over land values.

The Williamson Act's effectiveness in preserving farmland is limited by its voluntary nature. Those lands most likely to be developed are often not under contract or have had their contract canceled by the landowner in anticipation of development. The act is aimed at limiting the conversion of farmland to incompatible uses.

Development within agricultural areas also is subject to local zoning requirements. These vary by jurisdiction. In most jurisdictions, utilities and associated small structures located in agricultural areas do not require a conditional use permit.

III. AIR QUALITY

Introduction

This chapter analyzes the air quality impacts that would result from construction and operation of Williams Point Area to Robbins fiber optic cable system. The primary air emissions generated by this project would result from installation of the fiber optic cable and construction and operation of the OP-AMP/regenerator stations.

Regulatory Setting

The regulatory setting describes the federal, state, and local air quality regulatory environment.

Federal Regulatory Environment. The Federal Clean Air Act (FCAA) was passed in 1963 by Congress and has been amended several times, most recently in 1990. The FCAA requires the U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards for air pollutants or air pollutant groups that pose a threat to human health or welfare. EPA has established National Ambient Air Quality Standards (NAAQs) for six criteria pollutants: ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), lead, particulate matter, and carbon monoxide (CO) (**Table 4A.III-1**). Two separate standards have been set for particulate matter 10 microns or less in diameter (PM10), and PM 2.5 microns or less in diameter (PM2.5).

Table 4A.III-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard, as parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			California	National	California	National	California	National
Ozone	O ₃	8 hours	N/A	0.08	N/A	160	N/A	If 3-year average of annual third-highest daily 8-hour maximum exceeds standard
		1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	N/A	7,000	N/A	If exceeded	N/A
Nitrogen dioxide	NO ₂	Annual average	N/A	0.053	N/A	100	N/A	If exceeded
		1 hour	0.25	N/A	470	N/A	If exceeded	N/A
Sulfur dioxide	SO ₂	Annual average	N/A	0.03	N/A	80	N/A	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	N/A	655	N/A	N/A	N/A
Hydrogen sulfide	H ₂ S	1 hour	0.03	N/A	42	N/A	If equaled or exceeded	N/A

Table 4A.III-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard, as parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			California	National	California	National	California	National
Vinyl chloride	C ₂ H ₃ Cl	24 hours	0.010	N/A	26	N/A	If equaled or exceeded	N/A
Inhalable particulate matter	PM10	Annual geometric mean	N/A	N/A	30	N/A	If exceeded	N/A
		Annual arithmetic mean	N/A	N/A	N/A	50	N/A	If exceeded
		24 hours	N/A	N/A	50	150	N/A	If exceeded on more than 1 day per year
Fine particulate matter	PM2.5	Annual arithmetic mean	N/A	N/A	N/A	15	N/A	If spatial average exceeded on more than 3 days in 3 years
		24 hours	N/A	N/A	N/A	65	N/A	If exceeds 98th percentile of concentrations in a year
Sulfate particles	SO ₄	24 hours	N/A	N/A	25	N/A	If equaled or exceeded	N/A
Lead particles	Pb	Calendar quarter	N/A	N/A	N/A	1.5	N/A	If exceeded no more than 1 day per year
		30 days	N/A	N/A	1.5	N/A	If equaled or exceeded	N/A

Notes: All standards are based on measurements at 25EC and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
N/A = not applicable.

Air basins that have not violated an ambient air quality standard are considered to be in attainment for that standard. Conversely, air basins with recorded violations of an ambient air quality standard are classified as nonattainment areas for that pollutant. Most air basins are classified as nonattainment areas for one or more pollutants and attainment areas for other pollutants. Also, for certain pollutants, such as PM10, California has a more stringent standard than the federal standard. Consequently, an air basin may be classified as a nonattainment area for the state PM10 standard while it is in attainment for the federal PM10 standard.

Air basins classified as nonattainment areas for the NAAQs must prepare state implementation plans that describe the specific steps that will be taken to bring the nonattainment area into compliance. Those steps primarily include rules and regulations to limit air emissions from specific stationary and mobile sources. The FCAA contains specific dates by which the NAAQs must be met, otherwise federal sanctions can be imposed.

California Regulatory Environment. The California Clean Air Act (CCAA) of 1988 differs from the FCAA in that there are no sanctions nor specific deadlines for attainment of the California Ambient Air Quality Standards (CAAQs), also shown in **Table 4A.III-1**. The CAAQs were enacted in response to the need for new air quality requirements. Under this act, air quality attainment is required at the earliest practicable date, and reasonable progress must be made each year until attainment is achieved.

Similar to the FCAA, the CCAA requires attainment plans for designated nonattainment areas. The California Air Resources Board (ARB) is responsible for preparing the plans for meeting the NAAQs and CAAQs. The ARB has delegated to the California air districts the responsibility for preparing air quality attainment plans. Unlike the FCAA, the CCAA does not require an air quality attainment plan for areas designated as nonattainment for PM10.

Local Air Quality Regulatory Environment. The ARB has delegated much of its air pollution control authority to local air pollution control districts and air quality management districts. California's 15 air basins are shown in **Figure 4A.III-1**. The project would cross the three air basins and five air districts shown in **Table 4A.III-2**.

For air basins that do not meet the CAAQs or NAAQs shown in **Table 4A.III-1**, individual air districts or groups of air districts prepare air quality management plans designed to bring an air basin into compliance with nonattainment area pollutants. Those plans are submitted to the ARB for approval, usually containing an emission inventory and a list of rules proposed for adoption.

Table 4A.III-2. California Air Basins and Local Air Districts Crossed by the Fiber Optic Cable System

Air Basin	Local Air Districts	Nonattainment Status
Lake County	Lake County	Attainment for all pollutants
North Coast	Mendocino County	PM10 (state standards)
Sacramento Valley	Colusa County, Feather River, Yolo-Solano	PM10 (state standards) Ozone (state and federal standards)

Source: California Air Resources Board 1999.

Environmental Setting

The environmental setting section includes the attainment/nonattainment status for the three California air basins that would be crossed by this project, with regard to the pollutants of most concern from construction and operation. The discussion also explains the effects of California's climate and meteorology on air quality.

Pollutants of Concern and Attainment/Nonattainment Status

Table 4A.III-2 shows the attainment versus nonattainment status for the three California air basins with regard to the pollutants of most concern from construction and operation of the project. Those pollutants include O₃, respirable particulates, CO, and oxides of nitrogen (NO_x). These pollutants, each of which is described below, are emitted as construction equipment exhaust, fugitive dust, and diesel exhaust from emergency backup generators.

Ozone. O₃ is a respiratory irritant and oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. O₃ is a severe eye, nose, and throat irritant; attacks synthetic rubber, textiles, plants, and other materials; and causes extensive damage to plants by leaf discoloration and cell damage.

O₃ is not emitted directly into the air, but instead is formed by a photochemical reaction in the atmosphere. O₃ precursors, which include reactive organic gases (ROG) and NO_x, react in the atmosphere in the presence of sunlight to form O₃. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, O₃ is primarily a summer air pollution problem. ROG and NO_x are emitted by mobile sources and by stationary combustion equipment.

State and federal standards for O₃ have been set for a 1-hour averaging time. The state 1-hour O₃ standard is 0.09 parts per million (ppm), not to be exceeded. The federal 1-hour O₃ standard is 0.12 ppm, not to be exceeded more than three times in any 3-year period. The EPA recently replaced the 1-hour O₃ standard with an 8-hour standard of 0.08 ppm. However, areas classified as nonattainment for O₃ must attain the 1-hour O₃ standard. After an area has achieved attainment of the 1-hour standard, then the 1-hour standard is no longer applicable, and the area must strive to meet the 8-hour O₃ standard.

The Sacramento Valley Air Basin, which would be crossed by the project route is nonattainment for both the state and federal O₃ standards. The Lake County and North Coast Air Basins are classified as attainment for the state O₃ standards.

PM10 and PM2.5. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates can damage human health and retard plant growth. Particulates also reduce visibility, soil buildings and other materials, and corrode materials.

PM10 emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

The federal ambient air quality standard for particulate matter currently applies to PM10 and PM2.5. The CAAQs only applies to PM10.

The state PM10 standards are 50 micrograms per cubic meter as a 24-hour average and 30 micrograms per cubic meter as an annual geometric mean. The federal PM10 standards are 150 micrograms per cubic meter as a 24-hour average and 50 micrograms per cubic meter as an annual arithmetic mean. The federal PM2.5 standards equal 15 micrograms per cubic meter for the annual average and 65 micrograms per cubic meter for the 24-hour average.

All of the air basins that would be crossed by the project route are attainment for the federal PM10 standards. However, all except Lake County are nonattainment for the more stringent state PM10 standards (see **Table 4A.III-2**).

Carbon Monoxide. CO is essentially inert to plants and materials, but can have significant effects on human health. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans can range from slight headaches to nausea to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light wind combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. Monitored CO concentrations have been improving because of the use of oxygenated fuels in California. Violations of the CO concentrations are generally only a problem in heavily urbanized areas.

State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both state and federal standards are 9 ppm for the 8-hour averaging period.

All air basins through which the project route would pass are currently attainment for federal CO standards.

Nitrogen Oxides. NO_x contribute to smog, can injure plants and animals, and can affect human health. Also, NO_x contributes to acidic deposition and reacts with reactive organic gases in the presence of sunlight to form photochemical smog. NO_x concentrations result in a brownish color because NO_x absorbs in the blue-green area of the visible spectrum, greatly affecting visibility.

NO_x is primarily emitted by combustion sources, including both mobile and stationary sources. NO_x is also emitted by a variety of area sources ranging from wild and prescribed fires to water and space heating systems powered by fossil fuels.

The state NO_x standard equals 0.25 ppm on a 1-hour average. The federal NO_x standard equals 0.053 ppm on an annual average. All areas through which the project route would pass are attainment areas for the state and federal NO_x standards.

Local Climate and Meteorology.

The project would cross three air basins within California: the North Coast Air Basin (Mendocino County), the Lake County Air Basin, and the Sacramento Valley Air Basin (Colusa, Sutter, and Yolo Counties).

Those portions of the North Coast Air Basin crossed by the project generally have good air quality because of the prevalence of sea breezes and lack of substantial emission sources. Sea-land breezes can remove smog and associated pollutants from coastal areas during the day as cold dense air moves onshore but may push that pollution back during the night as the land breeze gently flows offshore. The project route also crosses the Lake County Air Basin. This area is characterized by excellent air quality and is an attainment area for all state and federal pollutants.

The Sacramento Valley Air Basin is located in the interior of California within California's Central Valley. The project route would cross the southern end of the Sacramento Valley, which is bound by the Coast and Diablo Ranges on the west and the Sierra Nevada on the east. The prevailing winds are from the south, primarily because of marine breezes through the Carquinez Strait, although during winter the sea breezes diminish and winds from the north occur more frequently. Elevated ozone concentrations are often found in the Sacramento Valley Air Basin during the summer months because of high temperatures, sunlight, and high levels of motor vehicle emissions.

IV. BIOLOGICAL RESOURCES

This section provides information on biological resources that are known or would have the potential to occur along the project route. For the purpose of this subsequent IS/MND, biological resources includes plant, wildlife, fisheries resources, and wetlands. Common and scientific names of the plant, wildlife, and fish species are provided in **Appendix K**.

Methods

Botanical and Wetland Resources

For the purpose of this subsequent IS/MND, the botanical resources study area varied depending on terrain constraints, private property boundaries, fence lines, and dense vegetation that would not be removed during construction. The project study area along the project route consisted of a 100-foot-wide corridor in open areas that were not confined by these factors. The project study area for the three proposed OP-AMP/regenerator stations consisted of a 500- by 500-foot area. The project study area in general ranged from 3 to 100 feet in width, depending on the factors listed above.

Reconnaissance-level field surveys were conducted from May 3 to 5, 1999, to identify potential botanical resource constraints along the project route. Additional botanical and wetland surveys were conducted from June 7 to 11, June 14 to 18, 23, 24, and 28 to 31, and November 22 to 24, 1999. The general purpose of the field surveys was to:

- # characterize plant communities and unique plant assemblages,
- # locate late-blooming special-status plant species and identify suitable habitat for early-blooming special-status plants,
- # delineate waters of the United States (including wetlands) using the U.S. Army Corps of Engineers= (Corps=) 1987 Wetland Delineation Manual (Environmental Laboratory 1987),
- # map noxious weed infestations (see the definition below for species considered noxious weeds in this analysis),
- # gather information to assist project engineers with project route design through identification of sensitive vegetation and wetland resource constraints and avoidance opportunities, and
- # coordinate with state and federal resource agencies to develop measures that avoid or minimize impacts on vegetation and wetland resources.

Plant Communities. The project route would encompass several geologic formations, climatic conditions, and associated plant communities. Major geographic subdivisions that would be crossed include the North Coast, North Coast Ranges, and Sacramento Valley. The definition and boundaries of geographical divisions follows the Jepson Manual (Hickman 1993).

Descriptions and names of plant communities are based on Jones & Stokes=field surveys and on descriptions found in Holland (1986) and Sawyer and Keeler-Wolf (1995). Although the system of Sawyer and Keeler-Wolf represents the most recent treatment and includes greater community detail than the system of Holland, it is incomplete for many geographical areas in California. Additionally, some of the plant communities described in this subsequent IS/MND do not fit well into the communities circumscribed by either Sawyer and Keeler-Wolf

or Holland. Therefore, some community type names have been developed based on Jones & Stokes= field observations.

The general location and extent of plant communities were mapped during field survey on USGS 7.5-minute topographic maps, which remain on-file at Jones & Stokes.

Noxious Weeds. Noxious weed infestation and dispersal on private and public lands have been identified by the federal government and local counties as issues of concern. Two federal acts and one executive order direct weed control: the Carlson-Foley Act of 1968, Federal Noxious Weed Act of 1974, and a federal executive order on invasive species (February 3, 1999). To identify noxious weed species of concern along the project route, the following sources were consulted:

- # a list of species designated as federal noxious weeds by the U.S. Department of Agriculture;
- # county agricultural commissions;
- # California Department of Food and Agriculture's AA@, AB@, and AC@ lists of noxious weeds; and
- # California Exotic Pest Plant Council list of pest plants of ecological concern.

For this analysis and field surveys, a noxious weed is a plant that has the potential to displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity. High-priority noxious weeds include all California Department of Food and Agriculture's A-rated species. Some B- and C-rated species were included in this analysis if they were identified by county agricultural commissions as target noxious weeds. Additional weeds were included if they were considered to have great potential for displacing native plants and damaging natural habitats and are not considered too widespread to be effectively controlled (**Appendix H**). Noxious weed infestations were documented by mapping polygons of noxious weeds and assigning a level of infestation. These levels include the following:

- # Level 1 Infestation: less than 1% absolute cover,
- # Level 2 Infestation: 2% to 10% absolute cover,
- # Level 3 Infestation: 11% to 50% absolute cover, and
- # Level 4 infestation: 51% to 100% absolute cover.

Noxious weed locations, infestation levels, and proposed wash stations are currently being identified and would be provided to the appropriate land management and resource agencies (including the California Public Utilities Commission [CPUC]) prior to construction.

Waters of the United States (Including Wetlands) For this document, the term waters of the United States is an encompassing term used by the Corps for areas that would qualify for federal regulation under Section 404 of the Clean Water Act. Waters of the United States are separated into wetlands and other waters of the United States.

Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 Code of Federal Regulations [CFR] 328.3[b], 40 CFR 230.3). For a wetland to qualify as jurisdictional by the Corps, and therefore be subject to regulation under Section 404 of the Clean Water Act, the site must support a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology. Wetlands were delineated using the methods outlined in the Corps 1987 Wetlands Delineation Manual. Wetlands identified along the project route would include emergent wetland and seasonal wetland.

Other waters of the United States are sites that typically lack one or more of the three indicators identified above. Other waters of the United States identified in the project study area include drainages, irrigation canals that connect to natural waterways, and stock ponds. For this document, drainages include all surface features with defined beds and banks.

Lists of waters of the United States delineated for the project route are provided in **Appendix G**. A brief description of these waters of the United States and methods used to delineate them are provided in the wetland delimitation reports (**Appendix D**).

Special-Status Plant Species For the purpose of this subsequent IS/MND, the term special-status plants is defined as species that are:

- # listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (federal Endangered Species Act [ESA]) (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species);
- # candidates for possible future listing as threatened or endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- # federal species of concern (former C2 candidates);
- # listed by the State of California as threatened or endangered under the California ESA (14 CCR 670.5);
- # plants listed as rare and endangered under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq);
- # plants considered by California Native Plant Society (CNPS) to be rare, threatened, or endangered in California (List 1B), and
- # CNPS Lists 2, 3, and 4 species that warrant consideration as special-status plants, such as species that are unique occurrences, range extensions, or locally uncommon.

Existing available information was reviewed to develop a list of special-status plants that could exist in the project study area. This information included DFG's Natural Diversity Data Base (NDDDB) (1999), CNPS's Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994), previously prepared environmental documents, Jones & Stokes file information, and a list of species provided by the U.S. Fish and Wildlife Service (USFWS) (**Appendix L**). Additional information on species-habitat requirements, blooming periods, and field identifying characteristics was obtained from floras (Munz and Keck 1973, Hickman 1993).

Special-status plant surveys were conducted May 3 to 5, June 7 to 11, June 14 to 18, 23, 24, and 28 to 31, 1999. Surveys were conducted by driving the project routes (where possible) and surveying on foot those areas that could provide habitat for special-status plants with the potential to occur in the region. In general, floristic survey guidelines described by Nelson (1987) were used to locate late-blooming special-status plants. Additional floristic surveys will be conducted between March and April 2000 to locate early blooming special-status plants.

All species were identified to the level necessary to determine whether they would qualify as special-status plants. Floristic survey field forms were completed by the botanical teams and were used to document species encountered during the field surveys. The special-status plant population located during the field surveys was documented on a CNPS field survey form, photographed, flagged, and mapped on the U.S. Geological Survey

7.5-minute quadrangle. These special-status plant species would also be located on the construction drawings for the project route.

A special-status plant survey and habitat assessment was conducted at each of the OP-AMP/regenerator stations. No special-status plant species were found; however, the OP-AMP/regenerator sites will be included in the spring surveys mentioned previously.

Wildlife Resources

The goal of the wildlife resource studies conducted for the project was to obtain sufficient information to assess the potential impacts of the project on wildlife resources along the route. To accomplish this goal, the following tasks were conducted:

- # obtain and review existing information on wildlife resources known to be present in the project study area;
- # conduct habitat-based field surveys (described below) to describe and evaluate habitat types and species associations along the project route;
- # if necessary, conduct species-specific field surveys (described below) for special-status wildlife species;
- # gather information to assist project engineers with project route design through identification of sensitive wildlife resource constraints and avoidance opportunities; and
- # coordinate with state and federal resource agencies to develop measures that avoid or minimize impacts on wildlife resources.

Prefield Survey Investigation. Before field surveys were conducted, existing and available information was gathered and reviewed to determine the location and types of wildlife resources that could exist in the project study area. Information on species occurrences was gathered from statewide databases through contacts with the Natural Heritage Division and Nongame and Endangered Wildlife Section of DFG. Contacts were also made with resource specialists from the, DFG, and USFWS to gather file information on wildlife resources in the project study area (**Appendix L**). Contacts were made by telephone, through correspondence, and through office visits. Resource management plans and other environmental documents prepared for other projects in the study area were also reviewed.

All existing resource information was mapped onto USGS 7.5-minute quadrangles. Lists of all special-status wildlife species with the potential to occur in the project study area, along with their legal status, distribution, and habitat association, are provided in **Appendix K-4**.

Habitat-Based Field Surveys. Qualified wildlife biologists conducted habitat-based field surveys throughout the project study area. Surveyors visited the project study area and mapped habitat types within and adjacent to the project route. Generally, habitats were mapped and evaluated within a 0.5-mile-wide corridor. The objectives of these surveys were to:

- # complete a detailed habitat-based resource survey of the entire project route and surrounding area to characterize habitat type, quality, and species associations, and
- # evaluate habitat for threatened, endangered, candidate, and other special-status wildlife species that were identified as having the potential to occur in the proposed project study area.

Species-Specific Field Surveys. Based on the results of the prefield survey investigation and habitat-based surveys, species-specific surveys were, or will be, conducted and will coincide with the appropriate survey period for each species. These surveys would include the following components:

- # surveys to identify and map habitat for specific listed species and other special-status species, and
- # surveys to determine presence or absence (where possible) of specific special-status wildlife species.

Species-specific habitat mapping has been conducted for several species, including the northern spotted owl and northern goshawk. Several approaches may be used to detect species and avoid or minimize impacts during construction. Species-specific surveys would be conducted using resource agency protocols where needed to determine presence or absence of certain species, followed by establishment of no-disturbance buffer zones in active areas. In some cases, particularly where survey protocols are costly to implement, Williams may simply assume the presence of the species and implement construction mitigation measures and habitat compensation.

Where special-status species are assumed or confirmed as occurring in the project study area, standardized survey methods, as required by the applicable state or federal agency, may also be used before construction to ensure the absence of special-status species within the construction work area.

Special-Status Wildlife Species. In this subsequent IS/MND, the term special-status wildlife includes species that are:

- # listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.11 [listed animals] and various notices in the Federal Register for proposed species);
- # candidates for possible future listing as threatened or endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- # federal species of concern (former C2 candidates);
- # listed by the State of California as threatened or endangered under the California ESA (14 CCR 670.5);
- # animal species of special concern to the California Department of Fish and Game (DFG) (Remsen 1978 [birds] and Williams 1986 [mammals]); and
- # animal species fully protected in California (Cal. Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Discussions of various special-status wildlife species are presented later in this section under **Threatened, Endangered, Candidate, and Other Special-Status Species**. There are a total of 17 state- or federally listed wildlife species and 47 nonlisted special-status wildlife species that could exist in the proposed project study area (**Appendix K-4**).

Fisheries Resources

Information on fish and fish habitats in, and downstream of, the project study area was obtained from personal communications with regulatory agency staff, NDDDB (1999), published literature, and previously prepared environmental documents. Personal communications used for this assessment included information from USFWS and National Marine Fisheries Service (**Appendix L**), and communications with DFG (Hine, Marshal, McGwire, Roper, and Taveres pers. comms.). Literature reviewed is listed in Chapter 6, **Citations**, under Moyle 1976, Leidy 1984, Sigler and Sigler 1987, Swift et al. 1989, Swift et al. 1993, Moyle et al. 1995,

Busby et al. 1996, Jones & Stokes Associates 1995 and 1998, and Titus et. al in press. For this CEQA analysis, information is provided for named mapped drainages found on USGS 7.5-minute quadrangles. All drainages (waters of the United States) were inventoried during field surveys as part of the permitting processes for the project route. Each drainage was then evaluated to determine the potential presence of special-status fish species. Streams that were determined to potentially support special-status fish were considered occupied for purposes of this subsequent IS/MND.

Special-Status Fish Species. For this subsequent IS/MND, the term special-status fish includes species that are:

- # listed or proposed for listing as threatened or endangered under the federal ESA (various notices in the Federal Register for proposed species);
- # candidates for possible future listing as threatened or endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- # federal species of concern (former C2 candidates);
- # listed by the State of California as threatened or endangered under the California ESA (14 CCR 670.5); and
- # California state species of concern.

A total of 21 special-status fish species could exist in drainages crossed by the project route, including eight state- or federally listed fish species and 13 nonlisted special-status fish species. Special-status fish species potentially associated with the project route are discussed in more detail later in this section. Lists of all special-status fish species with potential to occur in the project study area, along with their legal status, distribution, and habitat association, are provided in **Appendix K-5**.

Setting

Plant Communities and Associated Wildlife Habitats

Agricultural Lands. Agricultural lands are found primarily in the Central Valley portion of the project study area; however, some coastal valleys also are either under cultivation or are grazed by cattle. Orchard and grain fields are the primarily agricultural lands located along the route. Depending on the crop pattern and the proximity to native habitats, agricultural lands can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Raptor species use lands planted in row and grain crop for foraging because rodents often congregate in these fields. Agricultural habitats also provide foraging and resting habitat for migrating and wintering waterfowl and shorebirds.

Annual Grassland. Annual grassland is a herbaceous community found throughout the Coast Range portion of the project study area. Grasslands are found on ridges, hill slopes, and valley floors. Typical plant species include a mix of dominant non-native grasses, such as soft chess, red brome, ripgut brome, foxtail barley, wild oats, and annual fescues, intermixed with forb species, such as clovers, lupines, owl's clover, popcorn flower, poppies, and various species of filaree. Some areas have been subject to frequent disturbance, such as grazing and maintenance activities along roadsides. The annual grassland vegetation in these areas may be dominated by ruderal introduced weedy species, such as yellow star-thistle, tocalote, and Mediterranean mustard.

Species diversity in grasslands is typically high. Grasslands are important because they support insects, amphibians, reptiles, and small birds and mammals that are preyed on by other wildlife, including red-tailed hawks, northern harriers, American kestrels, burrowing owls, coyotes, and gray foxes. Grasslands near open water and woodland habitats are used by the greatest number of wildlife species because they provide places for resting, breeding, and escape cover.

Chamise Chaparral. Chamise chaparral is a dominant chaparral community in the inner Coast Ranges. The dominant and characteristic species is chamise, sometimes intermixed with manzanita, ceanothus, buckbrush, and yerba santa. The understory is typically composed of bulbous perennials, such as soap plant; Fremont's death camas; mariposa lilies; and herbaceous forbs, including evening-primroses, spineflowers, chia, and cryptantha.

Chaparral plants provide browse, berries, and seeds for a variety of birds, such as California quail, northern mockingbird, American robin, hermit thrush, spotted towhee, California towhee, dark-eyed junco, and golden crowned sparrow. Insectivorous birds, such as orange-crowned warbler, bushtit, and Bewick's wren, feed on insects in chaparral foliage. Many bird species also find nesting and roosting sites and protection from predators in chaparral habitats. Numerous rodents inhabit chaparral habitats, and deer, rabbits, and hares make extensive use of chaparral habitats as sources of food and cover. In addition, chaparral provides habitat for other mammals and reptiles, including gray fox, coyote, deer mice, western fence lizard, western rattlesnake, and gopher snake.

Foothill Pine-Oak Woodland. Foothill pine-oak woodland is found primarily in the inner Coast Ranges along the project route. It transitions to blue oak woodland and annual grassland at lower elevations. Mixed chaparral is found in inclusions and forms the shrubby understory component in some woodland areas. Foothill pine-oak woodland is dominated by a varying mixture of blue oak and foothill pine. At higher elevations, scattered black oak, bigleaf maple, and California bay are also present. Associated shrub and subshrub species include many that are common to mixed chaparral, including toyon, manzanita, coffeeberry, redberry, California buckeye, redbud, buckbrush, mountain mahogany, poison oak, lemonadeberry, bedstraws, and live oaks.

Herbaceous species are mostly lacking in woodlands that contain a well-developed shrub layer. In open areas, herbaceous species include many that are common to the adjacent blue oak woodland/grass and annual grassland plant communities.

Foothill pine-oak woodland provides important breeding, foraging, and cover habitat for most of the wildlife species common to the inner Coast Ranges. The upper canopy provides nesting, foraging, and cache sites for many birds, such as Lewis's woodpecker, acorn woodpecker, northern flicker, oak titmouse, western bluebird, mourning dove, and red-tailed hawk, and the understory shrub layer provides habitat for many common bird species, such as golden and white-crowned sparrows, and small mammals, such as the dusky-footed woodrat.

Blue Oak Woodland/Grass. Blue oak woodland/grass is common in the inner Coast Range along the project route. Blue oak woodland/grass is dominated by blue oak. Other tree species found in blue oak woodland/grass include foothill pine and coast live oak. Although scattered shrubs are present in blue oak woodland/grass, such as wedgeleaf ceanothus, the understory consists primarily of grasses and forbs typical of California annual grassland, including ripgut brome, Pacific fescue, common fiddleneck, and miner's-lettuce. Small stands of native grassland also occur in blue oak woodland, including purple needlegrass and pine bluegrass. Blue oak woodland/grass is a common plant community both regionally and statewide.

A variety of birds, mammals, and reptiles find cover and nesting habitat in blue oak woodlands. Acorns are a particularly important food source for several bird and mammal species, such as scrub jay, western gray squirrel, and California ground squirrel.

North Coast Alluvial Redwood Forest. The north coast alluvial redwood forest community is found on alluvial flats associated with the deep, well-drained soils of river plains on the north coast of California. This community is found within the fog-belt region of the northern coastal forests from the California/Oregon border to portions of central California, extending inland approximately 30 miles from the coast. It is dominated by coast redwood with an understory consisting largely of redwood sorrel and sword fern. This community is found primarily in the low-lying areas adjacent to larger streams and intergrades with upland redwood forest.

Because the complexity of the vegetation in north coast alluvial redwood forests is relatively low, wildlife diversity is typically low relative to other forest types. Redwood trees overwhelmingly dominate these stands, which often lack a midstory and shrub layer. Northern spotted owls inhabit this forest type because of the nesting opportunities in large redwood trees and the openness below the upper canopy providing space for flight. Marbled murrelet, a seabird that nests in large redwood trees, is most often associated with mature and old growth alluvial redwood forests along streams. Olive-sided flycatcher, winter wren, and pileated woodpecker also are found nesting in this forest type. Several amphibian species, including tailed frog and southern torrent salamander, are found in streams in alluvial redwood forests because of the cool, moist microclimatic conditions. Large broken-top redwood and Douglas fir trees along streams provide nesting opportunities for osprey that hunt along rivers and off the coast.

Upland Redwood Forest. Upland redwood forest generally exists on the shallow, well-drained soils of steep slopes. It is similar to north coast alluvial redwood forest but is not as tall and includes a greater diversity of tree species and a more shrubby understory (Holland 1986). Upland redwood forest is the prevalent community in the project study area within approximately 30 miles of the coast. It is characterized by coast redwood in the upper canopy, with Douglas fir usually dispersed throughout this layer, and a secondary tree layer consisting of tanoak, Pacific madrone, and interior live oak. The canopy cover of the shrub layer is usually moderate to dense, consisting of California huckleberry, salal, and rose bay. Associated understory plants include deer fern, bracken fern, sword fern, redwood violet, and modesty. Saprophytes, such as phantom orchid and striped candyflower, are found sporadically on the forest floor. Red alder is also found in this community, typically as a narrow band along watercourses.

Relative to alluvial redwood forests, upland redwood forests support a greater diversity of wildlife species. These stands tend to support a more complex vegetative structure, with one or more codominant upper canopy species, such as Douglas-fir, grand fir, Sitka spruce, or western hemlock; a midstory layer; and a shrub understory. Bird species found in these forests include Hutton's vireo, bushtit, hermit warbler, Bewick's wren, American robin, and dark-eyed junco. Northern goshawk, northern spotted owl, and Cooper's hawk are also known to nest in these stands. Several amphibians, including northern red-legged frog and foothill yellow-legged frog, are found in streams and adjacent uplands in redwood forests, and mammals, such as Pacific shrew, Townsend's chipmunk, and gray squirrel, are common. Specific habitat elements in redwood forests are particularly important for some species. For example, snags are essential for species such as Vaux's swift, purple martin, white-breasted nuthatch, and arboreal and clouded salamanders. Downed wood is an important habitat element for California slender salamander, Douglas=squirrel, gray fox, and Pacific fisher.

Upland Douglas Fir Forest. Upland Douglas fir forest consists primarily of Douglas fir trees in the upper canopy with redwood as a codominant species. In the Coast Range, this community exists occasionally on relatively drier south-facing slopes from the coast to approximately 40 miles inland, but is found primarily at more inland sites. Tanoak and madrone typically are found in the secondary layer. A sparse to moderate shrub layer consists primarily of rhododendron, evergreen huckleberry, and salal.

Wildlife in upland Douglas fir forest is similar to upland redwood forests. Ash throated flycatcher, olive-sided flycatcher, Pacific-slope flycatcher, northern flicker, red-breasted nuthatch, winter wren, and a variety of other

birds are found in these forests. Small mammals, such as dusky-footed woodrat and deer mouse, and larger mammals, such as black bear and black-tailed deer, also exist.

Tanoak Woodland and Forest. Tanoak woodland and forest are found sporadically throughout the north coast, but individual tanoak trees are common components of the redwood forest community. In some areas, however, tanoak is the dominant species, particularly at more inland sites, both as a result of soil conditions and historic logging practices. Tanoak woodland and forest typically are found on xeric, rocky sites, often at the margins of redwood or Douglas-fir forests and particularly on the upper slopes and ridgetops. Tanoak woodland and forest are characterized by a dense canopy of evergreen sclerophyllous trees, primarily tanoak and madrone, although interior live oak is common at mesic sites on inland ridges. Redwood and Douglas fir are found as codominant species on steep, rocky, well-drained hillside slopes. The shrub layer consists of California buckeye and western azalea. The herbaceous plant layer is typically characterized by very little cover, although sword fern may occasionally predominate.

Wildlife associated with this habitat are similar to that found in redwood and Douglas-fir forests, which tend to border the tanoak forest.

Valley Riparian Forest. Valley riparian forest is an uncommon plant community regionally and statewide because of historic and continuing habitat loss. It is an essential community to many unique plant and animal species. Valley riparian forest is a dense, broadleaved, winter deciduous forest dominated by one or more large trees, such as Fremont cottonwood, valley oak, and western sycamore. Riparian forest generally exists in the upper floodplains, outside of the area annually scoured by the active stream channel. The canopy is generally closed and composed of several layers. Other common tree species include box-elder, northern California black walnut, Oregon ash, red willow, and Gooddings willow. Understory shrubs include buttonbush, California rose, and poison oak. California grape is also an important component of denser, less-disturbed riparian forest.

Despite widespread disturbances from urbanization, agricultural conversion, and grazing, riparian forest remains an important wildlife resource because of its scarcity regionally and statewide and because the riparian community is used by a large variety of wildlife species. This habitat produces abundant aquatic and terrestrial invertebrates that are prey for amphibians and reptiles, such as common garter snakes, western skinks, and ringneck snakes, as well as insectivorous birds, such as warblers, northern flickers, downy woodpeckers, and flycatchers. Small mammals found in riparian habitats include shrews, voles, bats, and mice. Raptors that nest in large riparian trees include great-horned owls, red-tailed hawks, and American kestrels. Cavity-dependant species, such as woodpeckers, bats, squirrels, and raccoons, require mature stands of trees. Striped skunks, red foxes, gray foxes, and badgers forage in riparian habitats and use them for cover and travel.

Red Alder Riparian Forest. Red alder riparian forest exists along the banks of watercourses, particularly larger streams. This community is found on moist, rich, alluvial soils. Broad-leaved deciduous trees characterize the canopy layer. The dominant tree is red alder, with California bay-laurel a co-dominant species in some areas, and bigleaf maple found occasionally. The understory is characterized by thickets of stink current, salmonberry, and vine maple. Typical low-growing forbs are pig-a-back plant, redwood sorrel, boykinia, and candyflower. Several types of fern are prevalent. Columbine and monkeyflower are found along the banks of the slower moving watercourses.

This habitat provides stream shading important to fish and aquatic amphibians, and nesting, foraging, and cover habitat for riparian birds.

Red alder riparian forest is a sensitive plant community because of historic and continuing habitat loss of riparian forests statewide and because it is an essential community to many unique plant and animal species.

Valley Oak Woodland. Valley oak woodland exists primarily in small remnant patches on the floor of the Central Valley and in valleys of the inner Coast Range. Valley oak woodland consists of open woodland dominated by valley oak. The understory consists of grasses and forbs typical of annual grassland, such as ripgut brome and common fiddleneck, and includes shade-tolerant non-native forbs, such as oriental mustard, dwarf nettle, and milk thistle. Valley oak woodland is a sensitive plant community because it has become uncommon because of conversion to agriculture and because regeneration is inhibited by heavy grazing and competition from non-native species.

These woodlands are especially important to wildlife because they provide valuable forage, cover, and nesting habitat for many ground, shrub, and tree-nesting species. Woodpeckers excavate nest holes in live and dead oaks, and these cavities are subsequently used by other species, such as American kestrels, western screech owls, tree swallows, ash-throated flycatchers, white-breasted nuthatches, oak titmice, and western bluebirds. Oak acorns provide an important food source for many species, including band-tailed pigeons, acorn woodpeckers, scrub jays, western gray squirrels, and black-tailed deer.

Oak foliage and bark attract insects that are important to the diet of birds, such as white-breasted nuthatches, oak titmice, Bewick's wrens, ruby-crowned kinglets, American robins, Cassin's vireos, Hutton's vireos, orange-crowned warblers, black-headed grosbeaks, Bullock's orioles, and house finches.

The grasslands understories of valley oak woodlands offer foraging habitat and cover for Pacific treefrogs, western fence lizards, California quails, northern flickers, black-tailed hares, deer mice, gray foxes, and black-tailed deer.

Emergent Wetland. Emergent wetland habitat was delineated as jurisdictional wetlands along the project route (**Appendix G**). This habitat would be considered a jurisdictional wetland by the Corps based on the prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology.

The emergent wetlands occur along the project route wherever year round, shallow, standing water is present. It is associated with groundwater seeps and also occurs along the edges of canals, irrigation ditches, sloughs, stock ponds, perennial drainages, and riverbanks. Emergent wetland is dominated by perennial emergent species, including cattail, tule, sedge, water smartweed, duckweed, and annual rabbit-foot grass.

The narrow band of emergent marsh vegetation along canals, ditches, and other drainages provides nesting and foraging opportunities for water bird species and small mammals, including mallards, green-winged teals, great blue herons, great egrets, marsh wrens, song sparrows, red-winged blackbirds, raccoons, and California voles.

Emergent marsh is a sensitive community because of historic and continuing loss of wetland habitats from agricultural conversion, urbanization, and flood control development.

Seasonal Wetland. Seasonal wetland habitat was delineated as jurisdictional wetlands along the project route (**Appendix G**). This habitat would be considered a jurisdictional wetland by the Corps based on the prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology.

Seasonal wetlands along the project route include areas that pond water during and after rainstorms and support hydrophytic vegetation. These seasonal features are both natural and artificially-created and occur in roadside ditches, seasonal drainages, and stock ponds. Seasonal wetlands potentially exist along all portions of the project route. Seasonal wetland vegetation varies along the route but generally consist of hydrophytic grasses and forbs including rush, sedge, carex, monkey-flower, mint, Italian wildrye, and Mediterranean barley. These sites provide habitat for waterbirds and amphibians, and provide a source of water for many animals.

Stock Pond. Stock pond habitat was delineated along the project route (**Appendix G**). These stock ponds contain open water habitat that is surrounded by seasonal wetland and/or emergent wetland vegetation (see descriptions above). The open water portion of the stock ponds would be considered other waters of the United States by the Corps. The vegetated fringes of the ponds would be considered jurisdictional wetlands (see discussion above).

Drainages. Perennial drainages and seasonal drainages (includes irrigation canals) were delineated along the project route (**Appendix G**). For the purpose of this subsequent IS/MND, drainages includes all natural waterways that are characterized by a bed and bank and sustain flowing water at some time of the year (e.g., streams, creeks, rivers, and irrigation canals that are connected or divert water from natural waterways). Drainages that lack jurisdictional wetland communities would be considered other waters of the United States by the Corps.

Description of Fisheries Resources.

The Russian River supports central California coast ESU steelhead, southern Oregon-California coast ESU chinook salmon, central California coast ESU coho salmon, American shad, striped bass, rainbow trout, Russian River tule perch, hardhead, and Navarro roach.

The Sacramento River and the connected tributary streams and sloughs support a number of fish species, including all four runs of Central Valley chinook salmon (fall-/late fall-run, spring-run, and Sacramento River winter run ESUs); Central Valley ESU steelhead; delta and longfin smelt; Sacramento splittail; green and white sturgeon; Pacific and river lampreys; and various trouts, shad, squawfish, sculpins, suckers, perches, bass, and roach.

Threatened, Endangered, Candidate, and Other Special-Status Species

Threatened, Endangered, Candidate, and Other Special-Status Plants. A total of 127 special-status plants have the potential to occur in the vicinity of the project route (**Appendix K-3**). Of these, 27 species are federally listed as threatened or endangered, 25 are state-listed as threatened or endangered and 95 are nonlisted special-status plants.

Only one special-status plant species was located along the project route during the 1999 field surveys. One population (consisting of two individuals) of coast lily (B-Point Arena-1) was located in Mendocino County. This species is a CNPS List 1B species. The plants were located at the west end of a ditch paralleling the south side of Road 510, east of Evergreen Cemetery driveway. In this area, the coast lilies are associated with sweat pea and cypress.

Threatened, Endangered, Candidate, and Other Special-Status Wildlife. A total of 64 special-status wildlife species were initially identified as having potential to occur in the project study area (**Appendix K-4**). Of these, 13 species are federally listed as threatened or endangered, 10 are state-listed as threatened or endangered and 46 are nonlisted special-status wildlife species. The following special-status wildlife species or habitat for these species were located along the project route:

- # Swainson's hawk. Several active nests were located on or near the project route in the Central Valley portion of the proposed project study area.
- # Valley elderberry longhorn beetle. Numerous elderberry shrubs, the host plant for Valley elderberry longhorn beetle, were located along the project route in the Central Valley and Coast Range foothills.

- # Giant garter snake. Several perennial drainages were located along the Central Valley portion of the project route that potentially support giant garter snake.
- # Foothill yellow-legged frog. Numerous drainages in the Coast Ranges portion of the project route were identified as having potential to support foothill yellow-legged frog.
- # Northern red-legged frog. Several perennial drainages in the outer Coast Ranges portion of the project route were identified as having potential to support northern red-legged frog.
- # Northern harrier. One northern harrier nest was found along the project route between Woodland and Sacramento.
- # Burrowing owl. One active burrowing owl nest was found along the project route in the Natomas Basin.
- # Northern spotted owl and northern goshawk. One small site was located in the Coast Ranges portion of the project area that is considered suitable nesting/roosting habitat for northern spotted owl and northern goshawk.

Appendix K-4 provides the status, distribution, and habitat requirements of all special-status species initially identified as having potential to occur in the project study area, and the wildlife resource tables in **Appendix G** indicate locations of special-status species or habitat along the project route.

Threatened, Endangered, Candidate, and Other Special-Status Fish. A total of 21 special-status fish species were initially identified as having potential to occur in the project study area (**Appendix K-5**). Of these, seven are federally listed as threatened or endangered, four are state-listed as threatened or endangered and 13 are nonlisted special-status fish species.

V. CULTURAL RESOURCES

Prehistory, Ethnography, and History

Detailed information about the prehistory, ethnography and history of this project route is presented in the cultural resources inventory report. The cultural resources report includes a description and synopsis of the prehistoric record for the project study area as it is presently understood. This period covers from about 11,000 to 12,000 years ago to European contact. Specific cultural chronologies are discussed with references to noted technological and cultural changes during this timespan. The ethnographic section provides a brief overview of the histories and cultures of a number of distinct Native American groups living in the project study area at the time of European contact. The historic setting section focuses on major events during the historic era development of California, including early exploration, establishment of the California missions, land grants, United States settlement, farming and ranching, irrigation systems, transportation routes, and railroads.

Project Study Area and Delineation of Area of Potential Effects

The project study area includes the project route where the fiber optic cable and associated facilities will be installed using ground-disturbing techniques. The project study area for segments of the project route within existing road and railroad rights-of-way includes both sides of the right-of-way. The defined construction corridors for road and railroad rights-of-way typically extend to right-of-way fences and can vary between 2 and 10 meters (6.6 to 33 feet) in width. In segments where these fences did not exist, the right-of-way area included areas up to 20 (65.6 feet) meters from the edge of the road pavement and railroad ballast.

The project study area also included OP-AMP/regenerator station locations and any adjacent structures or historic resources that could be indirectly affected by siting of these facilities, the grading of existing access roads, and any staging areas located outside paved or graveled areas for equipment or bore pits.

The area of potential effects (APE) is defined as those areas where the project coincides with delineated wetlands and drainages under the jurisdiction of the Corps. These areas are therefore subject to the Section 106 process of the National Historic Preservation Act (NHPA). This limited APE occurs inside of the project study area defined above.

No new access roads would be required to install the fiber optic cable along the project route. Construction equipment and staging areas would be located within previously disturbed or developed areas where there is no potential to affect significant cultural resources.

Inventory Methods

Records Search and Cultural Resources Information

To complete the cultural resources inventory for the project, record searches and cultural resources survey information were obtained from a number of clearing houses for cultural resource information for previously documented sites. These records were obtained from Information Centers of the California Historical Resources File System, which included information on all previous surveys and previously recorded resources, as well as listings of properties on the California Register of Historical Resources, the National Register of Historic Places, California Inventory of Historic Resources, and California Historical Landmarks. Information research for this project route was conducted at the Northwest, Northeast, and North Central Information Centers at California State Universities, Sonoma, Chico, and Sacramento, respectively (**Appendix M**).

In addition, agencies that maintain records of cultural resources in the project vicinity, such as the Native American Heritage Commission (NAHC) and the Bureau of Land Management (however, the project route does not cross land managed by the Bureau of Land Management), were contacted and consulted for information for documented cultural resources on or near the project route.

Project specific historical research has been conducted for the project route where historic-period resources were likely to be found but where field inventory would be difficult because of the ground surface being obscured by subsequent development. For this project route, focused historical research has been conducted to determine whether historic or prehistoric resources might be buried beneath urban, developed settings. Repositories for sources dealing with historic resources include the California Room of the California State Library and other local repositories. At these repositories, historical maps were reviewed to determine the potential for disturbing potentially significant resources. Project-specific historical research is described in the cultural resources inventory report.

The records search parameters include identification of previous surveys or identified sites within 1/8 mile of the project study area. In some cases this record search was expanded to a 1/4-mile radius to better assess the archaeological resources noted near the project route. The results of the records search indicated previously recorded sites located within the project study area, as well as results of previous surveys that have been conducted in or near the project study area. A summary of the methodology and results of the records search for the project route will also be provided in the cultural resources inventory report.

Native American Contacts

The California NAHC has been contacted to obtain information from their Sacred Lands Files, as well as to obtain lists of Native American individuals or organizations potentially interested in or having concerns about the project route. All individuals and organizations identified by the NAHC have been contacted by letter and asked to provide comments or identify any concerns or issues pertaining to the project route. A total of 50 Native American individuals and organizations were contacted. A copy of the list of Native Americans provided by the NAHC is included in the cultural resources inventory report prepared for the project route and in **Appendix M**.

Correspondence and responses received from Native Americans are also included in the cultural resources inventory report and in **Appendix M**. An example of the Native American contact letter is included in the inventory report. As of January 7, 2000, two responses have included requests for more detailed information regarding the project route and detailed information about the construction process. Another response noted that the project route does not pass any known sites.

Field Survey Methods

Intensive field pedestrian surveys have been conducted for the identified project route. Linear portions of the road and railroad rights-of-way, as well as regeneration/OP-AMP station locations, were surveyed. The surveys were conducted by multiperson crews walking the project study area at intervals that did not exceed 20 meters in width. As noted above, both sides of the road and railroad rights-of-way were surveyed. General environmental background information, archaeological site and isolated artifact identification and locational data, were recorded on standardized California Department of Parks and Recreation record forms and will be available to the CPUC.

The surveys were limited to inventorying surface artifacts and features. No other probing was conducted, and no artifacts were collected. Observed artifacts were left in place and documented. Isolated artifacts found within the project study area were plotted on a USGS 7.5-minute quadrangle and briefly described in terms of artifact type, material, color, and other noteworthy characteristics.

Archaeological sites, isolated artifacts, and features encountered within the project study area were recorded, except for previously documented sites, which were revisited and re-recorded as necessary. Previously recorded sites were also revisited to verify resources information and determine if they extended into the project route.

All artifacts and features were noted to delineate site boundaries and assist with the character, configuration of sites, and densities of artifacts. Site characteristics were documented on the California Department of Parks and Recreation forms. Photographs showing overviews of the site within its environmental context were also taken.

Work was completed at the sites when temporary site numbers were inscribed on metal tags and plastic surveyor's whisksers were placed at each end of the site near the centerline of the project route. The identified cultural resource sites were assigned temporary field numbers according to their relationship to specific USGS 7.5-minute quadrangles, and will be plotted on the engineered drawings prior to construction. Site tagging was conducted at sites that were located in or adjacent to the APE. A complete list of the identified isolated artifacts and historic features are listed in the cultural resources inventory report.

The cultural resource inventory has been completed for the project route using the procedures described above. Measures to avoid potential impacts on identified cultural resources are specific to the identified resource.

If avoidance proves infeasible, Williams has agreed to adopt the Mitigation Measure C-3, Conduct Test Excavation to Determine Resources Significance, and If Significant, Conduct Data Recovery Excavation. Prior to construction, the cultural resources inventory report will be completed and submitted to the CPUC for its approval.

Regulations, Approvals, and Permits Applicable to Cultural Resources

State Regulations

As the state lead agency, the CPUC must ensure that the project would comply with CEQA requirements for the identification and treatment of historic and prehistoric cultural resources (Pub. Res. Code, Sec. 21082, 21083.2 and 21084.1 and California Code of Regs. 15064.5).

Any resource that has been determined eligible for inclusion in the National Register of Historic Places (NRHP) would be considered eligible for the CRHR. Finally, an archaeological site is considered significant if it meets the definition of a unique archaeological resource as defined in Public Resources Code Section 21084.1 and Section 15126.4 of the State CEQA Guidelines.

The State CEQA Guidelines defines significant historical resources as resources listed or eligible for listing on the California Register of Historical Resources (CRHR) (Public Resources Code Section 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

- # is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- # is associated with the lives of persons important in the past;
- # embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
- # has yielded, or may be likely to yield, information important in prehistory or history.

Because the project is analyzed under CEQA and crosses land under state and local jurisdiction, it is also necessary for the project to comply with state laws (Pub. Res. Code, Sec. 5097) pertaining to the inadvertent discovery of human remains of Native American origin. The procedures that must be followed if burials of Native American origin are encountered during project construction are described below.

Because implementation of the project would require a permit from the Corps and historic properties could be affected, it is necessary to comply with Section 106 of the NHPA and its implementing regulations (36 Code of Federal Regulations [CFR], Part 800). Section 106 requires federal agencies to consider the impacts of their actions on properties that may be eligible for listing or are listed in the NRHP.

To be listed in the NRHP, a property must be at least 50 years old and evaluated as significant (or if less than 50 years old, be of exceptional historic significance). To qualify for listing in the NRHP, a property must represent a significant theme or pattern in history, architecture, archaeology, engineering, or culture at the local, state, or national level. It must meet one or more of the following four criteria and have sufficient integrity to convey its historic significance.

The criteria for evaluation the eligibility of cultural resources for listing in the NRHP are defined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:

- (1) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (2) that are associated with the lives of persons significant in the past; or
- (3) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (4) that have yielded, or may be likely to yield, information important in prehistory or history.

The Corps is the federal lead agency responsible for compliance with Section 106 of the NHPA. As such, the Corps is responsible for any coordination or consultation with the California State Historic Preservation Officer (SHPO). No other permitting or land holding federal agencies have been identified for this project.

To determine whether an undertaking could affect NRHP-eligible properties, cultural sites (including archaeological, historical, and architectural properties) must be inventoried and evaluated for eligibility for listing in the NRHP. Although compliance with Section 106 is the responsibility of the federal lead agency, the work necessary to comply can be delegated to others.

The Section 106 review process is implemented using a five-step procedure:

- # Identify and evaluate historic properties.
- # Assess the impacts of the undertaking on properties eligible for listing in the NRHP.
- # Consult with the SHPO and other agencies for the development of an agreement that addresses the treatment of historic properties.
- # Receive Advisory Council on Historic Preservation comments on the agreement or results of consultation.
- # Implement the project according to the conditions of the agreement.

Only those portions of the project route under the jurisdiction of the Corps are subject to the requirements of Section 106 of the NHPA.

Results of Inventory

The portion of the project route that would involve ground-disturbing activities has been surveyed and inventoried for cultural resources (**Appendix G**). The remaining portion of the project route, which would be installed on PG&E transmission lines, was not subject to cultural resources inventory work. This

research identified a total of nine cultural resources, including four prehistoric sites, two historic sites, and three historic era linear features sites near the project route. Although a higher number of previously recorded sites had been identified during the records search as being present along the project route, these clearly existed outside the project route or were found to be no longer present. Cultural resources identified during the record search, but that fell outside the project study area are still listed in the cultural resources inventory report.

The four prehistoric sites, as recorded, are located outside the project route. These resources will not be effected by project construction. One of these sites, designated C-Elledge Peak-1, would be monitored to verify its existence outside the APE. In addition, an area where isolated objects were found, listed below, possibly representing a buried site area, would be monitored to ensure that no unknown site would be disturbed by construction. Two of the five identified historic resources were also determined to be located outside the project route. These included a 1906 winery site with several building structures and a section of the Southern Pacific Railroad that no longer has integrity within the APE.

The five historic resources included the Ukiah Railroad Station and a well-preserved, 360-foot-long concrete passenger loading platform; a historic era canal; and a concrete road bypass structure. None of these historic resources will be affected because the project would avoid canals, existing structures, railroads, and existing foundations, and features. However, specific avoidance measures that would be used for these resources sites are provided below. Furthermore, if significant or potentially significant resources are discovered during construction, then work would stop until the significance of the property could be determined and, if necessary, mitigation measures implemented.

In addition to the nine identified cultural resources, a number of isolated prehistoric artifacts, including historic era ceramics at one location, were noted. This isolated artifact inventory list included two manos (hand stones previously recorded outside the project route but not relocated). A third mano was found during the current study, but existed in the road shoulder. A chocolate brown Franciscan chert projectile point was also found during the course of this study, but, like the mano, was located out of context in the road shoulder. A multicolored pink and white biface was also found in the road shoulder. To complete the isolated artifact list, an obsidian flake and historic era ceramics representing two different utilitarian objects were found in an agricultural field. The isolated artifacts were recorded in close proximity; however, they were not close enough to consider them an archaeological site. Isolated artifacts, although located and described and often important for gaining some general understanding about land use patterns, are not considered significant cultural resources. However, because these isolated artifacts could indicate the presence of a potentially buried archaeological site, monitoring is recommended.

Paleontological Resources

Fossils are considered by the Society of Vertebrate Paleontology to be a non-renewable resource. One purpose of a paleontological investigation is to document the presence of fossils in the geologic record to provide a better understanding of the phylogenetic histories of species in the area or in general and provide keys to the history of evolution. In addition to revealing which species were present, the fossil record can give indications of previous climates and paleotemperatures, topography, geography, rainfall, and proximity to water bodies.

The project route would generally cross Jurassic to Recent age geologic units and has a low to high sensitivity for paleontological resources (**Table 4A.V-1**). All identified paleontological resource sites located along the project route would be avoided.

Approach and Methodology

A literature search was conducted to determine the paleontological sensitivities of geologic units and paleontological localities previously identified along the project route. The literature search consisted of a search and review of available published and unpublished literature, including locality information from the California Museum of Paleontology and Los Angeles County Museum, paleontological survey reports, and paleontologic locality maps. Interviews were conducted with Dr. Larry Barnes and Dr. Ed Wilson of the Los Angeles County Museum to develop the sensitivities and significance of paleontological resources of the geologic formations along the project route.

Published and unpublished literature indicates that the project route and surrounding areas would be underlain by bedrock formations that have a low to high paleontological sensitivity (**Table 4A.V-1**). Paleontological sensitivities of geologic units are determined by the potential for the recovery of fossil resources. Determining factors include the known fossil resources in the geologic unit, sedimentary rock types present, and the environment of deposition of the geologic unit.

Regional geologic maps for California identified geologic units, surficial sedimentary rocks, and cool volcanic flows that would be present on the project route (California Division of Mines and Geology 1977, Jones & Stokes Associates 1990). Although the presence of these deposits does not necessarily indicate the presence of fossils, these formations have the highest probability of preserving plant, animal, and invertebrate remains. **Table 4A.V-1** summarizes the geologic units, age, and paleontological sensitivity for the project route. Fossilized micro and macro flora and fauna of marine and non-marine origin, including marine vertebrates, land mammals, and other vertebrates, have been recovered from formations exposed along the project route. **Appendix N** lists previously identified fossil localities that would be located on the project route.

Table 4A.V-1. Paleontological Sensitivity of Geologic Units Potentially Occurring in the Project Study Area

Geologic Units	Age	Paleontological Sensitivity
Basin filling deposit	Recent	Low
Stream and channel deposits	Recent	Low
Intertidal sediments	Recent	Low
Quaternary terrace deposits (marine and non-marine)	Pleistocene	High
Dissected Alluvial deposits (non-marine)	Pleistocene	High
Non-marine sediments	Pleistocene/Pliocene	High
Galloway-Schooner Gulch Formations	Miocene	High
Franciscan Formation	Jurassic	Varies

Table 4A.V-1. Paleontological Sensitivity of Geologic Units Potentially Occurring in the Project Study Area

Geologic Units	Age	Paleontological Sensitivity
Chico/Gualala Formation/marine sediments	Upper Cretaceous	High
Great Valley Sequence marine rocks	Cretaceous	High

Applicable Regulations, Approvals, and Permits

The Antiquities Act of 1906 and the Federal Land Policy and Management Act of 1976 mandate the protection of significant paleontological resources on federally owned, managed, or controlled lands. Additionally, California Pub. Res. Code Section 5097.5 states that it is a misdemeanor for any person to knowingly and willingly excavate, remove, or destroy a vertebrate paleontological site, including fossilized footprints or any other paleontological feature on public lands without the permission of the public agency having jurisdiction over the land.

VI. GEOLOGY, SEISMICITY AND SOILS

Geology

The geologic map of California (Jennings 1977); the geologic map of the Santa Rosa quadrangle, California (1:250,000) (Wagner and Bortugno 1982); and the geologic map of California, Ukiah Sheet (Jennings and Strand 1960) were used to assess existing geologic and seismic conditions along the project route.

Mendocino County

The Mendocino County section of the project route would cross several geologic formations. Small, coastal sections of the project route located west of SR 1 would transect marine terrace deposits, beach and sand dune deposits, and portions of the Gallaway-Skooner Gulch Formation, which consists of marine sandstones and mudstones. The portions of the project route located approximately between SR 1 and U.S. Highway 101 would transect the coastal belt of the Franciscan Formation, which consists of marine conglomerates and sandstones, and the Franciscan Melange, which consists of a variety of interspersed sedimentary and meta-sedimentary rock types. The eastern portion of the project route, in the Ukiah Valley, crosses deep alluvial deposits. There would be no known unique geologic features along the project route.

Colusa, Yolo, and Sutter Counties

The Colusa, Yolo, and Sutter county portions of the project route cross over terrain underlain by consolidated and semi consolidated alluvial, lake, and playa deposits (siltstones, sandstones, and conglomerates) in the Sacramento Valley.

Seismicity

The Geologic Map of California (Jennings 1977) and the Map Showing Recency of Faulting, Santa Rosa Quadrangle, California (Bortugno 1982) were used to assess existing seismic conditions along the project route.

The project route would pass through areas that are subject to strong, earthquake-induced ground shaking and over active and potentially active earthquake faults. The faults are subject to ground surface displacement, which may occur in a variety of relative motions depending on the type of fault involved. In a few areas, the sediments that would underlie the project route are subject to earthquake-induced liquefaction, which may cause differential ground settlement and lateral spreading. Conditions most favorable for liquefaction include a fault

capable of causing ground shaking and the presence of clean, loose, saturated sandy soils within 50 feet of the ground surface.

Soils

Soil characteristics vary widely throughout the areas that would be crossed by the project route. The variation is because of a wide range of topography, parent material, climate, vegetation, and disturbances and imported material associated with past construction in the road and railroad rights-of-way. In general, soils within these rights-of-way should be less susceptible to accelerated erosion and landsliding due to attenuated slope gradients and to runoff control practices already in place.

Soils that underlie the project route west of SR 1 are generally sandy on gentle to moderate slopes. The erosion hazard is slight to moderate. Soil survey information is not available for soils that would be covered by the remaining sections of the project route. In these areas, information provided by Major Land Resource Regions and Major Land Resource Areas of the United States (USDA Soil Conservation Service 1981) was used to assess existing soil conditions.

Soils that underlie portions of the project route between SR 1 and U.S. Highway 101 consist of shallow to very deep upland soils on moderately sloping to very steep hillslopes. They generally formed from residual and colluvial parent materials and have sandy loam, clay loam, and sandy clay loam textures with moderate to very rapid permeability. Soils along this portion of the project route would have variable susceptibility to erosion. Erosion hazard ratings range from moderate to very high. Portions of the project route underlain by clayey subsoils are also susceptible to slumping during winter months. However, most of the project route would exist within transportation rights-of-way which have significantly reduced slope gradients and permanent erosion control measures, such as water bars, already in place. These preexisting conditions greatly decrease the potential for erosion and slumping.

Soils that would underlie the portion of the project route that parallels U.S. Highway 101 in the Ukiah Valley between Ukiah and Calpella primarily consist of very deep, well drained loams and gravelly loams formed from deep alluvial deposits. They exist on level to moderately sloping surfaces where permeability is moderate to moderately slow. On undisturbed sites, runoff is slow and the erosion hazard is slight due to low slope gradients.

Mendocino County

Some soils along the Mendocino County section of the project route may classify as **Æxpansive@** under the Uniform Building Code.

Colusa, Yolo, and Sutter Counties

Soils along the Colusa, Yolo, and Sutter County sections of the project route consist of moderately deep to very deep sandy loams to clays on level to gently sloping basin and basin rim surfaces. Runoff is very slow to slow and the erosion hazard is slight to nonexistent. Some soils along these sections of the project route may classify as **Æxpansive@** under the Uniform Building Code.

Regulations, Approvals, and Permits Applicable to Geology and Soils

A storm water pollution prevention plan (SWPPP) (which includes erosion and sediment control measures) is required by the EPA to comply with National Pollutant Discharge Elimination System (NPDES) requirements. The EPA has delegated authority to the State Regional Water Quality Control Boards (RWQCBs) to administer the NPDES program. The SWPPP for this project route is included in **Appendix E**.

VII. HAZARDS AND HAZARDOUS MATERIALS

Hazards and hazardous materials issues include handling of hazardous materials, disposal of hazardous waste (unexpectedly encountered during trenching and construction activities), training of construction workers (responsibility of the construction contractor), the potential for exposing the community to an unexpected release or spill, and fire hazards. The CEQA environmental checklist (**Appendix A**) identifies eight areas of potential concern under the issue of hazards and hazardous materials.

A search of several government database resources was conducted for the project route. The database lists more than 3.5 million regulated and unregulated hazardous waste generators, leaking tank sites, toxic spills, and other sites affecting the environment throughout the United States. The search recorded specific environmental hazards that would be within 1,000 feet of the centerline of project route. The result is a complete library of environmental information that will be translated into mapped and site-specific reports for all aspects of a hazards analysis. The following databases were included in the search:

- # National Priority List;
- # RCRA Corrective Actions;
- # RCRA permitted treatment, storage, disposal facilities;
- # State equivalent priority list;
- # State equivalent Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list;
- # Sites under review by EPA (CERCLIS/Archive [NFRAP] database);
- # Leaking Underground Storage Tanks;
- # Solid waste landfills, incinerators, or transfer stations;
- # Additional federal, state and regional lists, where available;
- # Toxic Release Inventory database;
- # Registered underground storage tanks;
- # Registered aboveground storage tanks;
- # RCRA registered small or large generators of hazardous waste;
- # RCRA violations/enforcement actions; and
- # Emergency Response Notification System and state spills lists.

The results of the database search were used to review the project route and OP-AMP/regenerator station locations to ascertain existing contaminated areas and potential areas where hazardous substances should be avoided during construction activities.

Site specific hazardous materials reports were being prepared for each of the three OP-AMP/regenerator stations. Environmental transaction screen (ETS) reports are used to evaluate the sites for recognized hazards caused by current or past activities or site conditions. This ETS strives to provide a all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice in an effort to minimize liability, as stated in the Comprehensive Environmental Response, Compensation and Liability Act, (42 U.S.C. 9601, et. seq., liability). These ETSs were performed in accordance with the American Society for Testing and Materials (ASTM) standards and include:

- # a site reconnaissance to assess existing conditions and evaluate, if possible, potential environmental concerns at the site;
- # a reconnaissance of the immediate site vicinity to evaluate surrounding land use and make relevant observations regarding the potential for environmental concerns to exist in this vicinity;
- # a review of regulatory agency database lists to evaluate reported environmental problems in the vicinity of the project route (see above project route search database list);
- # an interview with the landowner;
- # completion of an environmental transaction screen questionnaire; and
- # preparation of the ETS report documenting the findings of the study.

If conditions onsite are determined to have recognized environmental concerns, further assessment may be required, further assessment may be required depending on site conditions and Williams approval.

Regulations, Approvals, and Permits Applicable to Hazards and Hazardous Materials

A variety of regulatory issues pertain to the handling and disposal of hazardous materials and waste. Workers exposed to hazardous waste (unexpectedly encountered during construction) should be properly trained in accordance with Occupational Safety and Health Administration (OSHA) guidelines¹. This training allows for worker safety, proper handling, knowledge of testing instruments, and safety equipment (e.g., respirators).

Hazardous waste is to be handled and disposed of in accordance with applicable local, state, and federal regulations. Local jurisdictions (e.g., city or county health departments) may have area-specific requirements.

Consultation and coordination with regulatory land managers is required along certain portions of the project route that may be susceptible to fire hazards.

VIII. HYDROLOGY AND WATER QUALITY

Hydrologic Setting

¹ Refer to OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) fact sheet 93-31, which specifies training for workers at hazardous materials sites (available http://www.osha-slc.gov/OshDoc/Fact_data/FSNO93-31.html)

The project route would cross several geographically separated drainage areas, including small Coast Range basins, tributaries to the Navarro River, Russian River valley, and the Sacramento River watershed. In addition to numerous small intermittent and perennial stream crossings, the west segment of the project route would cross the Russian River and the east segment of the project route would cross the Sacramento River.

Precipitation

Precipitation over the north coastal portions of California is higher than in any other area of the state, and damaging floods are a fairly frequent hazard. Mean annual precipitation in the coastal portions of the west segment would be high, ranging from 80 inches at coastal and mountainous locations to 40 inches at interior valley locations. The east segment would be located in the Sacramento Valley, where temperature and precipitation patterns are moderate. Annual average rainfall is approximately 20 to 25 inches on the Sacramento Valley floor.

Water Quality

Streams that would be found along the project route are subject to great changes in volume due to seasonal variations in precipitation and runoff. Headwater streams are generally cool and clear; water quality is good and linked closely to the condition of the bed and banks of the stream channel. Degraded conditions most often consist of high sediment loads, which are a function of mass wasting (naturally unstable lands and management-influenced failures) and surface erosion processes (roads, developments, and other nonpoint sources). Removal of riparian vegetation also interrupts processes that maintain stream water quality.

As water enters the valleys, waters become warmer and tend to accumulate increased sediment and other pollutants in urban communities and agricultural areas. Water quality decreases because of the additional influences of urban and industrial development, diversions, agricultural runoff, additional loss of riparian vegetation, and other factors.

Water Uses

Beneficial water uses of water bodies that would be crossed by the project route generally include domestic and municipal water supply, recreation, agriculture, industrial uses, and protection of fish and wildlife. No aspect of this project would change surface or subsurface flows; thus, the project would not affect groundwater or surface water sources for these beneficial uses.

Floodplains

Federal Emergency Management Agency-(FEMA)-designated floodplains are identified along various streams in the Russian River valley, Anderson Valley, and Sacramento River valley; floodplain information is rarely available for small rural streams in unpopulated areas. No aspect of this project would substantially change flood conveyance or floodplain characteristics of drainage channels in the project study area.

Regulations, Approvals, and Permits Applicable to Hydrology and Water Quality

Nine RWQCBs are primarily responsible for identifying beneficial uses of surface and groundwater resources and establishing water quality standards and implementation programs to protect those uses. The west segment of the project route would be located in the North Coast region and the east segment would be located in the Central Valley region. Section 303(d) of the Clean Water Act requires each state to maintain a list of water quality limited streams that are impaired by the presence of pollutants, including physical and chemical characteristics. The Russian River is listed as impaired by sediment; the Sacramento River is listed as impaired by sediment, nutrients, and toxic constituents.

If soil disturbance exceeds 5 acres, a general construction activity permit under the NPDES (Section 402 of the Clean Water Act) requires preparation and implementation of a SWPPP. Best management practices to reduce and control stormwater discharges related to project construction would be specified in the SWPPP. Construction activities subject to the NPDES permit restrictions would be administered by the appropriate RWQCB for each project route segment. Williams has prepared a SWPPP and will acquire authorization under the general NPDES permit prior to starting construction.

A Section 401 water quality certification (or waiver) from the appropriate RWQCBs are required under the Clean Water Act and would be obtained by meeting the terms and conditions in Section 404 Nationwide Permit No. 12, issued by the Corps, as appropriate. Nationwide Permit No. 12 authorizes discharge of material for backfill or bedding for utility lines. Under Nationwide Permit No. 12 conditions, an applicant must demonstrate that any unavoidable in-water work would occur within the state lead agency's preferred work windows and all practicable erosion control measures would be implemented.

The DFG regulates streambed alterations, including the release of materials into streams, under Section 1603 of the Fish and Game Code (see *State Policies and Regulations Concerning Waters of the United States* in the *Biological Resources* section of this chapter). Williams would obtain streambed alteration agreements from the DFG where necessary.

Local county flood control and water conservation districts typically are responsible for coordinating flood control programs and emergency preparedness and response plans. The FEMA maps and designates floodplain areas to avoid flood-related loss of life or property, and manage flood insurance programs.

IX. LAND USE AND PLANNING

Land use planning is the province of local government in California. Each city and county is required to adopt a *general plan* that establishes goals and policies for long-term development, protection from environmental hazards, and conservation of identified natural resources. Typically, a general plan lays out a pattern of future residential, commercial, industrial, agricultural, open space, and recreational land uses within a community. Zoning, the primary means of implementing these plans, identifies the specific types of land uses that may be allowed on a given site. Zoning also establishes the standards that will be imposed on new development.

Local approaches to zoning vary considerably throughout the state. In general, zoning requirements are more restrictive along the coast and less restrictive in unincorporated portions of central valley counties. The OP-AMP/regenerator stations associated with the project may be subject to zoning requirements in some jurisdictions. Williams is currently in the process of identifying local zoning and permit requirements and approvals.

The project route is described in Chapter 3, **Project Route Description**. The project route would be located predominantly in state highway and county road rights-of-way, with a few short private road segments. As such, it would not be in conflict with local general plans. The project crosses Mendocino, Colusa, Yolo and Sutter Counties and the communities of Manchester, Booneville, Ukiah, Calpella, and Robbins. Each of these jurisdictions has its own land use and zoning regulations. Williams is in the process of identifying those land use and zoning requirements applicable to the project.

Three OP-AMP/regenerator stations will be constructed along the project route, near Ukiah in Mendocino County, Clearlake Oaks in Lake County, and Arbuckle in Colusa County. Construction of OP-AMP/regenerator stations may be subject to conditional use permits, which would require a finding of consistency with local general plans. Permitting and zoning requirements for these sites are described in **Table 4A.IX-1**.

Table 4A.IX-1. Permitting and Zoning Requirements for OP-AMP/Regenerator Stations on the Point Arena to Robbins Project Route

OP-AMP/Regenerator Station	Location	Zoning	Permitting	Comments
Ukiah	Mendocino County, California; in south Ukiah, adjacent to and northwest of the NCPR/ U.S Highway 101 intersection	I-1. Limited Industrial	No permit required	Considered a minor impact utility
Clearlake Oaks	Lake County, California; adjacent to and northwest of the SR 20/53 intersection	CH. Commercial Highway	Conditional use permit required; may be an administrative process	Scenic corridor; screening and landscaping required; setback as far as feasible from roadway
Arbuckle	Colusa County, California; approximately 1 mile east of the Interstate 5/Hahn Road intersection, adjacent to and north of Hahn Road	EA. Exclusive Agriculture	Conditional use permit required; will be an administrative process, unless a hearing is requested	Located in open agricultural area, near a farmhouse with barns; will require screening/ camouflage for facility to blend with existing structures

Regulations, Approvals, and Permits Applicable to Land Use and Planning

Zoning regulations vary from jurisdiction to jurisdiction along the proposed route. In some jurisdictions, construction is permitted **by right** (i.e., without the need for hearing) as an allowable use under the zoning ordinance. In others, a conditional use permit or similar discretionary action would be needed. Typically, discretionary actions require a noticed public hearing on the proposal. At the hearing, the local zoning board or

zoning administrator would consider the proposal, public testimony, and the findings of a CEQA review. If approved, the proposed project would be made subject to conditions relating to its design, appearance, and construction intended to comply with local ordinance and environmental quality requirements.

X. MINERAL RESOURCES

Sand and gravel deposits are the minerals most likely to be found along the project route. Such deposits are typically found in streambeds and valley bottoms.

The proposed project route has three OP-AMP/regenerator sites. No mineral land classification mapping has been done for these sites or their surrounding areas. However, installation of conduit and cable and OP-AMP/regenerator stations would be within existing, disturbed rights-of-way and would not impede mineral extraction. Therefore, mineral zone classifications of the project route and OP-AMP/regenerator sites are irrelevant.

Regulations, Approvals, and Permits Applicable to Mineral Resources

Land use documents, including general plans, specific plans, and the CEQA environmental checklist, typically include policies that limit development of facilities in areas that contain mineral resources.

The California Surface Mining and Reclamation Act (SMARA) (Pub. Res. Code Section 2710 et seq.) establishes statewide mineral conservation policies that are implemented by counties and cities through local surface mining ordinances. The ordinances apply to surface mining operations and would not be applicable to the project. However, these policies discourage local governments from allowing new incompatible uses (essentially defined as permanent, urban uses) in areas identified by the state geologist as containing mineral resources that are either locally important or of statewide value.

The SMARA requires the state geologist to examine lands within California and classify them based on the availability of mineral deposits. The conduit and cable would be installed within existing rights-of-way, only to a depth of 4 feet, and would not involve mineral excavations. The lines would not obstruct the recovery of mineral deposits to any greater extent than currently exists. The OP-AMP/regenerator sites would not be constructed in areas of mineral extraction. Because the conduit and cable and the OP-AMP/regenerator sites would not have any impact on mineral resources, the project would not require compliance with the SMARA.

XI. NOISE

The technical terms and acronyms used in this section may be unfamiliar to the reader. Explanations of these terms, acronyms (e.g., *dB*A, *Ldn*, and *Leq*), and background information on environmental acoustics and state and federal noise regulations are provided in **Appendix O**.

Residencies, such as private homes, hospitals, and rest homes, are typically considered to be sensitive to noise, as are libraries and educational facilities. Threatened and endangered wildlife species are also considered to be noise sensitive in some cases. The number and type of noise sensitive uses along the project routes would vary, depending on the degree of development in the area. In some areas, residences or other sensitive uses would be located within 100 feet of the project route. In other areas, the distance between the project route and the nearest noise-sensitive uses would be several thousand feet. However, because the project route is primarily located within existing rights-of-way, any sensitive receptors are often already exposed to noise sources (i.e., road and railroads).

Background noise levels along the project route would also vary widely depending on the degree of development and general human activity in the area. For example, road and railroad rights-of-way would typically have greater background noise associated with trains and automobiles. Typical sources of noise include transportation (e.g., traffic, aircraft, train, watercraft), mechanical equipment (e.g., air conditioners, manufacturing equipment), and natural sources (e.g., wind, birds, crickets, frogs). Background sound levels typically range from 35 to 45 dBA in rural areas, 45 to 55 dBA in suburban areas, and 55 to 65 dBA in urban areas.

Regulations, Approvals, and Permits Applicable to Noise

California Government Code Section 65302(f) requires that city and county general plans include a noise element. The general plan noise element is used as a planning guideline to ensure that long-term noise generated by a source is compatible with adjacent land uses.

The California Department of Health Services (DHS) has studied the correlation between noise levels and their effects on various land uses and published land use compatibility guidelines for the noise elements of local general plans (Office of Planning and Research 1990). These guidelines are the basis for most noise element land use compatibility guidelines in California, identifying the normally acceptable noise level range for several different land uses. Recommended maximum acceptable noise levels for various land uses are shown in **Table 4A.XI-1**.

Table 4A.XI-1. Maximum Allowable Ambient Noise Exposure for Various Land Uses

Land Use	Suggested Maximum Ldn
Residential - low density	60
Residential - high density	65
Transient lodging	65
Schools, libraries, churches, hospitals	70
Auditoriums	70
Playgrounds, parks	70
Commercial	70
Industrial	75

Source: Office of Planning and Research 1990.

As shown in **Table 4A.XI-1**, low-density residential areas are most sensitive to noise intrusion, with noise levels of 60 dBA Ldn or below considered acceptable. Acceptable noise levels for schools, libraries, churches, hospitals, and parks is 70 Ldn or below, and 70 and 75 Ldn or below, respectively, for commercial and industrial land uses.

Cities and counties can also adopt noise control requirements as part of their zoning ordinances or as separate ordinances. Noise ordinances are enforcement mechanisms for controlling noise. The level of specificity in noise ordinances used in California cities and counties varies widely. Many are based on the model noise ordinance published by DHS, which recommends daytime and nighttime noise level limits of 40 and 50

dB_A-L₅₀, respectively, for rural uses; 45 and 55 dB_A-L₅₀, respectively, for suburban uses; and 50 and 60 dB_A-L₅₀, respectively, for urban uses. Noise ordinances often contain exemptions for construction activities, if the construction occurs during the hours specified by affected local jurisdictions.

Mendocino, Colusa, Yolo, and Sutter Counties have not adopted noise ordinances. In Lake County, noise is addressed in Chapter 21 of the Zoning Ordinance. This ordinance states that the maximum allowable 1-hour equivalent sound pressure level (Leq) for residential uses is 55 dB_A between 7 a.m. and 10 p.m. and 45 dB_A between 10 p.m. and 7 a.m. Construction activity occurring between 7:00 a.m. and 7:00 p.m. is excluded from these limits.

XII. POPULATION AND HOUSING

Implementation of the project would not affect or generate additional population or affect or create demand for new housing along the Point Arena to Robbins project route. Therefore, no discussion of the setting for population and housing is necessary.

XIII. PUBLIC SERVICES

Public services are typically provided to development projects by a variety of local purveyors (i.e., city, county, special district, water agency, school district). The services available vary depending on the level of development in the area. This project would not result in an increased demand for public services, such as police protection, schools, parks, or other public facilities, because project construction would be temporary and located within existing railroad and road right-of-ways. Any impact on fire protection services would be less than significant with incorporated mitigation. A fire prevention and management plan would be prepared as a precaution (**Appendix J**). Because public services would not be affected, no discussion of the public services setting is necessary.

XIV. RECREATION

Public recreation facilities are provided by cities, counties, and special districts. The types and uses of these recreation facilities vary greatly. This project would be located within disturbed railroad and road rights-of-way, and will not cross any parks or land where recreational facilities exist. The project would not affect recreational opportunities in any of the counties through which the project will be implemented; use of existing facilities would not increase and construction of additional facilities would not be necessary. Therefore, no further discussion of the recreation setting is necessary.

XV. TRANSPORTATION/TRAFFIC

California is served by a well-developed network of freeways, highways, and surface streets, as well as mass transit facilities in the larger urban areas of the state, such as the San Francisco Bay Area, the Los Angeles metropolitan area, and the Sacramento metropolitan area. The project route would pass through rural, suburban, and urban areas of Northern California. In suburban and urban settings, development tends to directly abut surface streets. In rural areas, the rights-of-way adjacent to the road pavement are generally undeveloped.

The project route would follow a combination of state highways, local roads, private roads, and railroad rights-of-way (**Table 4A.XV-1**). State highways (freeways) are under the jurisdiction of the Caltrans, which controls the design, operation, and maintenance of these roadways. The local roadway system comprises roads that are under the jurisdiction of a particular city or county public works department. As described in Chapter 2, **Project Description**, the installation of fiber optic cable would be accomplished primarily by plowing or trenching along one side of the road or railroad right-of-way.

Table 4A.XV-1. Right-of-Way Miles - Point Arena to Robbins

Route Segment	Right-of-Way Miles			
	Local Roads	State High-ways	Rail-road	Private Road
West Segment				
Kinney Road	0.95			
State Route 1		2.11		
Mountain View Road	24.96			
State Route 128		1.18		
State Route 253		16.93		
State Street	0.76			
Norgard Street	0.26			
NCPR			8.82	
State Route 20/Frontage Road	0.12			
East Road	0.54			
PG&E substation access road				0.09
Subtotal	27.58	20.21	8.82	0.09
East Segment				
Walnut Drive	0.31			
East Camp Road	1.23			
East Hill Road	0.52			
Myers Road	6.95			
Lone Star Road	3.04			
Hahn Road/Grimes Arbuckle Road	8.30			
Lodi Road	0.32			
Cecil Road	1.04			
Poundstone Road	2.74			
Tule Road	0.18			
Poundstone Road (2nd)	3.00			
White Road	2.00			
Browning Road	3.02			
Colusa/Yolo County Line Road	1.63			
Sacramento River crossing				0.29
Subaco Road	3.60			
Browning Road (2nd)	3.01			
Seymour Road	3.26			

Table 4A.XV-1. Right-of-Way Miles - Point Arena to Robbins

Route Segment	Right-of-Way Miles			
	Local Roads	State High-ways	Rail-road	Private Road
Sacramento Valley Boulevard				0.50
Subtotal	44.24			0.78
GRAND TOTAL	101.728			

Regulations, Approvals, and Permits Applicable to Transportation/Traffic

The California Department of Transportation would require Williams to obtain an encroachment permit to perform construction activities within the state highway rights-of-way along the project route. In addition, some of the affected local agencies may require local encroachment permits or conditional use permits for activities within public road rights-of-way. Encroachment permit requirements vary by agency. The implementation of specific transportation and traffic measures may be required as conditions under the encroachment permits. Williams is currently identifying all of the required encroachment permits.

As more fully described in the Chapter 3, *Project Route Description*, the project route would be divided into two segments, because approximately 80 miles of the central portion of the project route would utilize an existing PG&E overhead transmission line. The project route is summarized below in **Table 4.XV-1**.

XVI. UTILITIES AND SERVICE SYSTEMS

Utilities are typically provided to development projects by a variety of local purveyors (e.g., city, county, special district, water agency, or school district). The services available vary depending on the level of development in the area. This project would not exceed wastewater treatment requirements of the RWQCB, require expansion of existing wastewater treatment facilities, or require construction of additional facilities. The project would not require the expansion of existing stormwater drainage facilities or the construction of additional facilities. The project would not require the use of any water, so it will not affect water resources. The project would not have an impact on landfill services. The project would comply with any applicable federal, state, and local statutes that pertain to solid waste. The only utility that the project would require is electrical power for the OP-AMP/regenerator stations. Therefore, no further discussion of the utilities and service systems setting is necessary.

Dig Alert, *One-Call*, or a similar underground utility contractor would be contacted to determine the locations of subsurface utilities before construction. All railroad companies would be notified of construction activities prior to construction. In areas where construction would occur along railroads, specific training may be required by railroad companies before any activities can occur within the respective rights-of-way. Such training would be completed as necessary.