DOE/EA-1383

FINAL ENVIRONMENTAL ASSESSMENT

AMENDMENT OF PRESIDENTIAL PERMIT (PP-68) SAN DIEGO GAS & ELECTRIC COMPANY

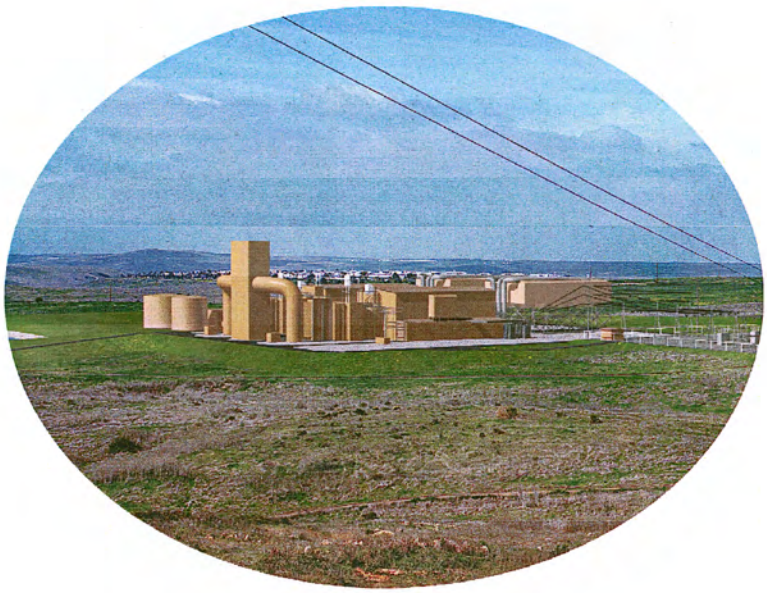
FOR

INTERCONNECTION OF OTAY MESA GENERATING PROJECT

TO

MIGUEL-TIJUANA 230 kV TRANSMISSION LINE

SAN DIEGO, CALIFORNIA



U.S. DEPARTMENT OF ENERGY
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1.1 BACKGROUND

San Diego Gas & Electric (SDG&E) applied in 1979 to the Economic Regulatory Administration (ERA) of the U.S. Department of Energy (DOE) for a Presidential Permit. The Presidential Permit was required to construct, maintain, and operate a 230 kV transmission line from SDG&E's Miguel substation to the international border where the line connects to the Comision Federal de Electricidad (CFE) de Mexico transmission system. SDG&E applied for the Presidential Permit in accordance with Executive Order 10485 dated September 3, 1953. Additionally, Executive Order 12038 states that before a Presidential Permit may be issued, the action must be found to be consistent with the public interest. The two criteria used by DOE to determine if a proposed project is consistent with the public interest are:

1. Environmental impact (assessed in accordance with the National Environmental Policy Act [NEPA] of 1969); and

2. Impact on electric reliability.

After compliance with NEPA and satisfaction of the electric reliability criteria, Executive Order 12038 requires DOE to obtain concurrence from the Secretary of State and the Secretary of Defense before a permit may be issued.

DOE and the California Public Utilities Commission (CPUC) issued a Final Environmental Impact Statement/Environmental Impact Report (DOE/EIS-0067/CPUC-A-59172; SCH-7905 1403) for SDG&E's proposed 230 kV international transmission line in October 1980. The proposed action was approved, Presidential Permit 68 was issued, and construction of the 230 kV transmission line was completed in 1981.

Otay Mesa Generating Company, LLC (OMGC) proposes to construct a nominal 510 megawatt (MW) combined cycle, natural gas-fired power plant on east Otay Mesa in southwestern San Diego County adjacent to the existing Miguel-Tijuana 230 kV transmission line. OMGC proposes to interconnect the Otay Mesa Generating Project (OMGP) to the SDG&E grid. Interconnection of the OMGP to the SDG&E grid will require significant modification of the existing Miguel-Tijuana transmission line and, therefore, an Amendment to Presidential Permit 68. This Environmental Assessment addresses the environmental impacts of the proposed interconnection activities in accordance with NEPA.

OMGC filed an Application for Certification (AFC) for the OMGP with the California Energy Commission (CEC) in August 1999 (99-AFC-5). The AFC is a comprehensive document and the CEC's AFC licensing process is the functional equivalent of an Environmental Impact Report in accordance with the California Environmental Quality Act. The AFC for the OMGP addresses the environmental impacts associated with the power plant and all ancillary facilities including the electrical transmission facilities addressed in this EA. On April 19, 2001, the CEC completed its licensing process and approved OMGC's proposal to construct the power plant.

The proposed modifications to the existing Miguel-Tijuana 230-kV transmission line are required in order to connect the OGMP to the SDG&E electrical grid without causing a reliability problem on the existing electrical system. The environmental impacts associated with construction and operation of OGMP are addressed in this EA. Because the CEC has already approved construction of OGMP after completing an extensive environmental review during the AFC process, DOE will summarize and incorporate by reference in this EA the findings contained in the CEC's environmental review document.

1.2 SCOPE OF PROJECT

The proposed project consists of the following components:

- Construction of a new 230 kV switchyard on the northeast portion of the 46-acre Otay Mesa Generating Plant Site;

- Construction of a short electrical transmission interconnection between the plant switchyard and the existing 230 kV double circuit Miguel-Tijuana line; and

- Reconductoring of the existing Miguel-Tijuana 230 kV line between the interconnection point and the existing Miguel substation approximately 9 miles north of the interconnection point.

These facilities are necessary to interconnect the proposed Otay Mesa Generating Project to the SDG&E grid based on interconnection studies performed by SDG&E and review by the California Independent System Operator (Cal ISO).

The proposed project for the purposes of this EA includes construction, operation and maintenance, and abandonment of the interconnection related facilities. The transmission line portions of the proposed project would be constructed and operated by SDG&E, which is a publicly regulated utility. The new 230 kV switchyard would be constructed either by SDG&E or OMGC and would be operated by SDG&E.

1.3 PURPOSE AND NEED

NEPA requires federal decision makers to consider the environmental impacts of federal actions. In this proceeding, the federal action is the issuance (or denial) of an Amendment to existing Presidential Permit 68. The "Purpose and Need" for the proposed action is as follows: OMGC proposes to build a nominal 510 MW, state of the art, natural gas fired power plant on East Otay Mesa. There has not been a power plant sited in San Diego County in over 20 years, during which San Diego's electrical demand (i.e., load) has increased. San Diego is a growing region in an area with limited power import capability. The California ISO believes that the import-constrained San Diego area system today needs some 200 MW of added generation or power import capacity to meet ISO reliability criteria. The OMGP is in direct response to the critical need in San Diego for additional capacity.

The OMGP proposes to be connected to the SDG&E grid in order to transmit and distribute the generated electricity. Interconnection studies performed by SDG&E determined that interconnection of the OMGP to the SDG&E grid would require reconductoring part of the existing Miguel-Tijuana line between the new plant and the Miguel substation. No other feasible alternatives for interconnecting the OMGP to the SDG&E grid have been identified.

Issuance of an Amendment to Presidential Permit 68 by DOE would allow SDG&E to modify the Miguel-Tijuana line and interconnect the OMGP to the SDG&E grid.

Denial of the Amendment by DOE would mean that the Miguel-Tijuana line could not be modified and the OMGP would not be able to interconnect to the SDG&E grid via the Miguel substation. Denial of an Amendment to the permit (No Action Alternative) would maintain the status quo.

1.4 AGENCY ACTIONS

1.4.1 Federal

1.4.1.1 U.S. Department of Energy

The proposed modification of the existing 230 kV Miguel-Tijuana transmission line to allow the OMGP to interconnect to the SDG&E grid would require DOE to approve and issue an Amendment to existing Presidential Permit 68 (PP-68). DOE's decision must consider whether or not the action is consistent with the public interest, including consideration of environmental and electric reliability issues. DOE's conditions for PP-68 include compliance with California Public Utilities Commission (CPUC) General Order No. 95. DOE is responsible for ensuring that the National Environmental Policy Act is complied with for actions involving modification of the Miguel-Tijuana line. The OMGP includes proposed

modifications to the Miguel-Tijuana line that fall under the scope of DOE's NEPA review, i.e., the plant switchyard, the short 0.1-mile interconnect, and the approximately 9.05 miles of reconductoring to be performed along the Miguel-Tijuana line. The California Energy Commission (see Section 1.4.2.1) has the responsibility for ensuring that the overall project complies with the California Environmental Quality Act and the Warren-Alquist Act.

1.4.1.2 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service is responsible for ensuring that the Federal Endangered Species Act is complied with. SDG&E has an existing Subregional Natural Community Conservation Plan (NCCP) (SDG&E, 1995) which addresses compliance procedures for all state and federal species of potential concern for this project (along the existing Miguel-Tijuana line) except the federally listed quino checkerspot butterfly. The EPA Region IX has initiated Section 7 Consultation with the U.S. Fish and Wildlife Service regarding potential quino checkerspot butterfly impacts associated with the OMGP as part of the CEC licensing process for that project (including transmission line reconductoring to the Miguel substation). The U.S. Fish and Wildlife Service issued a Biological Opinion on November 22, 2000. Reconductoring of the Miguel-Tijuana line will require compliance with the conditions specified by the U.S. Fish and Wildlife Service relative to protection of the quino checkerspot butterfly. Refer to Section 4.2.1.5 (Wildlife) and Appendix A for more information.

1.4.2 Other Agency Actions

1.4.2.1 California Energy Commission

OMGC submitted an Application for Certification (AFC) (99-AFC-5) to the CEC in August 1999 for a power plant and other ancillary service facilities. The AFC addresses the entire OMGP, including the switchyard, short interconnection to the Miguel-Tijuana line, and the proposed reconductoring of the Miguel-Tijuana line up to the Miguel substation. The CEC approved construction of the OGMP on April 18, 2001. DOE has the authority to approve the proposed modificationf to the Miguel-Tijuana transmission line.

1.4.2.2 California Department of Fish and Game

The California Department of Fish and Game (CDFG) is responsible for ensuring compliance with the California Endangered Species Act. CDFG is coordinating with the USFWS and CEC to ensure compliance as part of the CEC licensing process for the OMGP, which includes the proposed modifications to the Miguel-Tijuana 230 kV transmission line.

1.4.2.3 State Historic Preservation Office

DOE (lead federal agency) in consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation is responsible for compliance with the National Historic Preservation Act. Compliance includes identification of potentially affected significant resources and, as applicable, development of appropriate avoidance and mitigation measures, including implementation of procedures for dealing with any cultural resources discovered during construction activities.

1.4.2.4 San Diego County

San Diego County, in conjunction with the CEC, is reviewing the consistency of the OMGP, including the proposed 230 kV switchyard addressed in this EA, with County policies and design guidelines. The County's primary planning document pertaining to the OMGP/switchyard is the East Otay Mesa Specific Plan (San Diego County, 1994). The primary County compliance items are related to land use compatibility and zoning consistency, site design, grading, and drainage. The County's review and approval process considers the proposed 230 kV switchyard to be part of the overall OMGP. The San Diego County Board of Supervisors voted unanimously on April 12, 2000 recommending that the CEC approve the OMGP.

The CEC's licensing decision for the OMGP, including Conditions of Approval, will consider input from San Diego County.

2.0

PROPOSED ACTION AND ALTERNATIVES

The objective of this Environmental Assessment is to evaluate the proposed action and alternatives in accordance with NEPA. Interconnection studies performed by SDG&E and reviewed by the California ISO determined that interconnection of the Otay Mesa Generating Project to the SDG&E electrical grid requires reconductoring of the existing Miguel-Tijuana 230 kV transmission line from the plant to SDG&E's Miguel substation. The proposed OMGP is located adjacent to the existing Miguel-Tijuana 230 kV transmission line, which facilitates efficient, low impact interconnection to the SDG&E electrical grid. No other feasible alternatives for interconnecting the OMGP to the SDG&E grid have been identified. The only identified alternative to the proposed action is the No Action Alternative.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, SDG&E would not construct or operate the proposed facilities for interconnecting the OMGP to the SDG&E grid. Under the No Action Alternative, Presidential Permit 68 would not be amended by DOE, the existing Miguel-Tijuana line would not be modified/reconductored, and the OGMP would not be constructed. Potential benefits from the project, as summarized in Section 1.3 (Purpose and Need), would not be realized. Potential impacts related to the project, whether short or long term, direct or indirect, project specific or cumulative, would not occur.

If the proposed amendment of Presidential Permit PP-68 is not granted, the OMGP would not be able to interconnect to the SDG&E grid via the Miguel-Tijuana line and the Miguel substation. Overall, there would be a loss of economic benefits associated with the project, including: 1) its contribution to a safe and reliable energy supply; 2) purchase of equipment and materials; 3) construction costs, labor costs; 4) local infrastructure improvements; and 5) local tax revenues.

2.2 PROPOSED ACTION

Interconnection of the OMGP to the SDG&E grid involves the following components, which constitute the proposed project:

- Construction of a 230 kV switchyard encompassing approximately 5 acres on the northeast portion of the 46-acre power plant site (see Figures 2-1 and 2-2);

- Construction of an approximately 0.1-mile-long electrical transmission interconnection from the plant switchyard to the existing Miguel-Tijuana line (see Figure 2-3 and the initial 0.1 mile of Route 1 on Figure 2-2); and

- Reconductoring of the Miguel-Tijuana 230 kV line to the Miguel substation approximately 9 miles north of the interconnection point (see Route 1 on Figures 2-1 and 2-2).

The interconnection of the OMGP would require modification of the existing Miguel-Tijuana 230 kV transmission line, thereby requiring an amendment to Presidential Permit 68 as discussed in the following section.

2.2.1 Proposed Amendment to Presidential Permit (PP-68)

As discussed in Section 1.1 (Background), DOE issued Presidential Permit 68 to SDG&E in 1980 to construct, operate, and maintain the Miguel-Tijuana international transmission line between the U.S./Mexico border and the Miguel substation approximately 10 miles to the north. The Miguel-Tijuana line connects to the CFE system at the U.S. international border. Presidential permits are required for construction and operation of electric transmission lines that cross the U.S. international border. Before a Presidential Permit can be issued, the action must be found to be consistent with the public interest considering: 1) environmental impact; and 2) impact on electric reliability. Environmental impacts are assessed in accordance with NEPA. DOE considers the effect that the proposed project would have on the operating reliability of the U.S. electric power supply system – i.e., the ability of the existing generation and transmission system to remain within acceptable voltage, loading and stability limits during normal and emergency conditions. Standards that DOE applies include those of the North American Electric Reliability Council (NERC) and the standards of the member regional reliability councils and/or Independent System Operators.

The proposed project would involve modification of the Miguel-Tijuana international line, which would require an Amendment by DOE of Presidential Permit 68. Before DOE can amend Presidential Permit 68, DOE must make a determination that the project and associated modification of the Miguel-Tijuana line are in the public interest.

This EA addresses the environmental impact aspect of DOE's public interest determination for the proposed project. The interconnection studies performed by SDG&E and reviewed by the California ISO determined that the proposed project modifications to the Miguel-Tijuana line would not adversely impact electric reliability. DOE will consider the results of the findings in this EA as well as the findings in its independent electric reliability review in its decision on whether or not to approve an amendment to Presidential Permit 68.

2.2.2 Description of Proposed Project Components and Activities

2.2.2.1 Otay Mesa 230 kV Switchyard

The proposed Otay Mesa 230 kV switchyard is located on the northeast portion of the 46-acre Otay Mesa Generating Plant site. The proposed switchyard encompasses approximately 5 acres and would be constructed within the fenced boundary of the OMGP. The switchyard would be constructed simultaneously with the overall OMGP including site preparation and grading, drainage and erosion control, and equipment installation, site cleanup, and final landscaping activities. The primary components of the proposed switchyard are:

- Interconnections to step-up transformers at generating plant
- Switchyard control building
- Circuit breakers and disconnect switches
- Switchyard busses and towers.

A schematic diagram of the proposed switchyard function is presented on Figure 2-4. The Otay Mesa 230 kV switchyard would be constructed as an ultimate Breaker-and-a-Half, and be initially configured as a 5-element ring bus.

2.2.2.2 Loop in Miguel-Tijuana 230 kV Line to Otay Mesa Switchyard

Interconnection of the OMGP to the SDG&E electrical grid requires that the existing Miguel-Tijuana 230 kV transmission line be looped in (i.e., connected) to the new Otay Mesa 230 kV switchyard. Additionally, SDG&E and the California ISO have determined that the cross tripping protective scheme on the Miguel-Tijuana line will need to be transferred to the Otay-Tijuana 230 kV line.

The interconnection between the Otay Mesa 230 kV switchyard and the existing Miguel-Tijuana 230 kV line will involve construction of approximately 0.1 mile of new 230 kV transmission lines (3 circuits) between the pull off structures in the new switchyard (see Figure 2-3) and two new steel lattice, double circuit structures to be added and inserted in the existing Miguel-Tijuana line right of way. The new interconnection loop-in line would be suspended between the pull off structures in the switchyard and the new lattice structures to be inserted in the Miguel-Tijuana right of way to tap the existing line as shown on Figure 2-3. The design of the steel lattice, double circuit, deadend structures to be inserted in the Miguel-Tijuana right of way is shown on Figure 2-5. Alternately, steel pole structures (Figure 2-6) may be used instead of lattice steel structures. The loop in lines will be designed to provide at least 30 feet of conductor-to-ground clearance at the lowest point in the span under the maximum sag condition. The steel lattice, 230 kV structures will have anchor bolt

foundations. Access to the new structures will be via the existing SDG&E access road along the ROW in this area.

2.2.2.3 Reconductor Miguel-Tijuana 230 kV Line

SDG&E's 230 kV Miguel-Tijuana line consists of double-circuit construction on steel lattice structures. The existing conductor is a single 1033.5-kcmil ACSR "Ortolan" per phase. However, existing towers and fittings are designed for two such conductors per phase. Load-flow calculations indicate that this conductor will not be thermally adequate for the delivery of OMGP power to the SDG&E Miguel substation under certain system configurations.

The proposed transmission upgrades to interconnect the OMGP up to the Miguel substation include reconfiguring the existing 230 kV circuit from the Otay Mesa 230 kV switchyard site to Miguel into 2 separate circuits with two conductors per phase (i.e., 12 total conductors versus 6 that currently exist). The two bundled circuits are proposed to eliminate thermal overloads, and to maintain the reliability of the SDG&E system in accordance with applicable standards.

The portion of the existing Miguel-Tijuana line to be reconductored is shown on Figures 2-1 and 2-2. The 230 kV line from the new Otay Mesa switchyard to Tijuana would remain a twinned single circuit.

The proposed project will change the existing electric fields by a small amount compared with SDG&E's existing 230 kV lines (and 69 kV lines where parallel). This change is due to proposed bundling and phase re-arrangement of the two circuits. The estimated maximum electric field strength at the edge of the right of way following reconductoring is 0.18 kV/m. The estimated maximum electric field strength at this same location under existing conditions is 0.15 kV/m (i.e., project will increase by 0.03 kV/m). This is calculated using Bonneville Power Administration's Corona and Field Effects program with conductors at a minimum height of 30 feet at mid-span for the existing SDG&E 230 kV configuration. The electric field is not affected by the value of load carried by the line.

Overview of Construction Activities. Reconductoring of the existing Miguel-Tijuana 230 kV transmission line will require light vehicle access to each structure, and heavy equipment access to conductor pull sites at major angle points along the line and at double dead-end structures. Six pull sites will be needed to perform the reconductoring activities. The pull sites will typically require two working areas that are approximately 150 feet wide by 300 feet long. The southernmost pull site complex in the vicinity of the plant switchyard/0.1 mile interconnect to the Miguel-Tijuana line will require four working areas. The access road and trail network along the SDG&E right of way will be utilized during construction. No new roads are proposed. The existing SDG&E right of way is adequate for the proposed reconductored line. Limited, if any, vegetation clearing is expected to be required due to the

existing access and the lack of trees and large shrubs along the transmission route. The Otay Mesa switchyard and the Miguel substation will be used for material and equipment storage and laydown.

Reconductoring activities are expected to require 3-4 months to complete and the workforce is expected to range from 10 to 20 workers.

Following completion of reconductoring activities, disturbed portions of the right of way, tower bases, and pull site locations will be restored, as practical, in accordance with standard SDG&E practices, DOE's PP-68 stipulations, and CPUC GO 95, as applicable.

Operation and Maintenance. Reconductoring of the Miguel-Tijuana line between the plant site and the Miguel substation will not require any modification to the current operation and maintenance procedures employed by SDG&E along the right of way. SDG&E will continue to operate and maintain the transmission line and right of way in accordance with applicable SDG&E CPUC, and DOE/EPA guidelines and requirements, including those specified in PP-68.

Abandonment. SDG&E has no plans to abandon the Miguel-Tijuana 230 kV transmission line in the foreseeable future. The planned economic life of the OMGP is 30 years. If the OMGP is decommissioned in the future, SDG&E may apply for another amendment to the Presidential Permit to disconnect the Otay Mesa switchyard and remove the loop-in interconnection, as appropriate, based on electrical grid conditions at that point in time. Biological mitigation for the Otay Mesa switchyard developed as part of the CEC AFC process for the OMGP is based on the assumption that the switchyard area will be permanently disturbed as part of the overall Otay Mesa Generating Plant. Therefore, there are no current plans to reclaim the switchyard area should it be decommissioned in the future.

2.2.3 Applicant's Proposed Environmental Protection Measures

SDG&E and OMGC are committed to environmental protection. The impact assessments presented in Section 4.0 of this EA include consideration of the general measures presented in Section 2.2.3 as well as those discussed in Section 4.0. A summary list of applicant-committed environmental protection measures is presented in Appendix A.

2.2.3.1 Otay Mesa Switchyard

The Otay Mesa switchyard will be constructed as part of the overall Otay Mesa Generating Plant site development. Environmental protection measures will be implemented in accordance with the CEC's Compliance Conditions for the OMGP. The CEC's conditions consider input from San Diego County, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the public. As applicable, the Applicant is also committed

to implementing environmental protection measures for cultural resources, biology, soil erosion, and water resources in accordance with DOE's stipulations in PP-68. Although PP-68 does not address the Otay Mesa switchyard, the Applicant is committed to complying with the intent of DOE's measures.

2.2.3.2 Interconnect and Reconductoring of Miguel-Tijuana Line

SDG&E will construct, operate, and maintain the new, short 0.1 mile long interconnection and the portion of the Miguel-Tijuana line to be reconductored in accordance with standard SDG&E practices which stress environmental protection. Additionally, SDG&E will comply with the provisions of its Subregional Natural Community Conservation Plan for protection of sensitive biological habitat. SDG&E will also comply with DOE's stipulated environmental protection procedures in PP-68, including amendments. DOE's stipulations include compliance with CPUC GO 95 (CPUC, 1941), which includes requirements related to transmission line design and safety. The Applicant will also implement environmental protection measures specified in the CEC's Compliance Conditions, as applicable, for the transmission component of the project.

2.3 INTERRELATIONSHIP WITH OTHER PLANNED PROJECTS

2.3.1 Otay Mesa Generating Project

Otay Mesa Generating Company, LLC proposes to construct a nominal 510 megawatt (MW) combined cycle, natural gas fired power plant on east Otay Mesa adjacent to the existing Miguel-Tijuana 230 kV line (refer to Figures 2-1 and 2-2). The proposed interconnection project addressed in this EA is a subset of the overall Otay Mesa Generating Project. Refer to Section 1.1 (Background) for more information.

2.3.2 SDG&E Transmission System

Based on the California Independent System Operator's review (Cal ISO, May 19, 2000) of SDG&E's Facilities Study Final Report (dated May 9, 2000) for the Otay Mesa Generating Project, no project specific transmission system improvements beyond the Miguel substation are necessary to interconnect the OMGP to the SDG&E grid.

Figure 2-1

REGIONAL LOCATION MAP

(B&W; 8-1/2 x 11) (Landscape)

Figure 2-2

LOCATION OF PROJECT COMPONENTS

(B&W; 8-1/2 x 11, 3 pages) (Landscape)

Figure 2-2 (Continued)

Figure 2-2 (Continued)

Figure 2-3

TRANSMISSION INTERCONNECTION FROM SWITCHYARD TO MIGUEL-TIJUANA LINE

(B&W; 8-1/2 x 11) (Portrait)

Figure 2-4

SCHEMATIC DIAGRAM OF SWITCHYARD FUNCTION

(B&W; 8-1/2 X 11) (Portrait)

(In progress, R Ray)

Figure 2-5

TYPICAL CROSS-SECTION OF STEEL LATTICE DEADEND STRUCTURE

(B&W; 8-1/2 x 11) (Portrait)

Figure 2-6

TYPICAL CROSS SECTION FOR STEEL POLE STRUCTURE

(B&W; 8-1/2 x 11) (Portrait)

3.1 AIR QUALITY

3.1.1 Climate and Meteorology

The project area is located in southwestern San Diego County. In general, San Diego County has a subtropical climate with large-scale wind and temperature regimes controlled by the proximity of the Pacific Ocean and the seasonal migration of the Pacific high-pressure system. As a result, summers are cool and winters warm in comparison to other locations. Temperatures below freezing occur on an infrequent basis, as do temperatures over 100°F. Extremes in temperature become more pronounced as distance inland from the ocean increases.

Wind flows are predominantly westerly and the average wind direction during the months of February through October is from the west-northwest. During November through January, the average wind flow is from the northeast. Wind speeds over the project region average from five to eight miles per hour. Based on data from the National Climatic Data Center (NCDC, 1993), the maximum wind gusts occur in winter and have speeds of approximately 45 miles per hour.

Temperatures in the project area range from an average of 57 degrees in December and January to 72 degrees in August. Relative humidity at Miramar Air Station, which is approximately 20 miles northwest of the OMGP, averages 58 percent during daytime and 74 percent during the nighttime. Conditions further inland at the project area are expected to be somewhat less humid. Precipitation in the vicinity of Miramar averages approximately 10.6 inches per year, with most of the precipitation occurring during winter.

3.1.2 Existing Air Quality

Ambient air quality data are collected at several locations in San Diego County, including the Otay Mesa/Paseo International border crossing and the Chula Vista monitoring station. As the closest available monitoring station, the Chula Vista monitoring station data have been selected to represent background conditions.

The Chula Vista station data show violations of the state PM_{10} standards for both the annual and 24-hour averaging periods. State standards for annual and 24-hour averaging periods are 30 $\mu g/m^3$ and 50 $\mu g/m^3$, respectively. Windblown soils are expected to be a major contributor to these exceedances. The Chula Vista data indicate compliance with the state and federal standards for SO_2, CO, and NO_2, and federal PM_{10} standards. $PM_{2.5}$ has not been addressed

here as there are no existing state or federal $PM_{2.5}$ standards. The EPA is currently in the process of developing a standard to address $PM_{2.5}$ emissions.

3.2 GEOLOGY, SOILS, AND SEISMICITY

3.2.1 Physiography and Geology

The project area is located in the south central portion of the Peninsular Ranges Physiographic Province. The Peninsular Ranges, which extend from the Los Angeles Basin southward nearly 800 miles (1300 km) well beyond the international border, are one of the largest geologic units in western North America (Norris and Webb, 1990).

Segment A-B of the electrical transmission line corridor lies between the northeast corner of the proposed Otay Mesa Generating Plant site and the existing Miguel-Tijuana 230 kV line that just skirts the site. The segment is approximately 0.1-mile long and crosses the rocky lower slope of the adjacent San Ysidro Mountains.

The existing transmission line route starts at an elevation of approximately 700 feet (200 m) and crosses terrain consisting of mesas dissected by steep-sided canyons. According to the DOE Final EIS/EIR (USDOE, 1980), the route is in an area where "several rugged mountain ranges dominate...[and]...include San Miguel Mountain, Jamul Mountains, and San Ysidro Mountains, with maximum elevations of 2,565, 3,738, and 3,572 feet, respectively. The valley of the Sweetwater River lies to the north of San Miguel Mountain, while three tributaries of the Otay River drain the major part of the eastern mountainous sector...(Abbott and Victoria, 1977)."

The major canyon crossings are described below:

Milepost 1.0 to 1.2: At the transmission line crossing, O'Neal Canyon has about 300 feet (90 m) of relief between about elevation 400 feet (120 m) and 700 feet (200 m). O'Neal Canyon drains toward the north into Otay Valley.

Milepost 2.2 to 3.2: At the transmission line crossing, Otay Valley has about 240 feet (70 m) of relief between about elevation 500 feet (150 m) and 260 feet (80 m). Otay Valley drains toward the west into San Diego Bay.

Milepost 5.7 to 6.1: At the transmission line crossing, Poggi Canyon has about 300 feet (30 m) of relief between about elevation 560 feet (150 m) and 260 feet (80 m). Otay Valley drains toward the west into San Diego Bay.

Milepost 6.4 to 7.0: At the transmission line crossing, Telegraph Canyon has about 100 feet (30 m) of relief between about elevation 600 feet (180 m) and 500 feet (150 m). Telegraph Canyon drains southwest into Otay Valley.

Milepost 7.7 to 8.0: At the transmission line crossing, Proctor Valley has about 150 feet (45 m) of relief between elevation 650 feet (195 m) and 500 feet (150 m). Proctor Valley drains northwest into Sweetwater Reservoir.

The stratigraphy beneath the electric transmission route, from oldest to youngest, consists of pre-Cenozoic basement complex, an unnamed fanglomerate subunit of the Sweetwater Formation, the Oligocene Otay Formation, the Pleistocene Lindavista Formation and Quaternary terrace, valley fill and bay fill.

3.2.2 Geologic Hazards

As the most recent data available, Kennedy and Tan (1977), the most recent data available, show that there are no folds or faults mapped along the transmission line route.

The nearest faults are part of the La Nacion fault zone, more than about 2 miles (3 km) to the west of the transmission line route. Simons (1977) noted that La Nacion fault zone was active during the Pleistocene and possibly could have been active within Holocene time.

The USDOE has previously concluded in the Final EIS/EIR (1980) that no active faults are known to pass through the study area. The Otay Valley fault is an inferred fault that has been hypothesized to occur in the alluvium beneath Otay Valley.

The closest Alquist-Priolo earthquake fault zone to the transmission corridor is that of the Rose Canyon fault which is located about 10 miles to the west.

No known active (Holocene) or potentially active (Quaternary) faults cross the transmission line corridor (Jennings, 1994). The potential for significant ground shaking due to earthquakes exists. However, the hazard from ground rupture is negligible.

Landsliding is a potential hazard along portions of the route as itemized in Table 3.2-1. Areas underlain by the Mission Valley and Otay Formations are particularly susceptible to landsliding due to the relatively high content of expansive clays (USDOE, 1980).

The groundwater level is more than 80 feet below the proposed bottom of tower structure foundations at the plant switchyard and at the loop-in point on the Miguel-Tijuana line, thus, the potential for liquefaction is considered extremely remote.

TABLE 3.2-1

GEOLOGICAL AND HYDROLOGICAL CHARACTERISTICS ALONG 230 KV LINE TO BE RECONDUCTORED

	Geological and Hydrological Characteristics			
Milepost along 230 kV Line	**Geologic Unit and Setting[1]**	**Possible Geologic Hazards[2]**	**Probable Depth to Ground Water (feet)[3]**	**Estimated Depth to Bedrock (feet)[4]**
MP 0.0 to 0.05	Jsp; some boulders	3-1	>50	<10
MP 0.65 to 0.9	To	3-1	>50	>50
MP 0.9 to 1.0	Tfg	3-2	>10-50	>10-50
MP 1.0 to 1.2	Jsp; some boulders			
MP 1.2 to 2.2	Tfg	3-1	>50	>50
MP 2.2 to 2.4	Tfg	4-1	>50	>50
MP 2.4 to 2.85	Qal	2	10-50	>50
MP 2.85 to 3.0	Qt	3-1	>50	>50
MP 3.0 to 3.5	Tfg	3-1	>50	>50
MP 3.5 to 3.7	Qal	2	10-50	>50
MP 3.7 to 4.2	Tfg	3-1	>50	>50
MP 4.2 to 7.7	To	3-1	>50	>50
MP 7.7 to 7.8	Kgrd	3-1		
MP 7.8 to 9.15	To	3-1	>50	>50

TABLE 3.2-1

(Continued)

Notes:

(1) Geologic Unit & Setting: Geologic units from Weber, Jr., (1963) Kennedy and Tan (1977) and WCC and Bechtel (1978) and Setting from evaluations for 1999 AFC (OMGC, 1999) from aerial photographs (Flown 4/7/97) and ground survey.

Qal Valley and artificial fill; Quaternary consisting of alluvium filling valleys in the Otay River Valley and Johnson Canyon in the area of the plant switchyard site and several other canyons along the 230 kV electric transmission line linear and reworked soil cover for agricultural and urban purposes.

Ql Lindavista Formation as defined by Kennedy and Tan (1977); Pleistocene; a veneer over San Diego Formation and Otay Formation in areas west of plant switchyard site; interbedded sandstone and conglomerate cemented by hematite (Kennedy and Tan, 1977) which locally is very cemented (WCC and Bechtel, 1978); thin residual soil cover that typically contains expansive soil (WCC and Bechtel, 1978).

Tsd San Diego Formation as defined by Cleveland (1960) and Kennedy and Tan (1977) and used by WCC and Bechtel (1978); Pliocene is soft and poorly cemented, fine- to medium-grained sandstone that has scattered zones that are cemented and widely scattered conglomerate; thin to moderate soil cover (WCC and Bechtel, 1978).

To Including Sweetwater and Otay Formations as defined by Kennedy and Tan (1977); the principal member in the area of the plant switchyard site and 230 kV line is the Otay Formation (To), which is mainly a poorly indurated, massive sandstone with minor claystone; bentonite mapped in this unit on Otay Mesa by Cleveland (1960); moderate to thick residual cover (WCC and Bechtel, 1978).

Tfg Unnamed Eocene fanglomerate as defined by Kennedy and Tan (1977), subsequently correlated with the Sweetwater Formation (Kuper, 1977) metavolcanic boulders cemented by a matrix of bentonite; fills buried basement complex canyons; thin residual cover.

Tp Poway Group as used in WCC and Bechtel (1978), including the Mission Valley Formation located to the west of the switchyard area and area of 230 kV line, which predominately consists of medium-grained sandstone that characteristically is soft and friable; thin to moderate residual soil cover (WCC and Bechtel, 1978).

Kgrd Basement Complex consisting of Cretaceous granitic rock; typically has thin residual soil cover.

Jsp Basement Complex mainly consisting of upper Jurassic Santiago Peak metavolcanic rock; typically has thin residual soil cover.

(2) Possible Geologic Hazards: Faulting evaluation for this report and landslide potential based on Tan (1995).

1 Least susceptible to landsliding; typically includes areas with slopes less than 5 degrees.

2 Marginally susceptible to landsliding; typically includes bottoms of broad valleys and broad, elevated Pleistocene terrace deposits where slopes are 5 to 15 degrees.

3-1 Generally susceptible to landsliding where slopes are near or at stability limits due to a combination of weak materials and slopes exceeding 15 degrees.; most areas do not contain mapped landslides.

3-2 Generally susceptible to landsliding where slopes generally with heights exceeding 250 feet and slopes exceeding 25 degrees; debris flows and rock falls possible that could impact adjacent areas.

4-1 Most susceptible to landsliding where slopes are considered naturally unstable that does not have mapped landslides but contains but contains material from formations such as the Otay Formation where expansive clays have been mapped.

4-2 Most susceptible to landsliding where landslides have been mapped and nearby areas are unstable.

TABLE 3.2-1

(Continued)

(3) Probable Ground Water Conditions:

>50 Ground Water greater than about 50 feet (15 m) below ground surface.
10-50 Ground Water between about 10 and 50 feet (3 and 15 m) below ground surface.
<10 Ground Water within 10 feet (3 m) of ground surface.

(4) Estimated Depth to Bedrock: Estimates based on drilling at plant switchyard site or general observations in the field or in the case of shallow rock from aerial photographs taken 4/7/97; where no specific evidence is available the depths given in ranges between 10 and 50 feet (3 and 15 m) or where some specific information such as drilling, the estimate is given outside this range.

80 or >80	Bedrock either at a specific depth based on drilling or in some bracketed by drilling data at plant switchyard site.
50-80	Bedrock greater than about 50 feet (15 m) below ground surface.
10-50	Bedrock between about 10 and 50 feet (3 and 15 m) below ground surface.
<10	Bedrock within 10 feet (3 m) of ground surface.

Another potential hazard is seiches which are seismically-induced waves in enclosed water bodies such as Lower Otay Reservoir which is upstream of the transmission line at about MP 3.0.

3.2.3 Mineral Resources

Extractable resources occurring within the project region include clay (particularly bentonite), sand, gravel, crushed stone, dimensioning stone, dolomite, salt, magnesium chloride and pyrophyllite. However, by the late 1950s sand, gravel and crushed stone constituted about 94 percent of the total value of the mineral output of the county (Weber, Jr., 1963). Bentonite clay deposits were identified near the Lower Otay Dam and near Alta Road, but in 1960 both deposits were judged not to be of commercial grade or quantity (Cleveland, 1960).

3.2.4 Soil Erosion and Sedimentation

The terrain crossed by the electric transmission line route consists of dissected terrace underlain by rock and soil of the Otay Formation of the Rosarito Beach Formation. The Otay Formation consists of massive sandstone and claystone. Locally, the sandstone is moderately well-cemented. The regional climate is semiarid and significant runoff only occurs during short term, high intensity storms when erosion and sedimentation are typically confined to existing incised drainages and canyons. The headward growth or sedimentation of existing gullies or the formation of new gullies only occurs infrequently during intense rainfall or prolonged rainfall events.

There are five major soil associations that occur in the study area. The five units are the Exchequer-San Miguel and the Friant-Escondido associations, which are sandy loam soils of the eastern mountainous sections; the Diablo-Altamont association, which are clay soils associated with the mesas on the north and south of the Otay River Valley and the Redding-Olivehain and Huerhuero-Stockpin associations, which are gravely and cobbly loams in the vicinity of the Lower Otay Reservoir and the well-drained to gravely clay loams in the areas of Otay Mesa, respectively (USDOE, 1980).

Seventeen different soil mapping units have been identified along the existing 9.15-mile-long 230 kV transmission line (OMGC, 1999). The surface textures of these soils are generally clays, loams and cobbly loams.

For the soils along this route, the potential for water erosion ranges from moderate (e.g., Diablo clay and Olivenhain Cobbly Loam) to high (e.g., Huerhuero loam), and the potential for wind erosion is primarily low (e.g., Diablo, Olivenhain, and Huerhuero series). In

general, the potential for water and wind erosion is primarily low to moderate for the majority of the soils traversed by the transmission line route.

3.3 WATER RESOURCES/FLOODPLAINS

3.3.1 Water Resources

The majority of the project area lies within the Otay Hydrologic Unit in the Otay Valley Hydrologic Area (California Regional Water Quality Control Board [CRWQCB], San Diego Region, 1994). Regional surface water and groundwater flows are generally from east to west.

Annual precipitation is approximately 11 inches per year and the evaporation rate is approximately 53 inches per year (California Department of Water Resources, 1979) which results in minimal groundwater recharge in the project area. The beneficial use designations for groundwater in the project area are municipal and domestic supply, agricultural supply, and industrial service supply (CRWQCB, 1994). However, groundwater from these formations is not used for domestic supplies, irrigation, stock watering or other uses, largely because the quality of existing groundwater in the area is poor. The depth to groundwater in the project region is generally greater than 50 feet.

The portion of the existing Miguel-Tijuana 230 kV transmission line (Route 1) to be reconductored is approximately 9.05 miles long and extends from an interconnect point east of the Otay Mesa plant site to the existing Miguel Substation. Nine stream and drainage crossings occur along the existing 230 kV transmission line route and are listed in Table 3.3-1. These streams and drainages are ephemeral and are shown on Figure 2-2. Most of the study area drains to the south end of San Diego Bay through the Otay River. Runoff from the northern end of the route enters San Diego Bay via Telegraph Canyon and the Sweetwater River.

Surface water bodies in the project region include Lower Otay Reservoir which is located east of the route (MP 3.0) and Sweetwater Reservoir which is located northwest of the Miguel substation (see Figure 3.3-1).

3.3.2 Floodplains

The existing 230 kV line to be reconductored crosses (via spanning) the floodplains of several ephemeral drainages, the most notable of which are listed in Table 3.3-1

TABLE 3.3-1

STREAM OR DRAINAGE COURSE CROSSINGS FOR PORTION OF 230 KV TRANSMISSION LINE TO BE RECONDUCTORED

Stream/Drainage Name	Approximate 230 kV Line Milepost of Crossing[1]
Unnamed drainage near Kuebler Ranch	0.8[2]
O'Neal Canyon	1.1
Otay River	2.6[3]
Salt Creek	3.5[3]
Unnamed tributary of Salt Creek	3.9[2]
Poggi Canyon	6.0
Telegraph Canyon	6.6[3]
Unnamed tributary drainage to Proctor Canyon	7.3[2]
Proctor Valley	7.9

[1] Refer to Figure 2-2 for location of Route (230 kV) and mileposts/drainage course crossing points.

[2] These drainages are minor crossings.

[3] These drainages are designated 100-year floodplains in the crossing locations (see Figure 3.3-1).

A review of available Federal Emergency Management Agency (FEMA) Flood Insurance Route Maps indicate that the existing 230 kV line to be reconductored traverses designated 100-year floodplains in the following areas: Otay River Valley, Salt Creek, and Telegraph Canyon (refer to Figure 3.3-1).

3.4 VEGETATION

The existing transmission line route to be reconductored traverses a variety of land uses, landforms and biological habitats, especially along the southern section of the line. The existing line crosses the lower northwest slopes and alluvial fans of Otay Mountain, the broad river basin of Otay Valley, and extends through the low hills, flats and drainages of Salt Creek Canyon. The plant communities in these areas are mostly successional in nature, and the majority of them have been recently disturbed by the Otay Mountain fire of 1996. They are recovering habitats that, previous to the fire, included coastal scrubs, chaparrals, native grasslands, claypans, and vernal pools. Riparian habitats also occur along this section of the transmission line, and are associated with O'Neal Canyon, the Otay River Valley, and Salt Creek.

North of Salt Creek, the existing transmission line extends northwest through a large area of exotic weeds and cultivated grasses on the rolling agricultural lands of the Otay Ranch. The ranch currently includes leases for cattle grazing. The line then veers north through the uplands that are in the watershed for Poggi and Telegraph canyons. The transmission line corridor is mostly surrounded by urban development in this area. The remaining open spaces include non-native grasslands, occasional shrubs, and landscaping. The line continues north of Proctor Valley Road over a mesa southwest of San Miguel Mountain that is dominated by a single species of exotic grass (purple falsebrome: *Brachypodium distachyon*) that was apparently seeded after an old burn, and includes overlying covers of native grasses and coastal scrubs. The line then turns northwest into the lower Sweetwater River drainage, through sparse scrub and grassland to the Miguel Substation.

Vegetation habitats and sensitive species locations were identified along the transmission line corridor based on existing regional vegetation mapping, aerial photographs and satellite imagery, combined with focused site specific field surveys and mapping in 1997-1999. Vegetation types identified along the existing transmission line route to be reconductored are listed by milepost in Table 3.4-1. Sensitive plant species that have been detected along the transmission route are listed in Table 3.4-2.

The existing Tijuana-Miguel 230 kV transmission line traverses a variety of vegetation types including Diegan coastal sage scrub, nonnative grassland, agricultural land, disturbed habitat, urban/developed land and other areas. Existing access roads to the transmission towers and

TABLE 3.4-1

VEGETATION TYPES IDENTIFIED ALONG TRANSMISSION LINE ROUTE[1]

Route	From (feet)	From (milepost)	To (feet)	To (milepost)	Vegetation Type
1	0.0	0.0	3,179.9	0.6	Non-Native Grassland
1	3,179.9	0.6	3,465.8	0.7	Disturbed Habitat
1	3,465.8	0.7	3,645.6	0.7	Urban/Developed
1	3,645.6	0.7	3,864.8	0.7	Disturbed Habitat
1	3,864.8	0.7	4,008.1	0.8	Valley Needlegrass Grassland
1	4,008.1	0.8	4,010.3	0.8	Disturbed Habitat
1	4,010.3	0.8	5,002.9	0.9	Diegan Coastal Sage Scrub
1	5,002.9	0.9	5,044.7	1.0	Cismontane Alkali Marsh
1	5,044.7	1.0	5,280.0	1.0	Diegan Coastal Sage Scrub
1	5,280.0	1.0	5,294.8	1.0	Diegan Coastal Sage Scrub
1	5,294.8	1.0	5,602.9	1.1	Non-Native Grassland
1	5,602.9	1.1	5,672.5	1.1	Urban/Developed
1	5,672.5	1.1	5,814.6	1.1	Southern Mixed Chaparral
1	5,814.6	1.1	5,937.2	1.1	Maritime Succulent Scrub
1	5,937.2	1.1	6,146.5	1.2	Southern Mixed Chaparral
1	6,146.5	1.2	7,951.2	1.5	Disturbed Habitat
1	7,951.2	1.5	8,283.3	1.6	Diegan Coastal Sage Scrub
1	8,283.3	1.6	8,381.3	1.6	Disturbed Habitat
1	8,381.3	1.6	8,439.9	1.6	Urban/Developed
1	8,439.9	1.6	8,467.5	1.6	Diegan Coastal Sage Scrub
1	8,467.5	1.6	8,974.8	1.7	Native Grassland
1	8,974.8	1.7	9,095.6	1.7	Freshwater Marsh
1	9,095.6	1.7	10,560.0	2.0	Diegan Coastal Sage Scrub
1	10,560.0	2.0	10,890.6	2.1	Diegan Coastal Sage Scrub
1	10,890.6	2.1	11,652.7	2.2	Non-Native Grassland
1	11,652.7	2.2	11,990.5	2.3	Native Grassland
1	11,990.5	2.3	12,193.6	2.3	Diegan Coastal Sage Scrub
1	12,193.6	2.3	12,353.6	2.3	Coastal Sage-Chaparral Scrub
1	12,353.6	2.3	12,563.9	2.4	Southern Riparian Scrub
1	12,563.9	2.4	12,817.4	2.4	Coastal and Valley Freshwater Marsh
1	12,817.4	2.4	13,375.7	2.5	Riparian and Bottomland Habitat
1	13,375.7	2.5	13,474.7	2.6	Tamarisk Scrub
1	13,474.7	2.6	13,567.3	2.6	Riparian and Bottomland Habitat
1	13,567.3	2.6	13,854.1	2.6	Non-Vegetated Channel, Floodway, Lakeshore Frin
1	13,854.1	2.6	13,963.5	2.6	Riparian and Bottomland Habitat
1	13,963.5	2.6	14,078.8	2.7	Non-Vegetated Channel, Floodway, Lakeshore Frin
1	14,078.8	2.7	14,159.1	2.7	Riparian and Bottomland Habitat
1	14,159.1	2.7	14,346.9	2.7	Non-Native Grassland

TABLE 3.4-1

(Continued)

Route	From (feet)	From (milepost)	To (feet)	To (milepost)	Vegetation Type
1	14,346.9	2.7	14,392.8	2.7	Non-Vegetated Channel, Floodway, Lakeshore Frin
1	14,392.8	2.7	14,475.6	2.7	Native Grassland
1	14,475.6	2.7	14,717.6	2.8	Maritime Succulent Scrub
1	14,717.6	2.8	15,139.0	2.9	Native Grassland
1	15,139.0	2.9	15,484.3	2.9	Non-Native Grassland
1	15,484.3	2.9	15,840.0	3.0	Diegan Coastal Sage Scrub
1	15,840.0	3.0	16,253.2	3.1	Diegan Coastal Sage Scrub
1	16,253.2	3.1	16,420.7	3.1	Maritime Succulent Scrub
1	16,420.7	3.1	16,686.3	3.2	Diegan Coastal Sage Scrub
1	16,686.3	3.2	17,255.7	3.3	Native Grassland
1	17,255.7	3.3	17,872.4	3.4	Diegan Coastal Sage Scrub
1	17,872.4	3.4	17,920.6	3.4	Alkali Meadows and Seeps
1	17,920.6	3.4	18,535.7	3.5	Diegan Coastal Sage Scrub
1	18,535.7	3.5	18,698.0	3.5	Native Grassland
1	18,698.0	3.5	19,597.4	3.7	Diegan Coastal Sage Scrub
1	19,597.4	3.7	19,823.1	3.8	Native Grassland
1	19,823.1	3.8	19,945.1	3.8	Coastal Sage-Chaparral Scrub
1	19,945.1	3.8	20,194.1	3.8	Diegan Coastal Sage Scrub
1	20,194.1	3.8	21,120.0	4.0	Non-Native Grassland
1	21,120.0	4.0	21,928.1	4.2	Non-Native Grassland
1	21,928.1	4.2	26,400.0	5.0	Extensive Agriculture
1	26,400.0	5.0	29,430.6	5.6	Extensive Agriculture
1	29,430.6	5.6	31,680.0	6.0	Non-Native Grassland
1	31,680.0	6.0	33,369.8	6.3	Non-Native Grassland
1	33,369.8	6.3	33,484.5	6.3	Extensive Agriculture
1	33,484.5	6.3	33,646.9	6.4	Mule Fat Scrub
1	33,646.9	6.4	34,600.5	6.6	Non-Native Vegetation
1	34,600.5	6.6	35,124.0	6.7	Mule Fat Scrub
1	35,124.0	6.7	35,588.9	6.7	Non-Native Vegetation
1	35,588.9	6.7	35,613.2	6.7	Southern Riparian Scrub
1	35,613.2	6.7	35,903.2	6.8	Non-Native Vegetation
1	35,903.2	6.8	35,994.3	6.8	Urban/Developed
1	35,994.3	6.8	36,570.6	6.9	Diegan Coastal Sage Scrub
1	36,570.6	6.9	36,960.0	7.0	Non-Native Grassland
1	36,960.0	7.0	38,523.9	7.3	Non-Native Grassland
1	38,523.9	7.3	39,005.5	7.4	Non-Native Vegetation
1	39,005.5	7.4	39,134.5	7.4	Urban/Developed
1	39,134.5	7.4	39,516.0	7.5	Non-Native Vegetation
1	39,516.0	7.5	39,718.5	7.5	Urban/Developed
1	39,718.5	7.5	39,881.7	7.6	Non-Native Vegetation
1	39,881.7	7.6	39,948.9	7.6	Urban/Developed
1	39,948.9	7.6	40,078.4	7.6	Non-Native Vegetation
1	40,078.4	7.6	40,152.3	7.6	Urban/Developed

TABLE 3.4-1

(Continued)

Route	From (feet)	From (milepost)	To (feet)	To (milepost)	Vegetation Type
1	40,152.3	7.6	40,901.2	7.7	Non-Native Grassland
1	40,901.2	7.7	40,996.5	7.8	Coastal Sage-Chaparral Scrub
1	40,996.5	7.8	41,369.2	7.8	Non-Native Grassland
1	41,369.2	7.8	41,953.0	7.9	Native Grassland
1	41,953.0	7.9	42,084.7	8.0	Non-Native Grassland
1	42,084.7	8.0	42,200.2	8.0	Native Grassland
1	42,200.2	8.0	42,240.0	8.0	Diegan Coastal Sage Scrub
1	42,240.0	8.0	42,691.7	8.1	Diegan Coastal Sage Scrub
1	42,691.7	8.1	43,721.9	8.3	Native Grassland
1	43,721.9	8.3	43,748.1	8.3	Diegan Coastal Sage Scrub
1	43,748.1	8.3	43,967.9	8.3	Native Grassland
1	43,967.9	8.3	44,093.3	8.4	Diegan Coastal Sage Scrub
1	44,093.3	8.4	44,160.0	8.4	Non-Native Grassland
1	44,160.0	8.4	44,222.4	8.4	Diegan Coastal Sage Scrub
1	44,222.4	8.4	44,279.7	8.4	Coastal Sage-Chaparral Scrub
1	44,279.7	8.4	46,506.8	8.8	Non-Native Grassland
1	46,506.8	8.8	46,772.3	8.9	Disturbed Habitat
1	46,772.3	8.9	46,950.8	8.9	Non-Native Grassland
1	46,950.8	8.9	47,159.5	8.9	Urban/Developed

[1] Note that the mileposts used in Section 3.4 are based on calculations from a Geographic Information System database and do not correspond exactly with mileposts expressed in other EA sections (which are based on the mileposts on Figure 2-2).

TABLE 3.4-2

SENSITIVE PLANT SPECIES DETECTED IN THE TRANSMISSION LINE STUDY AREA[1]

Species Common Name *(Scientific Name)*	Map Symbol[1]	Status[2] (Federal/State/CNPS)	Habitat	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
Ashy spike-moss *(Selaginella cinerascens)*		None/None/List 4, 1-2-1	Coastal sage scrub; flat mesas or slopes.	Detected. Locally common within Route 1.	X
Coulter's matilija poppy *(Romneya coulteri)*		None/None/List 4, 1-1-3	Coastal sage scrub; slopes and creek beds, below 1,050 m (3,445 ft).	Detected. Occurs on slopes and canyons within Route 1.	X
Little mousetail *(Myosurus minimus* ssp. *apus*		*/None/List 3, 2-3-2	Vernal pools; below 150 m (492 ft).	Detected. Historical population in J26 vernal pool group within Route 1.	X
Nuttall's scrub oak *(Quercus dumosa)*		*/None/None	Chaparral, coastal sage scrub; generally sandy soils (sandstone) near coast, below 200 m (656 ft).	Detected. Occurs as scrub oak chaparral patches within Route 1.	X
Orcutt's brodiaea *(Brodiaea orcuttii)*		*/None/List 1B, 1-3-2	Grassland and near vernal pools and streams; clay soils, below 1,500 m (4,922 ft).	Detected. Occurs in O'Neal Canyon within Route 1.	X
Otay Mesa mint *(Pogogyne nudiuscula)*		FE/CE/List 1B, 3-3-2	Vernal pools; below 150 m (492 ft).	Detected. Occurs in J26 vernal pool complex within Route 1.	X
Otay tarplant *(Hemizonia conjugens)*		FT/CE/List 1B, 3-3-2	Coastal sage scrub; clay slopes and mesas, below 100 m (328 ft).	Detected. Occurs within Route 1.	X

TABLE 3.4-2

(Continued)

Species Common Name *(Scientific Name)*	Map Symbol[1]	Status[2] (Federal/State/CNPS)	Habitat	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
Palmer's grapplinghook *(Harpagonella palmeri* var. *palmeri)*		None/None/List 2, 1-2-1	Chaparral, coastal sage scrub, grassland; open slopes and burns in clay soils, below 1000 m (3,281 ft).	Detected. Occurs on slopes within Route 1.	X
San Diego barrel cactus *(Ferocactus viridescens)*		*/None/List 2, 1-3-1	Chaparral, coastal sage scrub, grassland; dry slopes, below 1,500 m (4,922 ft).	Detected. Scattered on lower slopes and mesas within Route 1.	X
San Diego button-celery *(Eryngium aristulatum* var. *parishii)*		FE/CE/List 1B, 1-3-2	Vernal pools, grassland; 20-150 m (66-492 ft).	Detected. Occurs in vernal pool complexes within Route 1.	X
San Diego County needlegrass *(Achnatherum diegoense)*		None/None/List 2, 3-1-1	Vernal streams and clay slopes; 300-700 m (984-2,297 ft).	Detected. Occurs within Route 1.	X
San Diego goldenstar *(Muilla clevelandii)*		*/None/List 1B, 2-2-2	Chaparral, coastal sage scrub, grassland, around vernal pools; mesas and slopes, below 150 m (492 ft).	Detected. Large population found within Route 1.	X
San Diego marsh elder *(Iva hayesiana)*		*/None/List 2, 2-2-1	Moist or alkaline places, below 200 m (656 ft).	Detected. Common in drainages on Route 1.	X
San Diego sunflower *(Viguiera laciniata)*		None/None/List 2, 1-2-1	Chaparral, coastal sage scrub; open slopes, below 400 m (1,312 ft).	Detected. Locally common on south-facing slopes within Route 1.	X
Snake cholla *(Opuntia parryi* var. *serpentina)*		*/None/List 1B, 3-3-2	Chaparral, coastal sage scrub; generally found on dry slopes near the coast.	Detected. Occurs in Salt Creek Canyon within Route 1.	X

TABLE 3.4-2

(Continued)

Species Common Name *(Scientific Name)*	Map Symbol[1]	Status[2] (Federal/State/CNPS)	Habitat	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
Southwestern spiny rush *(Juncus acutus* ssp. *leopoldii)*		None/None/List 4, 1-2-2	Moist saline or alkaline places, below 900 m (2,953 ft).	Detected. Common in drainages within Route 1.	X
Tecate cypress *(Cupressus forbesii)*		*/None/List 1B, 2-2-2	Chaparral; 150-1,100 m (492-3,609 ft).	Detected. Occurs in O'Neal Canyon within Route 1.	X
Variegated dudleya *(Dudleya variegata)*		*/None/List 4, 1-2-2	Chaparral, coastal sage scrub; dry hillsides and mesas, below 300 m (984 ft).	Detected. Several populations occur within Route 1.	X
Velvet cactus *(Bergerocactus emoryi)*		None/None/List 2, 2-2-1	Cliffs or steep slopes in coastal scrub habitats along the coast; below 150 m (492 ft).	Detected. Observed in O'Neal Canyon within Route 1.	X
Western dichondra *(Dichondra occidentalis)*		*/None/List 4, 1-2-1	Chaparral, coastal sage scrub; dry sandy banks, below 300 m (984 ft); often proliferates on recently burned slopes.	Detected. Occurs on slopes and mesas within Route 1.	X

1 Source: OMGC, 1999. Refer to OMGC, 1999 for detailed vegetation mapping.

2 Status:
Federal (U.S. Fish and Wildlife Service).
FE = Endangered; FT = Threatened; PE = Proposed Endangered; PT = Proposed Threatened; * = formerly Category 2 or Category 3 candidate or proposed for federal listing with no current federal status; None = no federal status.
State (California Department of Fish and Game).
CE = Endangered; CR = Rare; None = no state status.

TABLE 3.4-2

(Continued)

CNPS Lists

List 1 = Plants of highest priority
1A = Plants presumed extinct in California
1B = Plants rare and endangered in California and elsewhere.
List 2 = Plants rare and endangered in California, but common elsewhere
List 3 = Plant about which we need more information
List 4 = Plants of limited distribution (a watch list)

CNPS R-E-D Code

R (Rarity)

1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2 = Occurrence confined to several populations or to one extended population.
3 = Occurrence limited to one or a few highly restricted populations, or present in such numbers that it is seldom reported.
? = Rarity unknown.

E (Endangerment)

1 = Not endangered.
2 = Endangered in a portion of its range.
3 = Endangered throughout its range.
? = Rarity unknown.

D (Distribution)

1 = More or less widespread outside California.
2 = Rare outside California.
3 = Endemic to California.
? = Rarity unknown.

3 Route 1 = 230 kV Transmission Line to be reconductored.

service roads/areas around the transmission towers are maintained by SDG&E and can be generally characterized as barren ground.

Although numerous occurrences of rare or sensitive plants occur within the transmission line study corridor, only a few are located in the vicinity of transmission towers or proposed pull sites where activity is required to bundle the line. The greatest concentrations of sensitive plants and vernal pools occur in or near the Otay River Valley between mileposts (MP) 1.7 and 3.7 in Diegan coastal sage scrub and maritime succulent scrub habitats. Lesser densities, but still relatively abundant concentrations of sensitive plants also occur primarily in the Diegan coastal sage scrub habitat along the transmission line from the power plant site to the Otay River Valley (MP 0.0 to 1.7).

3.5 WILDLIFE

The short 230 kV transmission line interconnect and the existing Tijuana-Miguel 230 kV transmission line to be reconductored (refer to Figure 2-2) traverse a large area of native habitats, mostly Diegan coastal sage, along the southern one-half of the line. This route includes an aerial crossing of O'Neal Canyon, which supports high-quality wildlife habitat and is an important wildlife corridor from the San Ysidro Mountains to the Otay River Valley. The topography and quality of vegetation provide opportunities for cover and useful habitat, providing enhanced qualities as a wildlife corridor.

Detected and potentially occurring sensitive wildlife species in the transmission line study area are listed in Table 3.5-1. Table 3.5-1 discusses the potential for occurrence in the transmission line study area and identifies sensitive species detected along Route 1.

A number of sensitive animal species may occur along Route 1. Coastal California gnatcatcher (*Polioptila californica californica*, Federal Threatened) and cactus wren (*Campylorhynchus brunneicapillus sandiegoense*, CDFG CSC) occur along and near the existing transmission line in the Diegan coastal sage scrub between MP 0.0 and 4.0. Least Bell's vireo (*Vireo bellii pusillus*: Federal and State Endangered) are associated with riparian scrub habitat in the Otay River Valley and occur near the existing transmission line, within the study area. California gnatcatcher are also associated with the Diegan coastal sage scrub at the northern end of this route. Raptors such as Cooper's Hawk (*Accipiter cooperii*) and Northern Harrier have been either historically or more recently been observed foraging in the area. Both species are considered species of concern by the California Department of Fish and Game. However, the historic reference to a northern harrier nesting onsite is inconsistent with present conditions. Current land management practices are not conducive to such nesting. Other sensitive animals considered species of concern by CDFG such as Belding's orangethroat whiptail (*Cnemidophorus hyperythrus beldingi*), San Diego coast horned lizard (*Phrynosoma coronat*

TABLE 3.5-1

DETECTED AND POTENTIALLY-OCCURRING SENSITIVE WILDLIFE SPECIES IN THE STUDY AREA[1]

Species Group: Common Name *(Scientific Name)*	Status[2] (Federal/State)	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
Invertebrates:			
Quino checkerspot butterfly *(Euphydryas editha quino)*	FE/None	Potentially occurring around vernal pools and other areas supporting the host plant, dot-seed plantain. 1999 surveys indicate little habitat to support breeding occurs within project area.	
Riverside fairy shrimp *(Streptocephalus woottoni)*	FE/None	Potentially occurring in vernal pools.	
San Diego fairy shrimp *(Branchinecta sandiegensis)*	FE/None	Potentially occurring in vernal pools.	
Amphibians and Reptiles:			
Arroyo toad (*Bufo microscaphus californicus)*	FE/CSC	Very low potential to occur in Otay River, tributary to Otay River, or O'Neal Canyon.	
Coast patchnose snake (*Salvadora hexalepis virgultea)*	None/CSC	Rare species with moderate potential to occur in native habitats and agricultural fields.	
Coronado Island skink (*Eumeces skiltonianus interparietalis)*	None/CSC	Potentially occurring throughout native and naturalized habitats in the study area, particularly in moist areas.	
Belding's orangethroat whiptail (*Cnemidophorus hyperythrus beldingi)*	None/CSC	Detected on Route 1 and likely to occur in coastal sage scrub and chaparral within other project components.	X

TABLE 3.5-1

(Continued)

Species Group: Common Name *(Scientific Name)*	Status[2] (Federal/State)	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
San Diego horned lizard (*Phrynosoma coronatum blainvillii)*	None/CSC	Potentially occurring in coastal sage scrub and chaparral.	
Silvery legless lizard (*Anniella pulchra pulchra)*	None/CSC	Potentially occurring in drainages and washes.	
Southwestern pond turtle *(Clemmys marmorata pallida)*	None/CSC	Very low potentia l to occur in Otay River and O'Neal Canyon.	
Western spadefoot (*Spea hammondii)*	None/CSC	Potentially breeds in vernal pools, temporary ponds (road pools), overwinters in grasslands and coastal sage scrub.	
Birds:			
Burrowing owl (*Athene cunicularia hypugaea)*	None/CSC	Occurs in grasslands and may occur along transmission line.	
California horned lark (*Eremophila alpestris actia*)	None/CSC	May breed in non-native grasslands along transmission line.	
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegoense*)	None/CSC	*Detected within Route 1 in Salt Creek.	X
Coastal California gnatcatcher (*Polioptila californica californica)*	FT/CSC	Several territories within study area along the transmission line.	X
Cooper's hawk (*Accipiter cooperii)*	None/CSC	Detected foraging within Route 1.	X
Ferruginous hawk (*Buteo regalis)*	None/CSC	Detected in general area, but not near transmission line. A spring & fall migrant and occasional winter resident (non-breeding).	
Golden eagle (*Aquila chrysaetos canadensis)*	BEPA/CSC	Detected in general area but not near transmission line.	

TABLE 3.5-1

(Continued)

Species Group: Common Name *(Scientific Name)*	Status[2] (Federal/State)	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
Grasshopper sparrow (*Ammodramus savannarum perpallidus*)	None/CSC	Breeds in native and non-native grasslands.	
Least Bell's vireo (*Vireo bellii pusillus*)	FE/CE	*Detected within Route 1 in Otay River Valley.	X
Loggerhead shrike (*Lanius ludovicianus*)	None/CSC	Detected in general area but not near transmission line.	
Long-eared Owl (*Asio otus*)	None/CSC	Detected in general area but not near transmission line.	
Long-billed curlew (*Numenius americanus*)	None/CSC	Detected near plant site/switchyard.	
Northern harrier (*Circus cyaneus)*	None/CSC	Detected foraging in the general area but not near transmission line.	
Prairie falcon (*Falco mexicanus*)	None/CSC	Winter resident. Hunts over grasslands and open scrub and chaparral habitats. Expected to occur in small numbers.	
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	None/CSS	Relatively common resident of rocky slopes associated with sage scrub and light chaparral habitats.	
Short-eared owl (*Asio flammeus*)	None/CSC	Winter resident along coast. Very low potential to occur in grasslands and marshy areas (similar habitat to Northern Harrier).	
Tri-colored blackbird (*Agelaius tricolor)*	None/CSC	Detected at plant site/switchyard and along transmission line in fallow agricultural field areas.	X
Vaux's swift (*Chaetura vauxi*)	None/CSC	Fall and Spring migrant throughout coastal S.D. County. Detected throughout the area during migration.	

TABLE 3.5-1

(Continued)

Species Group: Common Name *(Scientific Name)*	Status[2] (Federal/State)	Potential for Occurrence[3]	Detected Near Existing SDG&E 230 kV Transmission Line (Route 1)
White-tailed kite (*Elanus peucurus)*	None/CSC	Detected foraging in the general study area and several active nests found within study area, but not near transmission line.	
***Nomenclature follows AOU Checklist: Subspecies designation from Unit 1984.**			
Mammals:			
San Diego woodrat (*Neotoma lepida intermedia*)	None/CSC	Expected species in rocky areas associated with sage scrub and light chaparral habitats.	
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	None/CSC	Occurs in the general area east of the plant site/switchyard.	X
San Diego pocket mouse (*Chaetodipas fallax fallax*)	None/CSC	Expected species in several areas along the transmission line. Primarily associated with sage scrub and light chaparral habitats.	
Southern grasshopper mouse (*Onychomys torridus ramona*)	None/CSC	Very rare resident of grasslands and sparse sage scrub habitats.	

[1] Source: OMGC, 1999.

[2] Status:
Federal (U.S. Fish and Wildlife Service).
FE = Endangered; FT = Threatened; BEPA = Bald Eagle Protection Act; None = no federal status.
State (California Department of Fish and Game).
CE = Endangered; CSC = California Species of Special Concern; None = no state status.

[3] Route 1 = 230 kV Transmission Line.

***** From Surveys Performed by Ogden Environmental, Inc., 1999.

blainvillii), San Diego pocket mouse (*Chaetodipus fallax*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and the San Diego woodrat (*Neotoma fuscipes intermedia*) are also expected to occur throughout this area, especially in the remaining areas of natural habitats.

3.6 AQUATIC ECOLOGY/WETLANDS

The existing transmission line route to be reconductored traverses several areas that contain riparian habitat and/or wetland areas. These areas are typically associated with area drainage crossings (see Table 3.3-1 and Figure 2-2) which are all spanned by the existing transmission line. The identified areas are:

- Cismontane alkali marsh (O'Neal Canyon)
- Freshwater marsh
- Southern riparian scrub; coastal and freshwater marsh (Otay River Valley)
- Riparian and bottomland habitat (Otay River Valley)
- Tamarisk scrub; riparian and bottomland habitat (Otay River Valley)
- Alkali meadows and seeps (Salt Creek)
- Southern riparian scrub (Telegraph Canyon).

Refer to Tables 3.4-1, 3.4-2, and 3.5-1 for more information on vegetation types and sensitive species habitats identified along the transmission route.

3.7 LAND USE AND RECREATION

3.7.1 Land Use

The existing Miguel-Tijuana 230 kV line travels in a northwesterly direction approximately 9.15 miles to the Miguel substation. The majority of the route is over undeveloped land. The exceptions include the metal fabricating shop at approximately MP 0.7; the Richard J. Donovan Correctional Facility at approximately MP 1.5; the George F. Bailey Correctional Facility at approximately MP 1.6, the Eastlake Greens Community at approximately MP 5.0; the Eastlake High School at approximately MP 5.8; and Eastlake Village Center, Telegraph Canyon Estates, Eastlake I, and Salt Creek I, between approximately MP 5.0 and MP 7.8. Refer to Figure 2-1 for the general location of these facilities.

3.7.1.1 Existing and Proposed Land Uses

Existing land uses along Route 1 include undeveloped, government, residential, industrial, commercial and education. Current land use designations are shown on Figure 3.7-1.

Existing transmission lines within the Route 1 study area include the 230 kV line that runs north to the Miguel substation and south to the Mexican border, the 69 kV line from near MP 2.0 to MP 9.15, and the 138 kV and 500 kV lines that join the 230 kV line at the Miguel substation at MP 9.15. The general locations of these other transmission lines are shown on Figure 3.7-1.

Route 1 crosses the City of San Diego Otay Pipeline at approximately MP 3.0. The crossing is within the City of San Diego right of way.

Route 1 traverses the Otay Ranch Project, a proposed development of about 50,700 residences and other uses forming an approximately 23,100-acre new town, located about 3.5 miles east of downtown Chula Vista in the southwestern portion of the County. The "New Town Plan" (aka Village Concept) (City of Chula Vista, 1993) proposes a mix of residential neighborhoods utilizing a village concept, commercial centers, research oriented industrial uses, a civic center, art centers, resort facilities, recreational parks, a town center, and a university site. Natural open space would be conveyed into a permanent reserve. The New Town Plan would be developed in phases over a 30-50 year period and result in a total population of about 150,000 persons. Route 1 traverses through the eastern portion of the proposed new town (designated as Impact Sensitive and Residential by the County of San Diego), along the existing 230 kV transmission line corridor from approximately MP 2.0 to MP 4.8.

3.7.1.2 Sensitive Land Uses

Eastlake High School and Eastlake Community Park are located at approximately MP 5.8. The existing transmission line route crosses the proposed Otay River Valley Regional Park at approximately MP 0.75 to 1.0. Four rural residences are located within 0.25-mile west and north of the Miguel Substation at MP 9.15. There are no other identified sensitive land uses (i.e., educational, religious, cultural, historic, or health care facilities) present along the 0.5-mile-wide land use study corridor assessed for Route 1.

3.7.1.3 Land Use Designations

There are no zoning districts within San Diego County. Zoning is designated on a parcel-by-parcel basis. Land use designations are indicative of the underlying zoning designations.

Planned land use designations as specified in the General Plan along Route 1 include Industrial, Residential, Rural, Public/Semi-Public, Impact Sensitive, Agricultural, Commercial, and Open Space, as shown on Figure 3.7-2. Figure 3.7-2 shows planned land use designations within 0.25 mile on both sides of the transmission line route (i.e., study area).

3.7.2 Agriculture and Prime Farmland

Historically, areas along portions of the existing transmission line route (e.g., MP 4-6) were used for irrigated and non-irrigated crop production, including tomatoes, cucumbers, bell peppers, and lima beans, as well as dry farming of grain crops. Currently, there is no irrigated agriculture or dry farming occurring along the existing transmission route. The County Department of Agriculture/Weights and Measures theorizes that the fallow agricultural land in the vicinity of the transmission line will most likely remain uncultivated (Brandon, 1999). Active dry farming was still occurring in 1999 east of the transmission route study area in the vicinity of the northwestern shore of Lower Otay Lake.

Based on a review of Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance for San Diego County (CDC, 1995), several sections of the transmission line qualify as candidate Prime Farmland (less than 0.1 mile), and Farmland of Statewide Importance (approximately 2.4 miles) (CDC, 1995; OMGC, 1999). Since none of the areas traversed by the existing transmission line have been used for irrigated agricultural production in the last 5 years, these candidate soils do not actually qualify as prime or statewide importance farmlands.

3.7.3 Recreation

As discussed in Section 3.7.1, the existing transmission line route traverses the proposed Otay River Valley Regional Park at approximately MP 0.75-1.0. Additionally, the existing transmission line comes within about 0.5 mile of Lower Otay Reservoir at about MP 3.0 (see Figure 3.7-1). Lower Otay Reservoir is a popular reservoir for recreational fishing and boating activities. Lower Otay Camping Area near the base of the dam is not currently open for use. The existing transmission line also comes near Eastlake Community Park at about MP 5.8. The existing transmission line does not actually traverse any current, designated recreational areas.

3.8 VISUAL RESOURCES

The 230 kV plant switchyard connections to the existing 230 kV Miguel-Tijuana transmission line will require incorporation of two double-circuit steel lattice, deadend structures in the existing SDG&E line, with 230 kV conductor spans to the plant switchyard

pull-off structures. The design of the new double-circuit steel lattice structures is shown on Figure 2-5; they will be approximately 120 feet high.

The proposed project will require reconductoring of the existing Miguel-Tijuana 230 kV transmission line. No modifications to the tower structures are planned. The only visible modification, besides the addition of 6 conductors (i.e., 12 total), is to replace the six existing conductor-insulator connections with yoke plates that will carry the bundled lines and keep them separated by 18 inches. These yoke plates are triangular, 6 inches high, with a base 22 - 23 inches wide. The conductors will be approximately 1.1 inches in diameter and will have a non-specular finish to reduce reflectivity to match the weathered finish of the existing conductors.

Construction activities associated with bundling of the transmission line will occur primarily at the tower locations, and a limited number of pull sites at major angle points. Significant grading will not occur, nor will new access roads be created. Vegetation at disturbed areas is expected to recover in one season. The construction period for the entire transmission line modification will be three to four months and activity at any one site will be several days. Therefore, the visual impacts of construction activities, as well as residual impacts at the pull sites and towers, will be temporary, lasting less than one year, and will be insignificant. They are not considered further in this analysis.

The plant switchyard is located in the northeast corner of the proposed Otay Mesa Generating Plant site. The proposed 0.1-mile long interconnection between the switchyard and the existing Miguel-Tijuana 230 kV line to the east and the switchyard site itself is located on the northeast corner of Otay Mesa where low, gently rolling hills prevail. The San Ysidro Mountains are located to the east. The switchyard and short, 0.1-mile interconnection are located in an undeveloped area dominated by non-native grasslands, which were formerly used for agricultural production. The switchyard and new electrical interconnection lines to the existing Miguel-Tijuana line will be industrial in appearance and not congruous with the surrounding rural landscape. However, the switchyard and interconnection will not be readily visible from sensitive viewing locations and will be blocked from views to the west by the Otay Mesa Generating Plant.

The existing Miguel-Tijuana line can be divided into two major sections: 6.4 miles crossing undeveloped lands; and 2.8 miles passing through, or alongside, a mix of planned residential and existing industrial development, starting at MP 5.1 at the south end of Eastlake Greens subdivision (Figure 3.8-1), and continuing to MP 7.9 at the northwest end of the Eastlake subdivision. The general location of the Eastlake Greens area (photos shown on Figure 3.8-1) is shown on Figure 2-1.

Of the 6.4 miles of alignment crossing undeveloped lands, 2.7 miles crosses the Otay River Parcel of the Otay Ranch, an area recently annexed by the City of Chula Vista and slated for residential development. The route passes through 0.6 miles of the Specific Plan Area (SPA) within this parcel (approximately MP 4.2 to MP 4.8), and is less than 2,400 feet east of a 1.3-mile stretch of the eastern boundary of the SPA (about MP 2.9 to MP 4.2). According to the Otay Subregional Plan (San Diego County, 1983, amended 1994), development on the Otay River Parcel primarily will be residential, with a density of dwelling units ranging from 3.67 to 4.25 per acre where the existing transmission line route passes next to, or crosses, the currently delineated limits of residential development. This is a standard urban subdivision density of about one-quarter-acre per dwelling unit. The existing transmission line to be reconductored is in the foreground of views from existing urban residences as well as those to be built in the future. Views from urban subdivisions are considered to be sensitive.

Based on review of aerial photographs, there are approximately 100 homes within 300 feet of the existing SDG&E 230 kV Miguel-Tijuana transmission line in the Eastlake Greens, Eastlake Shores, and Salt Creek neighborhoods. Of the estimated 100 homes, approximately half are adjacent (within 100 feet) of the SDG&E transmission line right of way.

The locations of the key viewing positions used in this visual analysis are presented on Map 3.8-1. The existing transmission line crosses three major roads: Otay Lakes Road (Figure 3.8-2), Eastlake Drive (Figure 3.8-3) and East H Street. Views from stretches of roads serving as the primary access to urban residential areas are typically considered highly sensitive. Such views are also highly sensitive because these roads have been designated in the Land Use Element of the city's General Plan as scenic highways (Chula Vista, 1989, Section 8.1, Designated Scenic Roadways). The number of persons using these scenic corridors are estimated using average daily traffic values. The average daily traffic values (Donnelly, 1999) for these three scenic roadways are: 28,300 (1999) for Otay Lakes Road (between Eastlake Parkway and Saint Claire Drive); 14,810 (1995) for Eastlake Drive (between proposed SR-125 and Lakeshore Drive); and 5,294 (1999) for East H Street (between proposed SR-125 and Mount Miguel Road). The existing transmission line to be reconductored is in the foreground of views from the current and future residential areas and related roads.

The recreation areas in proximity to the existing line are Chula Vista Community Park, 0.2 mile northeast of MP 6.2; Lower Otay Lake Park, the south end of Lower Otay Reservoir, and the Otay County Open Space Preserve, all 0.5 - 1.0 mile north or northeast of the route at MP 2.7. The transmission line is not noticeable from the Chula Vista Community Park due to buildings and landscaping. Views of the transmission line from the Otay Lake surface and Wueste Road, a road along the west side of the lake serving as primary access to the boat launch facilities and the park, would not be possible; hills 50 to 100 feet higher than the lake surface and roadway intervene. A campground exists within the park, but extensive

eucalyptus plantings obstruct views of the transmission line from the interior of that campground. However, from the periphery of the campground, views of the transmission line are available where it passes along the east edge of the Otay River Valley and the Otay River Parcel of the Otay Ranch. Nonetheless, as noted, views from the Lower Otay Lake Park are not currently relevant to this assessment inasmuch as the Park has been closed since September 30, 1991. Finally, the Open Space Preserve is 1.0 mile from the transmission line, too distant for the addition of the additional conductors to the existing Miguel-Tijuana 230 kV transmission line towers to be discerned.

The existing transmission line also crosses an area planned for recreation use in the future, the Otay River Valley Regional Park. Two planned trail corridors noted in Section 5.13.2.2.1 pass under the existing 230 kV transmission line at about MP 0.7 (Johnson Canyon trail) and MP 1.1 (O'Neal Canyon trail). Views from the planned park and the trails would be sensitive. The existing transmission line to be reconductored is in the foreground of views from the planned park and trails.

3.9 CULTURAL AND PALEONTOLOGICAL RESOURCES

3.9.1 Cultural Resources

3.9.1.1 Introduction

Cultural resources include archaeological and historical objects, sites and districts, historic buildings and structures, cultural landscapes, and sites and resources of concern to local Native Americans and other ethnic groups.

The cultural resources analysis, which follows, reports efforts to determine whether cultural resources exist in areas which could be adversely affected by the project. The significance of any resources, which could potentially be affected, is assessed.

All cultural resources work for this project was carried out under the direct supervision of archaeologists and historians (as appropriate) who meet the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (National Park Service, 1983) and is consistent with the procedures for compliance with Section 15064.5 of the California Environmental Quality Act (CEQA) and/or Section 106 of the National Historic Preservation Act (NHPA), set forth in 36 CFR 800.

Cultural resources work protocols were prepared in consultation with the cultural resources staff of the California Energy Commission (CEC). All work was performed to standards comparable to Bureau of Land Management (BLM) Class 1 (literature review) and Class 3 (complete intensive survey) standards.

Criteria used are those of eligibility for the National Register of Historic Places (NRHP), identified at 36 CFR 60.4. Consideration was also given to significance with respect to the provisions for those cultural resources considered a historical resource under Section 15064.5 of CEQA; unique archaeological resources with respect to CEQA, as described under PRC 21083.2; and the criteria regarding resource eligibility to the California Register of Historic Resources (CRHR).

For the purposes of this evaluation, all recorded resources which have not previously been evaluated under NRHP or CEQA/CRHR criteria, with the exception of isolate artifacts and isolate features which appear to lack integrity or data potential, are addressed as if they were eligible for the NRHP/CRHR. It is proposed, as an element of project design, that all recorded resources be completely avoided. However if it appears that avoidance of any resource through project design will not be possible, the significance of that resource will be formally evaluated vis a vis the criteria of the NRHP and/or Section 15064.5 of CEQA (or PRC 21083.2 for unique archaeological resources) and the CRHR. If the site is found to be significant, a data recovery program, or other appropriate mitigative effort, will be undertaken.

The project area is rich in cultural resource sites, most of which have not been formally evaluated for significance/importance. There are 19 archaeological sites along the existing 230 kV transmission line corridor, plus 6 archaeological sites on or near the transmission line pull sites. If avoidance is not possible, the significance of resources will be formally evaluated vis-a-vis the criteria of the NRHP and/or Section 15064.5 of CEQA (or PRC 21083.2 for unique archaeological resources) and the CRHR. If the site is found to be significant, a data recovery program, or other appropriate mitigative effort, will be undertaken in consultation with the CEC.

The project area is rich in cultural resource sites. There are 20 archaeological sites along or near the existing 230 kV transmission line corridor, which includes five archaeological sites on or near the transmission line pull sites and/or the 0.1-mile transmission line tie-in. The reconductoring program would avoid all sites, with the exception of five sites that appear to occur within the projected footprint (area of potential effect [APE]) of a pull site location that would be used as part of the reconductoring program on the existing transmission line, or the 0.1 mile transmission line tie-in from the switchyard to the existing transmission line. The five sites potentially affected by use of the pull sites or 0.1 mile tie-in are CA-SDI-7212, -10297, -10298, -12909, and –14225. Each of these sites was subjected to a testing program. The testing program was conducted in accordance with the Otay Mesa Generating Project (OMGP) Cultural Resources Test Plan (Gallegos & Associates, 1999), which was reviewed and approved by the California Energy Commission. Site significance was evaluated vis-a-vis the criteria of the NRHP and/or Section 15064.5 of CEQA (or PRC 21083.2 for unique

archaeological resources) and the CRHR. The testing program was completed by September 2000 and the results were reported in a final report, "Cultural Resources Test Results of the Otay Mesa Generating Project" (Gallegos & Associates, October 2000). Completion of the archaeological testing program resulted in the conclusion that each of the sites was not significant (CA-SDI-10297 does appear to contain a significant component, but it does not occur with the APE of the project elements described above).

Natural History. The landform for the cultural resources study area includes the mesa top and several large canyons that include Johnson Canyon, O'Neil Canyon, Otay River Valley, and Proctor Valley Project facilities, including the plant switchyard site and the short interconnection to the existing Miguel-Tijuana line are situated on Otay Mesa.

Introduced grasses and agricultural lands cover much of the cultural resources study area. Native vegetation, generally located adjacent to and within canyons, includes coastal sage scrub and freshwater habitats. Large portions of the cultural resources study area have been disturbed in the past by agricultural activities. Disturbance, in addition to plowed fields, includes construction of paved and dirt roads, homes, business complexes, and vegetation clearing by the border patrol. Other disturbances in the study area include prisons and residential developments along both sides of portions of the existing transmission line north of the proposed plant switchyard site.

Prehistory. The body of current research of prehistoric occupation in San Diego County recognizes the existence of at least two major cultural traditions, discussed here as Early Period (Archaic) and Late Period, based upon general economic trends and material culture. Within San Diego County, the Archaic generally includes the period from 9000 to 1300 years ago, while the Late Period includes from 1300 years ago to Spanish contact. The Historic Period covers the time from Spanish contact to present.

The Early Period (Archaic), for this discussion, includes the San Dieguito and La Jolla complexes, which are poorly defined, as are the interrelationship between contemporaneous inland, desert, and coastal assemblages (Gallegos, 1987). Initially believed to represent big game hunters, the San Dieguito are better typified as a hunting-and-gathering society. These people had a relatively diverse and non-specialized economy in which relatively mobile bands accessed and used a wide range of plant, animal, and lithic resources.

The origin of coastal populations and subsequent interaction between the coastal population and Great Basin/desert groups is a subject of some debate (SDCAS, 1987). Whatever their origin, the first occupants immediately exploited the coastal and inland resources of plants, animals, shellfish, and fish (Moriarty, 1967; Kaldenberg, 1982; Gallegos, 1991).

Archaic sites from 9000 to 1300 years ago within San Diego County include coastal habitation sites, inland hunting and milling camps, and lithic quarry sites. Material cultural assemblages during this long period are remarkably similar in many respects. These deposits may well represent a process of relative terrestrial economic stability and presumably slow cultural change. Though various culture traits developed or disappeared during the long span of 9000 to 1300 years ago, there is a clear pattern of cultural continuity during this period.

The Otay Mesa region is unique in the county given the extensive, but not intensive, lithic scatters that cover the mesa top, interspersed with habitation sites, and quarries located on mountain slopes. This patterning reflects the presence of Santiago Peak volcanic material across the mesa as cobbles and tabular deposits from local mountains and mesa tops. This material was highly valued by Native Americans who used both cobbles and mountain quarry sources of this fine-grained metavolcanic material for tools.

Questions remain in regard to prehistoric occupation and use of the Otay Mesa area. Site patterning in the Otay Mesa area suggests that lithic resource acquisition was a primary prehistoric activity. The identification of habitation sites also indicates that the area was used by prehistoric populations as a base camp area from which a wide range of activities occurred. Radiocarbon dating of Otay Mesa habitation sites identifies prehistoric occupation from 7600 years ago to the nineteenth century.

Late Period/Ethnohistory. The cultural resources study area falls within the Kumeyaay/Diegueño territory (Kroeber, 1925). The language of the group, Diegueño, is classified as part of the Yuman language family. Three dialects (Ipai, Kumeyaay, and Tipai) of this language are still spoken (Shipek, 1978). This family is often considered to be part of the Hokam stock. According to Luomala (1978:592), the territory of the Tipai, the southern Kumeyaay group, extended south to include parts of Mexico and the southern mountains. The area included oceanfront, bays and estuaries, foothills, and mountains, and a wide range of environmental zones for exploitation.

During the Late Period, a material culture pattern similar to that of historic Native Americans first becomes apparent in the archaeological record. The economic pattern during this period appears to be one of more intensive and efficient exploitation of local resources.

The project area falls within the region occupied by the Kumeyaay, or Diegueño Native Americans. The numerous Late Period sites within San Diego County identify human activity for many centuries. As a result of contact with Spanish, Mexican, and American settlers, Native American populations were decimated by resettlement and disease. Presently, Native Americans are found throughout San Diego County, especially within the 17 San Diego County reservations.

History. The history of San Diego County reflects economic, political, and social characteristics associated with Spanish, Mexican, and American political rule. The Spanish Period (1769-1821) represents the earliest period of settlement with establishment of a presidio, missions, and mission outposts, along with the subsequent introduction of animals, agricultural products, and building methods. The Mexican Period (1821-1848) of rule is historically linked with grants of land, commonly referred to as ranchos, which were originally considered territory of the indigent population. The American Period (1848 to present) began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo in 1848.

An influx of people to California in the latter half of the nineteenth century was the result of various factors, including free public lands resulting from invalidated land grants after 1851, the discovery of gold in 1848, conclusion of the Civil War in 1865, and availability of land through passage of such laws as the 1862 Homestead Act and timber-culture laws.

In rural San Diego County the population did not expand noticeably until after 1870. Settlement of Otay Mesa began in the 1870s.

Otay Mesa is similar to a number of other rural settlements in San Diego County that began in the 1870s and 1880s and endured beyond the turn-of-the-century. These settlements were comprised of farming families that shared a similar environmental setting and were united socially, economically, and politically within a common school district. Van Wormer (1986) refers to such communities as agrarian school district communities.

Dry farming was employed on the mesa because of the lack of a reliable water source for irrigation purposes. Although as many as 28 families lived on Otay Mesa by 1900, the population gradually decreased because of periodic droughts, unsuccessful attempts to secure water for irrigation, and the effects of the Great Depression in the 1930s. By the late 1930s, only four or five of the pioneering families remained on Otay Mesa. As the early residents moved out and sold their property, the land on Otay Mesa continued to be used for agricultural purposes particularly for the production of row crops. In recent years the development of business parks has increased and much of the farmland lies fallow. Limited evidence is visible on the landscape to reveal the former presence of this rural community. The only visual reminders of a former agricultural settlement include sparse remnants of olive and eucalyptus trees, agricultural fields, few buildings, building foundations, and surface artifacts.

Native American Consultation. Prior to the beginning of fieldwork (for the Otay Mesa Generating Project), Ms. Debbie Pilas-Treadway, of the California Native American Heritage Commission (NAHC) was contacted for a list of local Native American contacts for the project area and identification of any sacred lands within the proposed project area that were

identified in the NAHC's Sacred Lands File. A record search of the sacred lands file of the NAHC failed to indicate the presence of Native American cultural resources in the immediate project area.

Letters describing the project and a map of the proposed plant site and transmission line locations were sent by certified mail to 15 groups or individuals identified by the NAHC. As of February 1999, four responses had been received (three by telephone, the other by mail). Comments focused on the nature of the project, when Native American input would be appropriate, and the conditions for potential Native American Monitoring.

A second mailing was sent to 17 groups or individuals identified by the NAHC on February 11, 1999 for the modified project. To date only one response has been received from this mailing. The response from that individual identified the sensitivity of the Otay region and inquired as to Native American monitoring requirements.

Cultural Resources Reconnaissance. Cultural resources reconnaissance efforts included pre-field literature review and archaeological survey.

Pre-field Records Search. A records search was conducted by Gallegos and Associates in 1997 and updated in 1999 at the South Coastal Information Center of the California Historical Resources Information System, San Diego State University, San Diego and the San Diego Museum of Man, San Diego. The record searches encompassed all previous archaeological surveys, all previously recorded archaeological sites, National Register listed and eligible properties (National Conference of State Historic Preservation Officers et al., 1988 and annual updates in the Federal Register), California Historical Landmarks (Office of Historic Preservation, 1990), Points of Historic Interest (Office of Historic Preservation, 1992), and locally listed historic properties and structures within 1 mile of the transmission line corridor. Cultural resources maps and site records on file at Gallegos and Associates, San Diego, were also consulted.

The general project area has been subjected to numerous cultural resources surveys. Key pertinent surveys include:

- CSRI 1982a, 1982b, 1983 - An archaeological survey of the Miguel-Tijuana transmission line was conducted in 1981. The transmission line was 13 miles long, with 10 miles in the United States and three within Mexico. The survey results were positive and included testing of CA-SDI-4529, CA-SDI-7197 and CA-SDI-8654. All three sites were recommended as eligible for inclusion in the National Register of Historic Places. In addition, sites CA-SDI-7197 and CA-SDI-4529 have been included in the recently nominated Bonita-Miguel Historic District. The data recovery program for CA-SDI-4529 and CA-SDI-8654 was conducted by Cultural Systems Research, Inc. (1983).

- Banks, 1980 - A cultural resources survey of five parcels of land within the Otay Ranch, proposed borrow pits. Two of the land parcels (Phases I and II) cross sections of the present project alignment. No archaeological resources were identified within Parcel I. Site SDM-W-170 was identified within Parcel II and testing of this site was recommended.

3.9.1.2 Literature and Survey Results

The previous surveys which were conducted for the existing Miguel-Tijuana 230 kV transmission line were considered adequate. The pull sites were surveyed as part of the currently proposed reconductoring project as well as the plant switchyard and the short interconnection between the switchyard and the existing Miguel-Tijuana line.

Archaeological sites identified within the project areas of potential effect are listed in Table 3.9-1.

Plant Switchyard. No archaeological sites were identified within the footprint of the plant switchyard.

Interconnection Route. The interconnection route portion of Route 1 (refer to Segment A-B on Figure 2-2) is an approximately 0.1-mile-long spur that extends northeast from the east side of the switchyard site and ties into the existing 230 kV line. This route crosses archaeological site CA-SDI-10298, a lithic scatter.

Miguel-Tijuana 230 kV Transmission Line. Twenty sites have been identified along (or near) the portion of the existing Miguel-Tijuana line to be reconductored, as listed in Table 3.9-1. Refer to the OMGC, 1999 for more information on these sites.

Miguel-Tijuana 230 kV Transmission Line – Pull Sites. Six pull sites will be required along the portion of the Miguel-Tijuana 230 kV transmission line to be reconductored. Each pull site will utilize two rectangular working areas except Pull Site #1 where four rectangular working areas will be employed to accommodate the interconnect to Route 1. Pull Site #1 is located east of the plant site and will encompass lands within the existing Miguel-Tijuana corridor as well as lands to the east of the corridor. As part of the interconnect pull site, a working area is also located within the plant site. Pull Site #2 is located northwest of the East Mesa Detention Facility and will utilize lands within the existing Miguel-Tijuana corridor. Pull Site #3 is located along the San Diego Aqueduct and northwest of Salt Creek site and will encompass lands within the existing Miguel-Tijuana corridor as well as lands to the east of the corridor. Pull Site #4 is located along an access road south of Otay Valley Road and

TABLE 3.9-1

ARCHAEOLOGICAL SITES AND ISOLATES WITHIN PROJECT AREA OF POTENTIAL EFFECT[1,2]

Site #	Site Description	N.R. Status	USGS 7.5' Quadrangle
Plant Switchyard Site			
None			
Transmission Line Route 1 (230kV)			
CA-SDI-4529	Habitation	National Register Eligible	Jamul Mtn.
CA-SDI-4735[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-4989[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-7197	Lithic Scatter/Milling Station	National Register Eligible	Jamul Mtn.
CA-SDI-7212	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-7217[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-8650[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-8651[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-8654	Habitation/Lithic Scatter	National Register Eligible	Otay Mesa
CA-SDI-8666	Lithic Scatter	Unknown/Not Determined	Jamul Mtn.
CA-SDI-10297	Habitation	Unknown/Not Determined	Otay Mesa
CA-SDI-10298	Habitation	Unknown/Not Determined	Otay Mesa
CA-SDI-10668/H	Quarry/Historic	Not Significant[2]	Otay Mesa
CA-SDI-12067	Quarry	Not Significant[2]	Jamul Mtn.
CA-SDI-12082	Lithic Scatter	Not Significant[2]	Jamul Mtn.
CA-SDI-12909	Lithic Scatter	Unknown/Not Determined	Jamul Mtn.
CA-SDI-13456[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa
CA-SDI-14222[1]	Lithic Scatter	Unknown/Not Determined	0tay Mesa
CA-SDI-14224[1]	Lithic Scatter	Unknown/Not Determined	Otay Mesa

TABLE 3.9-1

(Continued)

Site #	Site Description	N.R. Status	USGS 7.5' Quadrangle
Transmission Line Route 1 (230 kV)/Pull Site #1			
CA-SDI-10297	Habitation	Unknown/Not Determined	Otay Mesa
CA-SDI-10298	Habitation	Unknown/Not Determined	Otay Mesa
Transmission Line Route 1 (230 kV)/Pull Site #2			
CA-SDI-7212	Lithic Scatter	Unknown/Not Determined	Otay Mesa
Transmission Line Route 1 (230 kV)/Pull Site #3			
CA-SDI-14225	Lithic Scatter	Unknown/Not Determined	Otay Mesa
Transmission Line Route 1 (230 kV)/Pull Site #4			
Transmission Line Route 1 (230 kV)/Pull Site #5			
CA-SDI-12909	Lithic Scatter	Unknown/Not Determined	Jamul Mtn.
Transmission Line Route 1 (230 kV)/Pull Site #6			
None			

[1] As recorded, these sites appear to be outside but immediately adjacent to transmission line corridor.

[2] Recommendation brought forward by previous consultant/researcher, and does not signify formal SHPO/Agency finding.

will encompass lands within the existing Miguel-Tijuana corridor as well as lands to the west of the corridor.

Pull Site #5 is located southeast of the Miguel Substation Road and will encompass lands largely to the east of the existing Miguel-Tijuana corridor. Pull Site #6 is located southwest of the Miguel Substation largely in lands to the west and south of the Miguel-Tijuana corridor.

3.9.2 Paleontological Resources

3.9.2.1 Introduction

Paleontological resources are the mineralized (fossilized) remains of prehistoric plant and animal organisms, as well as the mineralized impressions (trace fossils) left as indirect evidence of the form and activity of such organisms. These resources are considered to be non-renewable resources significant to our culture under state and federal law.

This paleontological analysis also complies with the draft guidelines and significance criteria issued in 1989 by the Society for Vertebrate Paleontology (SVP), a national professional organization. These criteria outline acceptable professional practices in the conduct of paleontological resource surveys, data recovery, analysis, and curation. The paleontological resources assessment for this project was carried out by, or under the direct supervision of, Mr. David Lawler, a qualified paleontologist.

The location of project components, geologic units, and areas subjected to paleontological survey are shown on Figure 3.9-1.

The project area is located in the southwestern San Diego County region, east of the National City, Chula Vista, and Imperial Beach Metropolitan areas, west of the San Ysidro Mountains, and north of the U.S./Mexico border. The topography consists of a series of wide river valleys that are flanked by broad areas of low ridges and hills, which have been dissected by small stream drainages. The San Ysidro Mountains to the east represent a prominent, erosionally resistant landform in the region.

Surficial sedimentary units of predominantly Cenozoic age (last 63 million years) underlie the entire project area. These sediments include deposition that range from continental alluvial fan-derived sediments to subaerial floodplain to marine terrace sediments. Lithologies include bentonitic clays, sand, gravel, and silt, all of which are potentially favorable to the preservation of paleontological resources.

A majority of the rock outcrops along the San Diego County coastal plain consist of a relatively undisturbed thick sequence of Eocene (58 to 36 million years ago) to Quaternary age (last 1 million years) sedimentary units as described and mapped by Hertlein and Grant (1944), Minch (1967), Kennedy and Moore (1971), Kennedy and Tan (1977), Farrand (1977), and Demere (1983).

In addition, Kern (1977) has described the geomorphic development of the successive series of Pleistocene (Ice Age: 1 million to 10,000 years ago) marine terraces that have been subsequently dissected by the major west flowing river drainages originating in the Peninsular ranges to the east.

The Cenozoic rock formations range in facies type from conglomerates to indurated sandstones (gritstones) to unconsolidated siltstone and clays, all of which are either fossiliferous or potentially fossiliferous.

Gradual, long-term erosion has removed parts of the Tertiary and Quaternary rock formations so that these rocks and their contained fossils are now at or near the surface throughout most of the project area. These formations or parts of these formations now exist at or near the surface as rock outcrops with varying width across the project area terrain, but are obscured in most areas by soil, vegetation, or thin deposits of surficial sediment. Thus, visual detection of fossils is possible in those areas where natural erosion or man-made excavations during road, pipeline, or building site excavation or grading operations have removed this cover.

A majority of the project area is overlain by vegetation. Given this fact, the potential paleontological sensitivity of a particular site within the project has been determined from the distribution of known nearby fossil localities, exposures on non-fossiliferous rocks, and available mapping of the surface outcrops of the different rock units.

The southwestern San Diego County region contains a diverse record of geologic and biologic history, which spans more than 150 million years, dating from the Jurassic period. Under the combined influences of regional tectonic events ranging from basin subsidence to uplift of the San Ysidro Mountains and worldwide sea level changes, sediments and fossils of marine and terrestrial organisms have accumulated to produce a significant record of prehistoric life.

Much of the paleontological interest within the project area stems from the recent discoveries of fossil vertebrate faunas in the Sweetwater and Otay Formations. Identification and scientific description of both of these diverse fossil vertebrate assemblages provide the best known record of late Eocene and late Oligocene (36 to 25 million years ago) faunas in California. Preservation of riparian and other continental volcaniclastic deposits provided favorable conditions for preserving vertebrate fossil remains in these geologic units.

Paleontological Literature and Locality Records Review. Data for the following descriptions of paleontological resources within the project area were compiled from records of previous geologic and paleontological field investigations. Non-field data sources for the project area included additional published descriptions of the geology (including geologic maps), published and unpublished paleontological research papers, museum records, and interviews with individuals having first-hand knowledge of resources within the project area. Sources consulted on the general geology of the area included regional geologic maps compiled by the California Division of Mines and Geology. More specific geologic information in the form of 1:24,000 and 1:62,500 scale U.S. Geological Survey and California Division of Mines and Geology geologic maps available for the project area was also utilized. Specific technical paleontological and detailed lithologic data were derived by Mr. Lawler both from local geoscientist informants at California colleges and universities, and designated museum repositories including University of California Museum of Paleontology (UCMP), California Academy of Sciences (CAS), Los Angeles County Museum (LACM) and San Diego Museum of Natural History (SDMNH). Specimens were also inspected at these institutions, as available.

These data were then reviewed to assess the relative potential for each of these units to contain significant paleontological resources. No previously recorded paleontological localities occur within 0.5 mile of the plant switchyard site or of the centerline of the proposed 230 kV interconnection or the existing Miguel-Tijuana line.

Sensitivity Assessment. Paleontological sensitivity – that is, the potential for significant resources to be present in the vicinity of a given project element – is assessed with respect to the presence along project alignments and near project facilities of lithostratigraphic units having the potential to yield significant paleontological resources. Any evaluation of paleontological potential was based on assessment of "High," "Moderate" or "Low" paleontological sensitivity of lithologic units in the project area (refer to OMGC, 1999 for more information). Confidential site locality information has been provided to appropriate agency personnel separately.

Methodology. The paleontological assessment consisted of an evaluation of the paleontological potential within 0.5 mile on either side of the proposed transmission facilities. The focus area for potential effects was considered to be 150 feet to either side along the transmission line rights of way, and an area of 1000 feet around the plant switchyard site footprint. This study area is conservative since the actual area of project effects will be much more limited. Paleontological resources are lithologically dependent; that is, deposition and preservation of paleontological resources is tied to the lithologic unit in which they occur. If the rock types representing a depositional environment conducive to deposition and preservation of fossils are not present, then fossils will not be present. The

potential for paleontological resources to be present is described as the paleontological sensitivity of the lithologic unit. Paleontological assessment at this phase was confined to assessment of paleontological sensitivity on the basis of information provided by existing geologic maps and interviews with key personnel at the institutions visited. Additional assessment was done using paleontological and geological literature pertinent to the formations identified in the review of these sources and subsequent field surveys of the project facilities (actual areas surveyed are described below). Sources for the lithologic analysis include geologic maps covering the Otay Mountain quadrangle (Kennedy and Tan, 1977), and the Jamul Mountain Quadrangle (Farrand, 1977) which are the most recent published references.

Pre-construction field surveys were performed on May, 1997, February, 1999, and June, 1999. During this time all accessible potentially impacted rights of way for the linear power facilities (transmission line) as well as the overall power plant switchyard property were surveyed for paleontological resources (see Figure 3.9-1).

The power plant switchyard property was surveyed and samples from geotechnical drill hole spoils on the plant site were inspected for paleontological specimens (May, 1997 boring program).

The Miguel-Tijuana 230 kV transmission line survey was restricted to 300-foot-wide corridors adjacent to public right-of-way crossings in the vicinity of Telegraph Canyon and Proctor Valley Road and the 230 kV tie-in from the plant site to the existing 230 kV transmission line (segment A-B on Figure 3.9-1), The 9.05-mile-long segment (B-K) that will utilize the existing Miguel-Tijuana transmission line was previously surveyed for paleontological resources in 1980 as part of the permitting program for the line (Roeder, 1980).

There are six pull site locations proposed along the Miguel-Tijuana 230 kV transmission line survey corridor. The working areas for each pull site are generally inside the existing SDG&E easement for the Miguel-Tijuana transmission line corridor. The working areas typically required at each pull site location are expected to encompass two rectangular footprints approximately 150 feet by 300 feet. The proposed pull site locations were surveyed for paleontological resources in June, 1999.

Santiago Peak Volcanics (Jsp). The Santiago Peak Volcanics represent the oldest known geologic unit in the project area (130-150 million years). Fossil resources of any biological classification found in this rock unit would be considered significant. In particular, metasedimentary units may also yield icthyosaur (marine reptile) remains, as has been found in the correllative Late Jurassic age – Mariposa Formation and Franciscan Group of northern California.

Sweetwater Formation (Tsw). The Sweetwater Formation represents the oldest known Cenozoic sedimentary unit in the project area. Its geology has been described by Artim and Pinckney (1973) and had been previously assigned to the San Diego Formation by earlier workers (Hertlein and Grant, 1944; Kennedy and Moore, 1971).

The fossil mammal assemblage derived from the lower part of the formation includes marsupials, insectivores and rodents. The known mammalian assemblage collected from the upper part of the formation is limited to unidentified rodent material.

The Sweetwater rock unit contains scientifically significant paleontological resources represented by the above described fossil vertebrate fauna (Walsh and Demere, 1991).

Cretaceous Granodiorities (Kgrd). This unnamed intrusive igneous formation located at the northeast corner of the Route 1 area is a non-fossil-bearing unit.

Otay Formation (To). Otay Formation geology was originally described by Artim and Pinckney (1973) and had been previously assigned to the San Diego Formation by earlier workers (Hertlein and Grant, 1944; Kennedy and Moore, 1971). The formation was redefined by Walsh and Demere (1991) to include three members; a basal conglomerate member, a middle gritstone member, and an upper bentonite-rich sandstone mudstone member. The upper two units contain a Late Oligocene age (Arikareen) fossil mammal fauna).

Vertebrate fossil collections from the "gritstone member" at SDMNH localities 3566 (within the Eastlake portion of the project are) include primitive herbivores and carnivores.

The "sandstone-mudstone member" vertebrate fossil collections represent a diverse faunal assemblage which has been described by Demere (1988) and has been designated as the Eastlake local fauna. The assemblage includes a total of 24 taxa, including 18 mammals, 4 reptiles, and 2 birds. Many of the fossil specimens represent the best preserved specimens of particular taxa found to date.

The volcanoclastic rock-unit lithologies are favorable for exceptional preservation of vertebrate and microvertebrate fossil resources.

Demere (1989) compiled a paleontological sensitivity report and map for the Otay Ranch Development Project – EIR document, which in part covers portions of the southern part of this project area. Demere likewise assigned a "high" sensitivity rating to the Otay Formation on the paleontological sensitivity map document.

Unnamed Fanglomerate Unit (Tfg). The Unnamed Fanglomerate unit has been mapped and described by Kennedy and Tan (1977). This boulder-fanglomerate unit outcrops in the southern part of the project area along the north and south sides flanks of the Otay River Valley and areas south of lower Otay Reservoir. Metamorphic and igneous cobble clasts are deposited in a fine-grained matrix consisting of sandstone and bentonite.

No paleontological resources have been recovered from this unit.

The lithologic units present at the switchyard, interconnection, and along the existing Miguel-Tijuana line to be reconductored are listed in Table 3.9-2. The paleontological resources that are potentially present in the geological formations in the project are discussed below.

Quaternary Stream Terrace Deposits (Qt). Stream terrace deposits of Pleistocene age occur locally along the Otay River Valley and include unconsolidated sand and gravel derived from adjacent strata. This unit in the Bonita municipality outside the project area has yielded fragmentary remains of both large mammalian taxa including horse, camel, mastodon and/or mammoth, as well as the remains of microvertebrate taxa including rabbit, rodents, birds, snakes, lizards, and frogs (Roeder, 1980). The rock-unit lithologies would be favorable to the preservation of fossil resources such as large vertebrate and/or microvertebrate remains. The closest documented Pleistocene invertebrate fauna to the project area has been described by Demere (1981) from the metropolitan San Diego area. This formation is considered to have a moderate sensitivity for paleontological resources.

Quaternary Alluvium and Slope Wash Deposits (Qal/Qsw). Stream alluvium and slope wash deposits of Pleistocene age occur locally along the Otay River Valley and include unconsolidated sand and gravel derived from adjacent strata. This unit has yielded fragmentary remains of large mammalian taxa including horse, camel, mastodon and/or mammoth outside the project area in San Diego County, based on the review of SDMNH site records and collections. The rock-unit lithologies would be favorable to the preservation of fossil resources such as large vertebrate and/or microvertebrate remains. This formation is considered to have a moderate sensitivity for paleontological resources.

3.9.2.2 Findings

Plant Switchyard. The switchyard site is almost entirely within the Otay Formation (To) (high sensitivity). A small portion of the east portion of the switchyard site falls within the Santiago Peak Formation (Jsp). A systematic survey of the switchyard site was performed, including inspection of geotechnical drill hole samples, for the presence of paleontological materials. The survey results were negative.

TABLE 3.9-2

LITHOLOGIC UNITS AND PALEONTOLOGICAL SENSITIVITY [1]

Project Component		Geologic Unit	Paleontological Sensitivity
Start Milepost	End Milepost		
Switchyard Site		Jsp/To	Low/High
Transmission Line Route 1 (230 kV)			
0.0	0.65	Jsp	Low
0.65	0.9	To	High
0.9	1.0	Tfg	Low/Mod
1.0	1.2	Jsp	Low
1.2	2.4	Tfg	Low/Mod
2.4	2.85	Qal	Mod
2.85	3.0	Qt	Mod
3.0	3.5	Tfg	Low/Mod
3.5	3.7	Qal	Mod
3.7	4.2	Tfg	Low/Mod
4.2	7.7	To	High
7.7	7.8	Kgrd	Low
7.8	9.15	To	High
Pull Site #1			
0.05	0.05	Jsp	Low
Pull Site #2			
2.4	2.4	Tfg	Low/Mod
Pull Site #3			
4.0	4.0	Tfg	Low/Mod
Pull Site #4			
6.2	6.2	To	High
Pull Site #5			
8.4	8.4	Jsp	Low
Pull Site #6			
9.15	9.15	To	High

[1] Refer to Figure 3.9-1 for lithologic units, paleontological sensitivity, and project component locations. Pull sites are located at major angle points along transmission line as well as both ends of line to be reconductored.

Transmission Line Route. The 9.15-mile-long transmission line (including 0.1 mile of new construction and 9.05 miles to be "bundled") crosses several formations including the Otay (To), the Unnamed Cretaceous grandiorite (Kgrd), Unnamed Fanglomerates (Tfg), Quaternary Alluvium (Qal), Quaternary Stream Terrace Deposits (Qt), and Santiago Peak Volcanics (Jsp). The 9.05 miles of Route 1 transmission line corridor that already exist were surveyed for paleontological resources by Roeder and Associates (Roeder, 1980) for SDG&E prior to construction of the transmission line. No paleontological resources were discovered in any rock unit within the project corridor boundaries at that time. Subsequent fossil localities have been recorded within 0.5 mile of this facility from approximately MP 4.8 to approximately MP 7.5. Field surveys for this project were conducted by inspecting 20 feet on each side of the public right of way areas at the Eastlake Boulevard, and Proctor Valley Road Crossings. No fossil resources were observed. A short (0.1 mile) intertie will connect the existing 230 kV Miguel-Tijuana transmission line to the plant site and crosses thin deposits of Pleistocene alluvium (Qal) which overlie Santiago Peak Volcanics (Jsp). A portion of this interconnect was encompassed within a paleontological survey conducted by Roeder and Associates (see Roeder, 1980) for San Diego Gas & Electric prior to construction of the Miguel - Tijuana transmission line. No paleontological resources were discovered in any rock unit within that portion of the project corridor boundaries that encompass the Miguel-Tijuana 230 kV transmission line. Additionally, the Miguel-Tijuana 230 kV transmission line intertie was resurveyed in June 1999 and no paleontological resources were observed during that survey.

Miguel-Tijuana 230 kV Transmission Line (230 kV)/Pull Sites. Six pull site locations along the Miguel-Tijuana 230 kV transmission line were also surveyed in June 1999. No paleontological resources were observed at the pull site locations. A piece of non in situ chert was observed at pull site #5 that has the potential to yield radiolarian microfossils. Note: during the paleontologist's June 1999 field survey of the pull site locations, observations were made of an outlier crop of Santiago Peak volcanics (Jsp) at pull site #5, east of the transmission line corridor.

3.10 SOCIOECONOMICS

The construction and operation of a power project has the potential to affect the demographic and economic conditions in the region in which it is sited; i.e., by introducing a large non-local workforce into the region. The proposed project consists of an electrical switchyard, a short (0.1 mile) 230 kV transmission interconnect, and reconductoring of the existing Miguel-Tijuana 230 kV line to the Miguel substation (9.05 miles). The proposed electrical switchyard and short (0.1 mile) transmission interconnect are located on undeveloped land in unincorporated San Diego County. The 9.05 mile long portion of the existing 230 kV Miguel Tijuana line to be reconductored traverses primarily undeveloped land. Adjacent land uses include residential, commercial, industrial, and government. The transmission line route to

the Miguel Substation traverses land that was previously used to grow tomatoes, cucumbers, bell peppers, and lima beans. The historic agricultural lands are currently all fallow. The existing transmission line route passes near several prisons on the southern portion as well as several residential areas along the northern portion. The overall population density in the project area is currently low. Refer to Section 4.2.1.10 for an assessment of Environmental Justice issues.

3.11 TRANSPORATION AND NOISE

3.11.1 Transportation

San Diego County has an extensive transportation network of highways and roadways, encompassing nearly 600 miles of state highways in the San Diego region and over 7,200 miles of maintained city streets and County roads (San Diego Association of Governments, 1998). San Diego County is bordered to the north by Orange County, to the east by Imperial County, and to the south by Mexico. Primary travel routes are Interstate 5 (I-5), Interstate 805 (I-805), and Interstate 15 (I-15) for north-south destinations, and Interstate 8 (I-8) for east-west destinations. The County's economy supports commerce and industry throughout southern California, and is critically linked to effective interstate and intrastate transportation.

The following discussion of highways and local roadways in the general project area is based on the existing and proposed circulation network described in the *Final East Otay Mesa Specific Plan* (County of San Diego, 1994) and in *SANDAG Special Report: Border Area Transportation* (SANDAG, 1996). The transportation network in Otay Mesa is planned to add substantial new facilities over the next 20 years, including: completion of the widening of Otay Mesa Road by fall 1999; construction of the State Route 125 (SR-125) toll road south to a new border crossing by 2002; and extension of State Route 905 (SR-905) from I-805 to SR-125 by 2005. Construction along SR-125 would occur prior to, or concurrent with, construction of the Otay Mesa Generating Project. The SR-905 extension project would occur after construction of the power plant.

The numbers, types, and locations of highways and roadways actually constructed are subject to future revision as the East Otay Mesa community is developed.

Existing roadways are illustrated on Figures 2-1 and 2-2. Access to the proposed plant switchyard is via Otay Mesa Road and Alta Road (see Figures 2-1 and 2-2). The existing SDG&E 230 kV Miguel-Tijuana line has existing access roads and trails over its length. Additionally, the Miguel-Tijuana line traverses several roads including Telegraph Canyon Road and Proctor Valley Road – both of these roads can be utilized to access the existing transmission line where it crosses the roadways.

3.11.2 Noise

3.11.2.1 Plant Switchyard and Interconnect

The proposed Otay Mesa plant switchyard and short interconnection to the Miguel-Tijuana line are located in a remote area at the western foot of the San Ysidro Mountains in San Diego County (refer to Figures 2-1 and 2-2). To the west and south of the site are open grasslands, rolling hills and shallow canyons extending for many miles. According to the County Department of Planning and Land Use (East Otay Mesa Specific Plan, SP 93-004, 1994), this land is zoned as mixed industrial with one or two scattered commercial areas. The U.S./Mexico international border is roughly 1.5 miles south of the plant switchyard site. To the east of the site, the San Ysidro Mountains rise abruptly by more than 1,200 feet within 2 miles of the site boundary. At the present time the area is completely uninhabited and without any infrastructure within a one-mile radius of the proposed facilities.

There are only two structures of any type within a one-mile radius of the proposed plant switchyard site:

- A metal fabricating shop (R & F Metal, Inc.) and trucking business office, which was formerly the Kuebler Ranch, approximately 2,600 feet north of the switchyard

- The offices of a truck storage facility approximately 3,700 feet southwest of the switchyard.

Beyond this one mile radius there are the following:

- A group of three residences on Otay Mesa Road approximately 6,200 feet southwest of the switchyard

- The R. J. Donovan Correctional Facility (California State Prison) approximately 5,900 feet northwest of the switchyard

- The G. F. Bailey County Correctional Facility (San Diego City and County Jail) approximately 5,500 feet north of the switchyard.

Despite the remote nature of the area, it is zoned primarily mixed industrial with a commercially zoned parcel of approximately 20 acres just beyond the southwest corner of the adjacent power block facility area.

In an effort to evaluate current conditions and assess any potential noise impacts on the surrounding community, an ambient sound level study was conducted in early May, 1997. Both long-term unmanned and short-term manned measurements were taken on Friday, May 2, and Saturday, May 3, 1997. Six measurement locations were selected to acoustically characterize the general area and to determine the existing sound levels at all potentially sensitive receptors. These locations are described in Table 3.11-1.

In general, existing noise in the plant's switchyard vicinity is due almost entirely to traffic on Otay Mesa and Alta Roads. An additional common source is noise from light aircraft overflights (including air traffic from Brown Field airport to the west) and sporadic jet takeoffs at the Tijuana International Airport several miles away.

Generally, the daytime Leq, or background level, is nearly uniform at about 46 dBA over the entire area. The quietest area is around Position 2 (average L90 ≈ 38 dBA), since the majority of cars turn into or out of the state prison access road (Alta Road beyond Position 2 is not a through road and ends at the county jail). The loudest levels (average L90 ≈ 42 dBA) were measured at Position 5, which is 30 feet from Otay Mesa Road.

3.11.2.2 Existing Miguel-Tijuana Line

The reconductoring activities would not generate significant noise and construction impacts would be temporary and transient in nature. Therefore, the portion of the Miguel-Tijuana 230 kV line to be reconductored was not surveyed for ambient noise levels.

In general, the noise environment along the existing Miguel-Tijuana line is currently primarily rural, undeveloped land with the exception of the transmission corridor and associated access road. Residential areas are present on both sides of the line in the Eastlake and Telegraph Canyon areas. Additionally, the County of San Diego plans to substantially build out east Otay Mesa and there are several development projects proposed on east Otay Mesa and in the vicinity of the existing transmission line route. One of the larger projects proposed is the Otay Ranch residential development project. The noise environment in the project vicinity will be transformed to a more developed one in the future and ambient noise levels are expected to increase accordingly.

TABLE 3.11-1

AMBIENT NOISE MEASUREMENT LOCATIONS

Position Number	Location (dimensions approximate)
1	180 ft. east of Alta Road, 300 ft. south of prison access road intersection.
2	Utility pole 60 ft. east of Alta Road, 100 ft. south of entrance to R & F Metal, Inc.
3	50 ft. east of Alta Road, 1,600 ft. south of prison access road intersection.
4	150 ft. north of Otay Mesa Road; approximately 1000 ft. west of Alta Road.
5	30 ft. north of Otay Mesa Road, 200 ft. east of residences. Same distance from road as houses.
6	50 ft. north of Mexican border at southern terminus of Alta Road. Represents a group of apartments across the border.

Figure 3.3-1
FEMA 100 Year Floodplains
(8 1/2 x 11 color)

Figure 3.7-1
Current Land Use Designations
(8 1/2 x 11) (Landscape)
(3 pages long)

Figure 3.7-1
(Continued)

Figure 3.7-1
(Continued)

Map 3.8-1
Viewing Position Map

Figure 3.8-1
The existing Miguel-Tijuana 230 kV transmission line……..etc.
Color (i.e., can't go back to back) (8 1/2 x 11)

Figure 3.8-2
The current view from VP6, where the existing……..etc.
Color (i.e., can't go back to back)

Figure 3.8-3
The current view from VP7, where the existing…. .etc.
Color (i.e., can't go back to back)

Figure 3.9-1

Geologic Units, Paleontological Sensitivity and Areas Surveyed for Paleontological Resources

(3 pages – landscape)

Figure 3.9-1
(Continued)

Figure 3.9-1
(Continued)

4.1 NO ACTION ALTERNATIVE

Under this alternative, SDG&E would not construct or operate the proposed facilities for interconnecting the OMGP to the SDG&E grid and the 510 MW natural gas fired power plant. Under the No Action Alternative, Presidential Permit 68 would not be amended by DOE, and the existing Miguel-Tijuana line would not be modified/reconductored.

The benefits from the proposed project, as summarized in Section 1.3 (Purpose and Need), would not be realized. Potential impacts related to the project, whether short or long term, direct or indirect, project specific or cumulative, adverse or beneficial, would not occur.

If the proposed project is not built, the OMGP would not be able to interconnect to the SDG&E grid via the Miguel-Tijuana line and the Miguel substation. Overall, there would be a loss of economic benefits associated with the project, including: 1) its contribution to a safe and reliable energy supply; 2) purchase of equipment and materials; 3) construction costs, labor costs; 4) local infrastructure improvements; and 5) local tax revenues.

Construction, operation, and maintenance of the proposed switchyard, short transmission interconnection, and the reconductored Miguel-Tijuana line is not expected to result in any unavoidable adverse significant impacts. With implementation of the Applicant-committed design and mitigation measures, the interconnection project is expected to result in only minor impacts on the environment. Under the No Action Alternative, the residual project impacts discussed herein would not occur. Since the Miguel-Tijuana line and associated access roads already exist, project environmental impacts will be limited almost entirely to the short construction phase when workers and equipment are present. Due to the nature of reconductoring activities, construction impacts will be short term and transient as the work progresses along the existing transmission corridor.

4.2 PROPOSED ACTION

The Applicant's proposed action consists of the following primary project components: Otay Mesa 230 kV switchyard; short (0.1 mile) transmission interconnection which includes additional incorporation of two new lattice structures into the Miguel-Tijuana line east of the switchyard, reconductoring of approximately 9.05 miles of the existing Miguel-Tijuana 230 kV transmission line up to the Miguel substation, and construction and operation of a 510 MW combined cycle power plant run on natural gas.

The Applicant's proposed action also includes implementation of the environmental protection measures outlined in Appendix A of the EA.

The impact analysis is presented in two subsections for both construction and operational impacts. The impacts of the power line include an evaluation of the 0.1-mile-long interconnection between the existing Miguel-Tijuana 230 kV power line and a new 230 kV switchyard, and addition of new conductors along a 9.05-mile-long section of the existing line. Impacts associated with construction and operation of these facilities are presented under the subheading "transmission line." A subsection, "power plant" addresses impacts of constructing and operating the 510 MW natural gas-fired power plant. Impacts are presented as appropriate under these two subheading in each technical area.

The analysis of impacts of constructing and operating the 510 MW power plant are presented in summary form and are based on information presented in the California Energy Commission's *Decision on the Application for Certification, Otay Mesa Generating Project,* Docket No. 99-AFC-5 (California Energy Commission, April 2001). The final project details may differ slightly for the non-transmission portion of the project if the CEC License is amended.

4.2.1 Construction Impacts

4.2.1.1 Air Quality

Transmission Line. Potential sources of air emissions during construction will be heavy equipment and windblown dust from disturbed areas at the plant switchyard site and, to a lesser extent, the transmission interconnection and reconductoring areas.

To mitigate potentially adverse impacts during construction, the Applicant will require personnel to properly maintain vehicle and equipment engines to control exhaust emissions. Daily water applications on active construction surfaces or other equivalent dust suppression measures will be employed during construction hours to minimize fugitive PM_{10} and $PM_{2.5}$ emissions. No significant impacts on ambient air quality are expected due to the proposed project.

Power Plant. The California Energy Commission (CEC) Decision on the certification of the 510 MW Otay Mesa Generating Plant (April 2001) located in the East Otay Mesa region of San Diego County, approximately 15 miles southeast of downtown San Diego evaluated the impacts to air quality from the operation of this plant. The evaluation considered the impacts of direct emissions of six criteria air pollutants, and of the precursors of ozone [nitrogen oxides (NO_x) and VOC], and the precursors of PM_{10} [NO_x, VOC, and sulfur oxides (SO_x)]. The San Diego area is a non-attainment area for the federal and state 1-hour ozone standards and the state PM_{10} standard.

The CEC reviewed compliance of the proposed plant with the San Diego County Air Pollution District rules as well as California Environmental Quality Act (CEQA) requirements on the basis of air pollution modeling performed by Applicant. It concluded that plant operations could contribute to higher ozone and PM_{10} levels in the region. To limit these impacts, the plant will be equipped either SCONOX or Selective Catalytic Reduction (SCR) to meet U.S. EPA's Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) criteria. NO_x will be limited to 2 ppm and CO to 6 ppm over a 3-hour rolling average, while VOC is limited to 2 ppm over a 1-hour average. In addition, the Air District limits ammonia emissions from the SRC system to 10 ppm (ammonia is an agent used to reduce NO_x).

In addition, emission reduction credits (ERCs), otherwise known as offsets, for NO_x were required of the Applicant to further limit ozone impacts from the plant. Three types of offsets were obtained: purchase of NO_x offsets from the Air District market, purchase of VOC offsets for NO_x at a ratio of 2.4 to 1, and the novel use of mobile emissions reduction credits (MERCs) as NO_x offsets. The MERCs derive from the conversion of marine vessels to low-emitting diesel engines and the conversion of a fleet of diesel refuse trucks to natural gas engines. A total of 125 tons per year of NO_x and NO_x equivalents were achieved by applying these three types of offsets.

Similarly, to mitigate possible contributions to existing violations of the state PM_{10} standards and in accordance with the CEQA, the Applicant agreed to pay a mitigation fee of $1.2 million to the Air District. These funds would go to programs in the project vicinity to retrofit school buses to reduce emissions of PM_{10} precursors.

The CEC concluded in its Decision that the Applicant has secured all required offsets to fully mitigate the project in accordance with the Air District's rules on new source review. It further noted that the Air District has issued a Prevention of Significant Deterioration (PSD) permit for the plant. Finally, it concluded that the implementation of the 76 in total Conditions of Certification listed in the Decision would ensure that the Otay Mesa Generating Plant would not result in any direct, indirect, or cumulative significant impacts to air quality.

4.2.1.2 Geology, Soils, and Seismicity

Transmission Line. Construction of the proposed project will require grading and associated soil disturbance at the Otay Mesa switchyard and, to a lesser extent, at the two tower foundation areas where the existing Miguel-Tijuana line will be tied into. Additionally, some minor vegetation clearing and/or trampling may be needed at several pull sites along the transmission line in order to allow safe and efficient equipment use and movement. Equipment movement along the transmission corridor, including work at tower bases and movement along

access roads, will also cause minor soil disturbance and compaction. The total acreage of temporary disturbance for the project is less than 20 acres.

With implementation of the Applicant-proposed environmental protection measures, no adverse impacts are expected. The project will minimize the potential for soil erosion through use of appropriate erosion control measures (refer to Section 4.2.1.3 and Appendix A). The transmission line construction (0.1 mile) and reconductoring (9.05 miles) will not require construction or grading of new access roads. Thus, no impacts due to induced landslides are expected. Grading operations and drainage control at the switchyard will be done in accordance with County of San Diego requirements developed for the overall Otay Mesa Generating Plant site which encompasses the 230 kV switchyard. The proposed project will not adversely impact any known mineral/resource deposits or extraction operations in the study area.

The switchyard and new towers (at interconnection point) design will conform to the Uniform Building Code and California Building Code seismic zone factor for the site of 0.4, to protect against the effects of earthquake shaking. Reconductoring of the Miguel-Tijuana 230 kV line will not reduce its ability to withstand seismic shaking.

In summary, construction of the proposed project is not expected to adversely impact geologic resources or soils, and the geologic hazards present in the study area do not pose an unacceptable risk to project facilities.

Power Plant. The 46-acre OMGP site comprises a 29-acre area dominated by Diablo Clays with slopes ranging from 2 to 9%, and a 17-acre area of primarily Huerhuero loam with 9 to 15% slopes. Construction of the OMGP, linear facilities, and access roads will disturb an estimated 75 acres of land, while roughly 36 acres will be disturbed from plant operation. Vegetation will be removed and topsoil will be stockpiled during construction. The plant site will be finished to a mild grade of 0.5% slope to assist drainage. According to the CEC's Decision on plant certification, constructed drainage facilities, including detention ponds, will comply with local and county design guidelines.

The placement of impervious surfaces associated with the plant would tend to enhance soil erosion from storm water runoff. The Applicant for plant certification has submitted a draft Erosion Control and Storm Water Management Plan, which identifies erosion and storm water runoff control measures. The final plan will include a discussion of best management practices. The CEC concluded in its decision that if the plant met the six Conditions of Certification and received the required permits from local, state, and federal agencies, the plant would not create significant soil and water erosion impacts.

4.2.1.3 Water Resources/Floodplains

Transmission Line. Construction disturbance will include approximately 5 acres of land for the switchyard in the northeast corner of the 46-acre plant site for the Otay Mesa Generating Plant. The proposed interconnection and reconductoring activities will disturb an estimated 14 acres during the construction phase. Construction disturbance at sites along the 230 kV transmission line (Route 1) will be limited to small, 20,000 square-foot areas surrounding the 230 kV towers and at pull sites. Surface disturbance in these areas will be minor and consist primarily of vegetation trampling and possibly limited vegetation removal. The project will minimize the potential for accelerated erosion/sediment transport through the use of appropriate erosion control measures that include the short-term use of sandbags, matting, mulch, berms, hay bales, or similar devices along all disturbed areas. No significant impacts on water quality resulting from sediment transport or erosion are expected.

As shown on Figure 3.3-1, the Miguel-Tijuana line crosses several 100-year floodplains as identified by the Federal Emergency Management Agency (FEMA). The floodplain areas are: Otay River Valley (approximately MP 2.5); Salt Creek (approximately MP 3.5); and Telegraph Canyon (approximately MP 6.6). No new project related structures will be constructed in the 100-year floodplain areas and the existing Miguel-Tijuana line spans the drainage areas associated with the 100-year floodplains. The project will not involve construction in any smaller floodplains either. Additionally, the proposed interconnection project will not directly impact any jurisdictional wetland areas.

In summary, no significant impacts on water resources, or floodplains will occur.

Power Plant. The OMGP will use an estimated 385 acre-feet per year of process water for steam generation and domestic uses. The use of air-cooled condensers for heat rejection greatly reduces process water requirements compared to similar plants that use water cooling. The Otay Water District (OWD) estimates that plant requirements represent an insignificant increase in demand (about 1%) on water supplies. OWD connects to the San Diego Water Authority, which purchases water from the Metropolitan Water District of Southern California (MWD). Colorado River water represents about 70%, and the California Aqueduct system about 30%, of MWD supplies. While recycled water is not yet available to the plant, a dual plumbing system will be installed to accept recycled water in the event it becomes available in the future.

Wastewater from the OMGP will flow to the Point Loma Wastewater Treatment Plant via an existing sewer main. The estimated daily and maximum flows from OMGP represent no more than 0.1% of the volume currently treated at Point Loma. The city of San Diego has indicated that OMGP wastewater characteristics are within acceptable limits. Other requirements of the plant operator related to wastewater include the preparation of a Storm Water Pollution Prevention Plan and obtaining an Industrial User Wastewater Discharge

Permit. Meeting these requirements and the conditions listed in the CEC's Decision on certification of the plant ensures the protection of water resources.

4.2.1.4 Vegetation

Transmission Line. Construction of the proposed plant switchyard will require limited clearing of vegetation, grading, and implementation of drainage and landscaping plans. It is estimated that construction of the overall project will disturb less than 20 acres of soil, vegetation, and topography. The vegetation types to be impacted along the transmission line are listed in Table 3.4-1, by milepost. Approximately 5 acres of non-native grassland will be permanently removed when the Otay switchyard is cleared, graded, and compacted with appropriate fill material. The switchyard area is not covered by the NCCP but it is covered by the Biological Resources Mitigation and Implementation Plan (BRMIMP) prepared for the Otay Mesa Generating Project (URS, 2000). A summary of pertinent BRMIMP measures is included in Appendix A of this EA.

Impacts on vegetation and sensitive habitat that may occur along the existing 230 kV Miguel-Tijuana transmission line due to bundling operations (i.e., reconductoring including addition of 6 new conductors to existing towers) will be restricted to areas around the transmission towers and at pull sites. Access to these areas will be via existing unvegetated roads. Impacts have been calculated assuming that temporary disturbance will occur during the bundling operation, and at pull and tension sites. Much of this area at each tower is already disturbed by the access roads and work areas for each tower. The existing barren access road approaches at each tower are used for maintenance and cleaning of conductors.

Project-related impacts will be temporary in nature and habitats will be allowed to regenerate once construction is completed. The impacts will be intermittently distributed over the line from tower to tower and at the six pull sites; therefore, the magnitude of the impact at each site will be very low relative to the surrounding habitat. No adverse impacts on biological resources are expected to occur at other areas along the transmission line corridor (e.g., between existing tower locations), because there will not be any disturbance in these areas. Therefore, these short-duration construction activities are not expected to disrupt sensitive habitats.

Some construction activity will occur near several sensitive plant species, based upon the assumed impact footprints. Plant species in the impact zones include 5 areas of San Diego barrel cactus, 3 areas of ashy spike-moss, 1 area of Coulter's matilija poppy *(Romneya coulteri)*, and 5 areas of San Diego County viguiera.

Preconstruction surveys will be performed to determine the presence of sensitive plants, animals or habitats at the proposed disturbance areas. As applicable, disturbance footprints will be modified to avoid direct impacts on sensitive plants and animals. The BRMIMP (see

Summary in Appendix A) includes contingency measures in the event impacts cannot be avoided.

SDG&E's approved NCCP (SDG&E, 1995) covers biological mitigation measures and procedures for SDG&E to follow when maintaining and/or modifying their existing transmission system. SDG&E's NCCP will cover procedures for protecting biological resources along the portion of the existing Miguel-Tijuana line to be reconductored. Additionally, the BRMIMP will cover the switchyard, the 0.1-mile long interconnect, and issues related to Quino checkerspot butterfly and wetlands along the Miguel-Tijuana line to be reconductored. Refer to Appendix A for more information.

Power Plant. The power plant would require clearing of 46 acres of non-native grassland, considered of relatively low value from an ecological standpoint. The right-of-way for the wastewater line would require disturbance of about 11.2 acres of non-native grassland and 0.4 acre of Diegan Coastal Sage Scrub vegetation of greater ecological value than the non-native grassland. The impacts of loss of coastal sage scrub were mitigated by the CEC via requiring monetary compensation for habitat losses associated with the project. The CEC required the Applicant to provide at least 32.9 acres of habitat compensation because of habitat losses associated with construction. The Applicant is required to pay at least $320,434 to purchase 32.9 acres of habitat from the O'Neal Canyon Land Bank or similar bank acceptable to CEC to compensate for project losses. Impacts to vegetation from losses or disturbance associated with power plant construction compared to similar vegetation existing in the immediate power plant vicinity was considered insignificant.

4.2.1.5 Wildlife

Transmission Line. The plant switchyard site will result in the permanent loss of approximately 5 acres of nonnative grassland. This loss of nonnative grassland is not considered significant by itself or cumulatively with other project impacts because this vegetation type is not considered regionally important as biological habitat and it is not important for wildlife in the region. Portions of the greater Otay Mesa Generating Plant site (i.e., the 46-acre property) and surrounding areas will remain as nonnative grassland and disturbed uses; therefore, the power plant and switchyard will not pose a barrier to wildlife movement from the mountains to the east through Johnson Canyon towards the Otay River Valley. Development on this site is expected to represent an incremental loss of raptor foraging habitat, but should not be limiting to raptor species in the area. Regardless, other areas onsite at the switchyard and in the surrounding area will remain suitable for potential nesting use. No other sensitive biological resources are expected to be impacted by construction of the switchyard site. Preconstruction surveys will be performed to verify biological conditions prior to the initiation of grading activities.

Biological resources are present along the existing 230 kV Miguel-Tijuana transmission line where bundling operations (i.e., reconductoring including addition of 6 new conductors to existing towers) occur. These activities will be restricted to areas around the transmission towers and at pull sites. Access to these areas will be via existing unvegetated roads.

Project-related impacts will be temporary in nature and habitats will be allowed to regenerate once construction is completed. The short-duration construction activities are not expected to be disruptive of wildlife populations in general or to sensitive habitats such as vernal pools. The reconductoring activities have the potential to temporarily impact raptors that perch on the towers. Additionally, raptors are known to build nests on towers. SDG&E will limit impacts on raptors to the extent practical during reconductoring activities along the 230 kV transmission line.

Surveys for Quino checkerspot butterfly were conducted in the spring of 2000 in accordance with U.S. Fish and Wildlife Service protocols. No Quino checkerspot butterflies were found in the applicable potentially suitable habitat areas (i.e., areas with populations of *Plantago erecta*, a host plant species) in the area of potential impact for the transmission line interconnection and reconductoring activities.

Construction will occur in the vicinity of several sensitive species locales, based upon the assumed impact footprints. Two pairs of California gnatcatcher territories are currently within predicted impact zones. Potential impacts to gnatcatchers will be mitigated in accordance with SGD&E's NCCP.

Impacts on wildlife will generally be mitigated in accordance with SDG&E's NCCP and the stipulations of the U.S. Fish and Wildlife Service in the Biological Opinion issued on November 22, 2000. The key findings and conditions of the B.O. are summarized in Appendix A. Overall impacts to wildlife along the transmission line would not be significant.

Power Plant. The CEC Decision requires the Applicant to commit to several mitigation measures for protected species including the Quino checkerspot butterfly, California gnatcatcher, and Otay tar plant (*Hemizonia conjugens*) which are state and federally listed endangered and threatened species known to occur in the project area. The CEC required the Applicant to undertake the following measures to offset or avoid impacts:

- Establish a permanent endowment to maintain about 60 acres of quino checkerspot butterfly habitat located northeast of the power plant site; this requirement was imposed since the CEC was concerned about nitrogen oxides (NO_x) emitted from the power plant settling to the ground with particulates and acting as fertilizers that would stimulate growth of non-native plant species in the impacted area

- Conduct preconstruction surveys for sensitive species

- Biological experts must be present during construction to advise personnel on what to do if sensitive species are encountered; advice will follow Biological Resources Conditions of the Certification identified in the CEC Decision

- Conduct a Worker Environmental Awareness Training Program for all employees to are to participate in prior to construction

- Implement a habitat management strategy for perpetual care of at least 32.9 acres of habitat offsite in the project region to compensate for temporary and permanent impacts to sensitive species from project construction and operation

- Provide to CEC a Biological Resources Mitigation Implementation and Monitoring Plan for review and approval prior to construction

- Provide the CEC Project Manager with a Section 7 Biological Opinion from the U.S. Fish and Wildlife Service in accordance with the federal Endangered Species Act.

The conditions are subject to change via the CEC License Amendment process, as applicable.

The CEC concluded that if these measures are implemented, the impacts to wildlife populations and protected species from power plant construction and operation would be insignificant.

4.2.1.6 Aquatic Ecology/Wetlands

Transmission Line. Construction of the proposed project is not expected to have any impact on aquatic ecology or wetlands related to the plant switchyard or the short (0.1 mile) transmission interconnection.

The portion of the Miguel-Tijuana 230 kV line to be reconductored traverses several ephemeral drainages that include riparian, aquatic, and/or wetland habitat. The project is not expected to require any disturbance to these areas since the existing Miguel-Tijuana 230 kV typically spans these drainages and access roads already exist over the length of the line.

One potential impact area is the Otay River Valley, which is considered to be sensitive habitat for various wildlife species. An existing Miguel-Tijuana 230 kV transmission tower is located in the 100-year floodplain for the Otay River (see Figure 3.3-1). The Applicant will take special precautions and care related to any reconductoring activities in the Otay River Valley in order to avoid impacts to sensitive habitat (aquatic, riparian, and/or wetlands). For example, pull sites located in this area have been carefully sited in upland, disturbed areas to avoid waters of the United States and associated sensitive habitats. Other environmental

protection measures are summarized in Appendix A. No adverse project impacts on aquatic, riparian, or wetland habitats are expected to occur.

Power Plant. No impacts to aquatic habitats or wetlands are anticipated from power plant construction activities.

4.2.1.7 Land Use and Recreation

Transmission Line.

Land Use. Construction of the proposed switchyard, short transmission interconnection, and reconductoring of the Miguel-Tijuana 230 kV line are not expected to result in any significant adverse impacts on surrounding land use.

Construction activities will be undertaken to minimize interference with the surrounding land uses. Once grading of the plant switchyard site commences, development of the site itself will disturb approximately 5 acres of undeveloped land. The plant switchyard will be compatible with existing and proposed uses in the project area and is located in an area designated for industrial development. Construction activities will create noise, dust and emissions from grading equipment and other construction vehicles at the switchyard site, short 0.1-mile interconnect, and along the 9.05 miles of the Miguel-Tijuana line to be reconductored. Although short-term construction-related land use impacts are anticipated, they are not expected to be significant. Overall, the impact of construction activities will be insignificant due to compatibility with existing land uses and the temporary construction period. Due to the temporary and transient nature of the transmission reconductoring activities, no significant impacts on sensitive land uses are anticipated.

Route 1 (refer to Figure 2-2) proceeds northeasterly from the power plant site approximately 0.1 mile and then continues in a northwesterly direction along the existing SDG&E 230 kV easement. Land uses at and around the plant site, including the short 0.1-mile long interconnect, are designated for industrial development. Land uses along the existing 230 kV line include government, residential, industrial, commercial, and education. Project-related improvements, however, will occur almost entirely within the right of way of the existing 230 kV line, and thus will create no new incompatibilities with surrounding land uses.

All of the plans, policies, and regulations reviewed recognize the existing SDG&E 230 kV easement as a permanent easement for transmission of electricity. No change in the location or size of the easement is contemplated. Therefore, a bundled 230 kV transmission line is consistent with existing land use plans, policies, and regulations, including locations where the easement transverses sensitive land uses.

***Recreation*.** The proposed interconnection project will not traverse any established recreation resource areas and no impacts on recreation are expected.

As discussed in Section 4.2.1.6 (Aquatic Ecology/Wetlands), the Applicant will ensure that special precautions are undertaken in the Otay River Valley to protect sensitive resources including those that have value to the proposed Otay River Valley Regional Park. Visual impacts on recreational resources are discussed in Section 4.2.1.8.

Power Plant. The CEC analysis of land use impacts of the power plant focused on evaluating if the project was: 1) consistent with local land use plans, ordinances, and policies; and 2) was compatible with existing and planned uses. Most of the power plant site is on fallow agricultural land covered with non-native vegetation.

The CEC staff determined that the project is consistent with: the San Diego General Plan; the Otay Subregional Plan; the Sweetwater Community Plan; the East Otay Mesa Specific Plan; the East Otay Mesa Site Planning and Design Guidelines; and the Craft Comprehensive Land Use Plan for Brown Field.

Seven Conditions of Certification for land use set by the CEC include the following:

- Setback distances of structures of >199 feet from the northern plant boundary

- Specific height requirements of 65 feet above finished grade for the heat recovery steam generators, heat recovery steam generator stacks >131 feet above grade, generation buildings limited to 70 feet above grade, and air-cooled condensers limited to 76 feet above grade,

- Project owner shall provide 34 onsite parking spaces

- All fences and walls must be constructed to a height of 8 feet above final grade

- All signs must comply with local guidelines

- Make specified changes to wastewater discharge pipeline plans provided in the Applicant's application,

- The project owner will obtain approval of a Tentative Parcel Map from the San Diego County Department of Planning and Land Use and record the appropriate parcel map for the three lots shown in a March 2000 Supplement to the Application for Certification.

The conditions are subject to change via the CEC License Amendment process, as applicable.

The CEC concluded that the presence of the power plant would not contribute to adjacent development of land that would cause further agricultural land conversion. The conclusion was that the power plant project would not create any significant direct, indirect, or cumulative adverse land use impacts in the local area. No significant impacts to recreation in the project area are expected because of power plant construction.

4.2.1.8 Visual Resources

Transmission Line.

230 kV Switchyard and Short Transmission Interconnection. The moderately sensitive views that would be affected by the Otay Mesa switchyard and the short (0.1 mile) transmission interconnection (and adjacent power plant) have been identified as several residences along Otay Mesa Road and near Alta Road. The planned power plant would generally screen views of the switchyard from the west. Additionally, the eastern extremity of a trail corridor planned for Johnson Canyon would also be affected and is a highly sensitive view.

It should be noted that the County of San Diego has previously approved substantial commercial and industrial development as part of the General Plan buildout of East Otay Mesa (refer to 1994 East Otay Mesa Specific Plan). Additionally, several major commercial/industrial developments are planned to be constructed in the near future which will begin to alter the natural character of the East Otay Mesa area in accordance with approved plans.

The switchyard construction would contribute to a perceptible lessening in visual quality relative to views specifically focused to the south across the switchyard site (and adjacent power plant). These views include those from the proposed Johnson Canyon trail corridor which is north of the switchyard (and adjacent power plant). The switchyard and power plant would noticeably lessen the quality of a limited range of views, but the quality of a sequence of interrelated views available in the vicinity of the site has already been significantly impacted. Giving consideration to the context, hikers should not experience a perceptible reduction in visual quality due to the switchyard (and adjacent power plant) when hiking along the segment of trail due north of the site.

The 230 kV switchyard will be painted with neutral, earth tone and gray colors and will be landscaped to comply with the design guidelines in the County of San Diego, East Otay Mesa Specific Plan (County of San Diego County, 1994). Additionally, any lighting will be shielded to limit potential nighttime light and glare.

***Miguel-Tijuana 230 kV Line*.** The existing 230 kV transmission line is a regional utility that is industrial in appearance. In the context of rural/agricultural and urban residential land uses through which it passes, it is incongruous, is not similar in appearance to features inherent to the landscapes within the potentially affected views, and draws attention.

Visual Impacts: Viewing Positions 6 and 7. Reconductoring of the entire transmission line route will be completed within three to four months, and grasslands disturbed around pull sites should become substantially reestablished in one growing season. Therefore, the visual impacts of construction equipment and activity, as well as the visual impact caused by disturbing grasslands, will be temporary and not significant due to their short duration.

Concerning the visual impact of the proposed 230 kV bundled transmission line once it is completed, Figures 3.8-2b and 3.8-3b are photo-simulations of the proposed 230 kV bundled transmission line where it crosses Otay Lakes Road and Eastlake Drive, respectively. Both represent the most critical views from the several major road crossings (roads which have been designated as scenic highways), as well as the most critical views from existing residential areas potentially affected by the bundled line. These photo-simulations should be compared to the existing visual conditions shown in the companion images.

The visual impact of bundling the lines would be minimal. No modifications of the tower structure will be done. Six sets of double lines will replace the single lines in place today and the six existing conductor-insulator connections will be replaced with yoke plates to keep the lines separated. The existing transmission lines are noticeable and distracting, particularly where the homes are elevated above the base of the tower and close to the lines. Bundling the conductors will make the lines only slightly more noticeable (Figures 3.8-2b and 3.8-3b) and would not noticeably lessen visual quality.

The existing transmission line which may be reconductored crosses the Johnson Canyon and O'Neal Canyon trail corridors that are part of the proposed Otay River Valley Regional Park plan. The bundled line would not impair visual quality for either trail. For views from either trail, doubling the number of conductors technically may adversely affect views, but the difference would not be noticed as a perceptible lessening of visual quality. The visual impact would be below the threshold of significance and insignificant.

In summary, no significant visual impacts would result from implementation of the proposed interconnection project.

Power Plant. The CEC staff's analysis of visual impacts from the power plant addressed concerns about visibility of plant structures at sensitive viewing locations, the reflection of sunlight from facility surfaces (e.g., stacks and fences), and the potential for exterior power plant lighting to change the nighttime visual character of the vicinity from rural to industrial by creating glare and backscatter to the nighttime sky. The Applicant conducted an analysis of visual impacts from seven key offsite observation points of the power plant. Visual impacts were determined to be insignificant at each observation point based on photographs with the photosimulations of the plant.

The CEC required the Applicant to implement several measures to eliminate potential visual impacts of the power plant. These included using earth tone tan or gray colors to blend existing facilities with soils and vegetation in the plant vicinity, using fencing that does not have reflective materials, and specific landscaping to blend the facility with the landscape.

The visual impacts of constructing the power plant may be temporary for certain activities such as construction of the wastewater and potable water pipelines but no significant permanent visual impacts are expected if the conditions specified by the CEC Decision are implemented.

4.2.1.9 Cultural and Paleontological Resources

Transmission Line.

Cultural Resources. Under the implementing regulations of Section 106 of the National Historic Preservation Act (36 CFR 800), impacts to identified cultural resources need be considered only if the resource is a "Historic Property"; that is, only if it meets the criteria of eligibility for the National Register of Historic Places (36 CFR 60.4).

This project is also being evaluated in accordance with the California Environmental Quality Act (CEQA). Under NEPA, a project potentially would have significant impacts if it would adversely affect a historic property. Likewise, under CEQA Appendix G, a project potentially would have significant impacts if it would cause substantial adverse change in the significance of an historical resource (i.e., a cultural resource eligible to the CRHR, or archaeological resource defined as a unique archaeological resource which does not meet CRHR criteria), or would disturb human remains. A non-unique archaeological or paleontological resource need be given no further consideration, other than the simple recording of its existence by the lead agency.

In many cases, determination of a resource's eligibility to the NRHP or CRHR (or its uniqueness) can be made only through extensive research, archaeological testing, and other costly and time consuming methods. Where possible, resources will be avoided. If, as the project proceeds, it proves impossible to avoid cultural resources on a selected project

component, formal eligibility evaluation will be undertaken. If the resource meets the criteria of eligibility to the NRHP, CRHR or is a unique archaeological resource, it will be formally addressed under Section 106 procedures as set forth under 36 CFR 800 and/or Section 21084.1 of California PRC and Sections 15064.5 and 15126.4 of the CEQA Guidelines. Resources that are not formally evaluated will be treated as eligible: all mitigation measures pertaining to the avoidance of direct and indirect impacts will apply.

230 kV Switchyard. The cultural resources field survey (Gallegos & Associates, 1999) did not identify any archaeological sites within the footprint of the proposed switchyard. Sites CA-SDI-7215 and 10297 were relocated within the adjacent power plant site property. Site CA-SDI-10298 is located east of the switchyard. A cultural resources testing program has been completed on these three sites (Gallegos & Associates, October 2000).

CA-SDI-10298 has been found to be a surface scatter only and is recommended as not significant under National Register and California Register criteria. CA-SDI-7215 is also a surface scatter only and is likewise recommended as not significant under National Register and California Register criteria. CA-SDI-10297 does contain a subsurface component and appears to retain those qualities that would make it eligible to the National Register of Historic Places under criterion D. However, CA-SDI-10297 is located south of a southwest trending drainage, which bisects the southeast corner of the plant site. There will be no ground-disturbing activity associated with the construction or operation of the generating facility and it is thus concluded there will be no project-related effects to this site.

Transmission Line Route. Route 1 includes the 0.1 mile connection from the plant switchyard to the existing Miguel-Tijuana 230 kV transmission line and 9.05 miles of reconductoring along the existing Miguel-Tijuana 230 kV transmission line north to the Miguel substation. The potential for new impacts associated with implementation of Route 1 are principally limited to the approximately 0.1 mile long interconnection from the plant site to the existing line. With the exception of the short interconnection from the switchyard to the existing Miguel-Tijuana 230 kV transmission line (including the new towers to be constructed at the intersection point with the Miguel-Tijuana line), there will be no new construction of facilities associated with this route other than rebundling or reconductoring at existing tower locations. There is a limited potential for new surface disturbance to occur from activities at the existing tower locations where there will be activities associated with reconductoring. Minor disturbances will also occur at the pull sites along the existing transmission line route.

Previous surveys associated with the construction of the 230 kV line and subsequent surveys for other activities identified a total of 20 sites within or immediately adjacent to the corridor. Sites associated with construction of the Miguel-Tijuana 230 kV line

have been previously cleared with respect to the Section 106 compliance process. There is a slight potential for additional new impacts to occur if new components of these sites are exposed and disturbed by the proposed reconductoring activities or construction of the 0.1-mile tie-in. Five sites identified at or near the reconductoring pull site locations or the 0.1-mile tie-in and associated tower locations have the potential to be adversely affected if not properly evaluated for site significance pursuant to National Register and California Register criteria and if found to be significant subject to appropriate mitigation measures such as data recovery. The site testing program completed in 2000 (Gallegos & Associates, October 2000) resulted in the conclusion that each of the potentially affected sites was not significant (CA-SDI-10297 does appear to contain a significant component, but that component does not occur within the APE of the project components discussed herein). Specifically, archaeological sites CA- CA-SDI-7212, -12909, -14225, and -–0298, which each partially overlap a pull site location, were tested and found to be insignificant lithic scatters. The 0.1-mile transmission line tie-in also overlaps CA-SDI-10298. A portion of CA-SDI-10297 that appeared to extend near a portion of a pull site footprint was also tested. This site is described as a habitation site. That portion of CA-SD-10297 potentially affected by the proposed project was recommended as not significant based on the results of the comprehensive testing program undertaken at that site, which revealed that a portion of the site is an insignificant lithic scatter only (Gallegos & Associates, October 2000).

No significant impacts on cultural resources are expected associated with reconductoring of the existing Miguel-Tijuana 230 kV line.

***Paleontological Resources*.** Project related excavation activities have the potential to unearth and impact paleontological resources. With implementation of the Applicant proposed environmental protection measures in Section 2.2.3 and Appendix A, no significant impacts on paleontological resources are anticipated.

230 kV Switchyard. Plant switchyard construction will require grading and excavation or subsurface intrusions to a maximum depth of approximately 15 feet. It is assumed that construction of the switchyard has the potential to disturb underlying rock formations within the entire switchyard site footprint.

The approximate 5-acre switchyard site and surrounding area appear to lie within a high sensitivity formation. Cut-and-fill activities may disturb and destroy material within the potentially sensitive formation. Increased pedestrian and vehicular traffic in the area during construction will potentially expose any resources that may be present to the threat of casual damage, vandalism, and illicit collection. With implementation of the Applicant-proposed environmental protection measures (see Section 2.2.3), no significant impacts on paleontological resources are expected.

Transmission Line Route. Route 1 will use existing towers that will be "bundled" (i.e., additional conductors added to existing towers). The only new construction would be the short, 0.1-mile tie-in from the plant site to the existing transmission line corridor. No impacts to sensitive paleontological resources are expected to occur along the 0.1-mile long interconnect, which will span from the switchyard to the new towers to be installed in the Miguel-Tijuana line. The most sensitive part of Route 1 occurs north of Otay Valley where numerous significant fossil localities have been discovered. Activity associated with bundling at individual towers could result in some minor surface disturbance and subsequent paleontological impacts. Areas required for staging equipment and/or materials are currently expected to be within the proposed Otay Mesa Generating Plant boundary and the existing Miguel substation property (i.e., no additional disturbances/impacts are expected). Activity associated with bundling (e.g., conductor payout and tensioning activities) at the pull site locations could result in some minor surface disturbance and subsequent paleontological impacts. Existing access roads requiring maintenance could also result in surface disturbance and subsequent paleontological impacts. In summary, with mitigation, no significant impacts are expected to occur.

Power Plant.

Cultural Resources. The Applicant conducted a records search and literature review within a 1-mile radius of the power plant. Field surveys of the plant site were conducted and linear corridors for the project. A total of 257 recorded historic and prehistoric sites and 52 isolates were identified. A total of 3 previously recorded sites were identified within the power plant site area. The CEC staff and the Applicant agreed that one of these sites is a significant cultural resource and recommended avoidance of the site during plant construction. Ten sites were identified along two potential routes for the wastewater discharge pipeline, one of which was considered significant and warrants data recovery and monitoring.

Several conditions were required of the project owner to mitigate impacts of construction on prehistoric and historic sites in the project area. These include:

- A trained cultural resources specialist must be present during site construction,

- The project owner shall provide detailed footprint maps and designs for facilities at the plant as well as other areas planned for disturbance to the CEC and Cultural Resources Specialist before site preparation activities and construction begins,

- The project owner will prepare a Cultural Resources Monitoring and Mitigation Plan that identifies specific measures to minimize potential impacts to sensitive cultural resources. The plan shall be submitted prior to any vegetation clearing or earth-disturbing activities,

- An employee training program on cultural resources will be implemented prior to construction,

- Cultural resources specialists and their delegated monitors will have the right to stop construction if any unknown cultural resource is recognized during site preparation or construction activity,

- The cultural resources specialist will keep a daily log of any resource finds and maintain a progress report on status of monitoring, collections, mitigation, etc.,

- The project owner will submit reports on recovered cultural resources data to the State Historic Preservation Officer in California and the appropriate regional archaeological information center, and

- Interaction with Native American Tribal representatives to develop finalized agreements for Native Americans to participate in monitoring site activities during earth-moving work.

***Paleontological Resources*.** No *in-situ* paleontological sites were found during the course of the Applicant's field surveys. Two conditions were required by the CEC Decision to protect paleontological resources in the event they would be unearthed during plant construction. As was the case for cultural resources the CEC requires that adequate protection measures be in place prior to site construction. These include development of a Paleontological Monitoring and Mitigation Plan and having a qualified paleontologist onsite during construction .

No impacts of power plant construction on paleontological resources are expected. In the unlikely event that sites are encountered, appropriate mitigation measures have been developed to protect any sites that may be encountered.

4.2.1.10 Socioeconomics

Transmission Line. Construction of the proposed interconnection project is expected to require 10-20 workers and occur over a 3-4 month period. It is anticipated that SDG&E personnel will construct the interconnection project (including the switchyard, short 0.1-mile interconnect, and reconductoring activities), and that non-local workers will not be required. The proposed project is not anticipated to adversely impact socioeconomic conditions in the project area, since the project is not expected to require an influx of workers and will not make demands for housing or schools. The project will contribute to the local economy through purchase of goods and services, payment of taxes, and by providing needed electrical power to the San Diego grid.

Power Plant. Construction of the OMGP is expected to last approximately 21 months and require a maximum of 361 workers during peak construction. Operation of the plant is expected to provide 25 permanent jobs. The project owner has an existing agreement with the San Diego County Building and Construction Trades Council to supply both the construction and operations workforce. Due to the large number of union members already living in San Diego county, this additional demand is expected to have minimal impacts on the local housing market from relocations, and minimal impacts on local schools, utilities and services. The project is expected to generate a construction payroll of $25 million and an operations payroll of $3 million per year, while providing $2.7 annually in property taxes to the county. Equipment and material costs of $160 initially and $8 million annually will add $12 million in sales tax revenues to the area. A condition of the CEC's certification decision is that the operator must recruit workers and buy materials and equipment from within San Diego County before hiring or buying from outside the county. The CEC found that construction and operation of the OMGP would not result in any direct, indirect, or cumulative adverse socioeconomic impacts.

Environmental Justice.

Transmission Line. Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations" requires all federal agencies to develop environmental justice strategies. Pursuant to the directive, the USEPA issued Guidelines that require all federal and state agencies receiving federal funds to develop strategies to address this issue. The federal guidelines include a two-step screening process to determine if a project could result in disproportionate impacts on low-income and minority populations. The first step is to check whether the potentially affected community or area includes minority and low-income populations; and if it does contain these population groups, to determine whether the environmental impacts fall disproportionately on minority and low-income members of the community.

The proposed project is located in SRA 22 (South Bay) which is a portion of San Diego County where the non-white population (minorities) constitutes about 74 percent of the total population. The current percentage for the non-white population in the entire San Diego County area is 39 percent. Adjacent SRAs also have high concentrations (51 to 60%) of minority populations. In addition to high concentrations of minority populations, all three SRAs have median incomes that are much lower than the average for the County as a whole. Therefore, the project could potentially affect low-income and minority populations because these are present in the project area in relatively larger numbers.

In the context of the siting of a power plant/switchyard, the primary environmental justice issue would be potential air or water emissions that could adversely affect the health of these populations. Other issues could be any potential residential or business displacements, visual impacts, and EMF or noise (e.g., corona) impacts on populations near the power plant

switchyard or transmission lines. Neither the proposed interconnector project or the OMGP would result in significant air emissions of criteria pollutants that could lead to health effects in the U.S. or Mexico. It would also not result in significant emissions of toxic air contaminants that could increase the ambient cancer risk or result in non-cancer health effects or involve wastewater discharges that could affect drinking water supplies. Due to mitigation measures included in the project design and/or the absence of sensitive receptors nearby, there would be no significant noise impacts, as discussed in 4.2.1.11, or EMF impacts due to the project. The project would not displace any homes or businesses. Additionally, the proposed project would not result in significant visual resource impacts. In light of this, it is concluded that the project would not result in disproportionate impacts on low-income and minority populations present in the area around the power plant switchyard or transmission facilities.

Power Plant. Census data indicates that a minority/low income population exists within a 6-mile radius of the OMGP site as determined by U.S. EPA guidelines. The CEC and plant operator concur, however, that the project as mitigated would not result in adverse impacts to the environment or to public health and safety and, therefore, the project would not expose minority or low-income populations to disproportionate impacts. Locations that might be impacted by increases in PM_{10} concentrations lie to the east of the plant site in unpopulated areas as indicated by air pollution modeling.

4.2.1.11 Transportation and Noise

Transportation

Transmission Line. As discussed in Section 3.11.1, access to the proposed switchyard within the OMGP site is via State Route 905, Otay Mesa Road, and Alta Road. Other local roads that may be utilized for access include Airway Road and Sanyo Drive. The existing Miguel-Tijuana 230 kV line to be reconductored has existing roads and trails over its entire length. The construction workforce, equipment, and material requirements are minor, and the construction phase is short. Construction related impacts on local and regional roads within the project area are expected to be short term and insignificant.

Power Plant. Construction of the OMGP will similarly impact traffic on State Route 905, Otay Mesa Road, and Alta Road, as well as other local roads. A worst-case analysis of construction traffic indicates that several intersections along Otay Mesa Road could be adversely affected during construction. The CEC's Certification Decision for the project indicates that the Applicant submitted a Supplemental Traffic Study in November 2000 that commits the Applicant to improve four intersections near the project site to mitigate these impacts. The improvements will alleviate the need to stagger construction hours to prevent overloading these intersections. An estimated 4,220 truck deliveries that will be required during the 21-month construction period would not be expected to cause adverse traffic

impacts. Conditions of project certification ensure that road construction associated with the plant will not cause undue impacts on traffic. Commuter and truck traffic during plant operation are not expected to have any adverse impacts on local traffic conditions due to the small number of vehicle trips required.

Noise.

Transmission Line. Construction activities at the switchyard include site clearing and preparation, foundation construction, and electrical equipment erection. Switchyard construction activities will occur simultaneously within construction of the adjacent OMGP. Construction noise levels from the OMGP, including the switchyard, are anticipated to range up to 90 dBA Leq at 50 feet from the source (e.g., air compressors). The anticipated resulting sound level at the nearest residence will be 49 dBA or less (Otay Mesa Generating Company, 1999).

Construction activities will be scheduled during daytime periods, as practical. Construction noise is expected to be inaudible or only faintly audible at the nearest residences, and no significant noise impacts are anticipated associated with switchyard construction.

No construction noise impacts are anticipated associated with construction of the short, 0.1-mile interconnect between the Otay Mesa switchyard and the existing Miguel-Tijuana 230 kV transmission line due to the minor activities involved and the remote location. Reconductoring activities along the existing Miguel-Tijuana line will result in short term, transient noise along the right of way. Some construction activities may be briefly audible at residences along the northern portion of the route near pull site locations (e.g., near Telegraph Canyon Road). No significant construction noise impacts are anticipated.

Power Plant. Construction of the OMGP and linear facilities would cause temporary and transitory noise impacts. Noise levels at the nearest sensitive receptor from activities such as steam blows to flush piping prior to start-up will range from 46 to 49 dBA. Silencers or new quieter steam blow processes will be used to reduce noise impacts. A noise control program will be implemented to protect construction workers. Limiting construction to daytime hours and providing notice to nearby receptors, as appropriate, will further mitigate noise impacts.

4.2.2 Operational Impacts

4.2.2.1 Corona

Transmission Line. The electric field at the surface of the conductors (transmission lines) causes the phenomenon of corona. Corona is the electrical breakdown or ionization of air in very strong electric fields and, depending upon weather conditions, it is the source of audible noise, electromagnetic interference, and visible light.

The corona performance of the proposed project was predicted using the Corona and Field Effects Program developed by the Bonneville Power Administration (BPA). Corona performance is calculated using empirical equations that have been developed over several years from the results of measurements on numerous high-voltage lines. Of the methods available for predicting radio interference levels, the BPA empirical equivalent method agrees most closely with long-term data. Important input parameters to the computer program are voltage, current, conductor size, and geometric configuration on the line. Because corona is a statistical phenomenon, corona computations are made under conditions of average operating voltage and for average line height (40 feet). The resulting maximum conductor surface voltage gradient is 13.09 kV/cm for the new 230 kV conductors strung on the existing steel towers. Because corona is basically a foul-weather phenomenon, levels of audible noise, radio interference, and television interference are predicted for both fair and foul weather.

Because this project adds a second conductor per phase to the existing 230 kV transmission line, it effectively increases the conductor diameter, enhances corona performance, and thus reduces audible noise and radio and television interference.

SDG&E will operate the modified 230 kV system in accordance with their standard procedures for limiting audible noise and radio interference.

***Audible Noise*.**

Transmission Line. Audible noise associated with operation of a transmission line is a crackling or buzzing sound caused by corona discharge near the conductors and insulators. The intensity of the noise level is dependent on weather conditions, voltage, and conductor configuration. Because of the large conductors that will be used on the proposed line, corona activity will be minimal during both fair and foul weather. Predicted levels of corona-generated audible noise are at, or below, ambient noise levels for all weather conditions.

In summary, the predicted maximum audible noise (during foul weather) at the edge of the 230 kV right of way, after the proposed reconductoring is complete, is 35.3 dBA. The existing line produces 45.1 dBA of audible noise. These levels are comparable with quiet conditions in a suburban residence at night and much less than the EPA guidelines of 55 dBA for the annual average day-night level outdoors (EPA, 1978).

Power Plant. Operation of the OMGP will emit a steady, continuous, noise day and night. Noise mitigation measures incorporated into the project design will ensure that noise levels at the nearest sensitive receptor will not exceed 39 dBA, which is 5 dBA

above the ambient noise level in the area. The design will blend noise levels and muffle equipment to limit noise impacts to nearby residential receptors to acceptable levels.

Radio and Television Interferences.

Transmission Line. Radio interference (RI) from transmission lines is primarily caused by corona. The level of corona activity on the proposed line will be minimal because of the use of two relatively large conductors on each phase of the 230 kV Miguel-Tijuana line. Consequently, the level of corona-generated radio interference anywhere off of the right of way will be at or below recommended levels. The radio interference predicted for fair weather conditions at the edge of the 230 kV right of way is 28.1 dBUV/m. This level is much less than the 40 dBUV/m level, which had been identified as acceptable (IEEE Committee Report, 1971). For reference, the existing interference level for fair weather conditions at the edge of the 230 kV right of way is 40.2 dBUV/m.

A second source of RI, gap-type sparking, is not a frequent source of interference on high-voltage lines and is generally not a factor for 230 kV transmission line designs. Spark-gap noise is avoided by proper design and installation of transmission line hardware parts. Individual locations of spark gap noise, including those from nearby objects, can be readily located and corrected.

Dirt on the insulators may cause micro-arcing in foggy weather and thus be an isolated source of RI. However, it is less significant than either corona or spark-gap interference and will not be of concern for the proposed line. Micro-arcing is avoided by increasing the insulation in high contamination areas and washing insulator strings periodically.

In general, for 230 kV transmission lines, radio interference is not a problem in fair weather conditions. During foul weather conditions, the quality of some AM radio broadcast stations with weak signals may be reduced in isolated locations, especially on the right of way. There should be no effect on FM radio reception.

Transmission line related sources of television interference (TVI) are caused by corona and gap-type noise. Corona discharge from the transmission line conductors can be a source of TVI, typically on the video portion only, and especially on lines with voltages of 345 kV or greater. Because of the 230 kV operating voltage and the low levels of corona anticipated for the proposed line, corona-generated TVI is not anticipated to be a problem for this line.

Interference with radio reception primarily occurs at AM broadcast frequencies (535 to 1,605 kHz) while television interference affects reception between 54 and 88 MHz (Channels 2 to 6). There is the potential for interference to mobile communications

operating very near the right of way, particularly for CB receivers (27 MHz) and FM mobile receivers operating at VHF (25 to 88 MHz) frequencies. Because corona activity is greater during foul weather, such interference would be infrequent given the low incidence of foul weather in the vicinity of the plant. Interference with cellular telephone operation due to corona-generation interference should not be a problem because these telephones operate at much higher frequencies (900 MHz). SDG&E will operate the modified 230 kV transmission facilities (230 kV) and SDG&E's facilities are required to comply with Federal Communications Commission (FCC) rules and regulations that make operators of unintentional radio frequency sources responsible for taking steps to mitigate any resulting interference (FCC, 1988). SDG&E's policy in resolving AM radio and television interference complaints is to make every reasonable effort to promptly locate and correct the cause of the interference when it has been established that this interference is from its project. Where appropriate, corona-generated interference can often be corrected by improvements to the landowner's antenna.

In cases where signal blockage or reflection is reported, a signal survey will be taken on the complainant's property and surrounding area to determine whether or not blocking or reflections are caused by the proposed changes to the existing power line. If the line is the cause, corrective measures will be taken including changing the antenna location or upgrading of antenna performance.

To provide a basis for evaluating and correcting any interference caused by the transmission line, radio and TV field strength measurements will be made on the affected SDG&E lines prior to construction. If complaints are received within 0.5 mile after operation of the line, and it is determined that the cause is attributable to the new construction or operation, SDG&E will take corrective mitigation measures to provide satisfactory service.

4.2.2.2 Electric and Magnetic Fields

Electric power lines, generators, transformers (e.g., step-up transformers at switchyard), and other devices that handle electric currents produce electric and magnetic fields (electromagnetic fields, or EMFs). For this project, the potential for public exposure to project related EMF is limited to the immediate vicinity of the transmission line right of way. EMFs oscillate at a frequency of 60 hertz (i.e., 60 cycles per second). The strength of the EMF generated by an alternating current varies with voltage. wire type, spacing, and location, and other factors. Field strength decreases rapidly with distance from the source. EMFs are produced by power lines, house wiring, all electrical appliances, and wherever electrical currents are flowing. A controversy exists as to whether there are any health effects from exposure to EMFs. Experiments have shown that magnetic fields can cause biological effects in living cells, but it is not known whether these biological effects have any relevance

to human health. To address these questions, the CPUC undertook an investigation in 1991, working with the California Department of Health Services (DHS), electric utilities, and a "consensus group" made up of experts and consumers vitally interested in this subject. Due to the lack of scientific or medical conclusions about potential health effects from electric utility facilities and power lines, the CPUC adopted interim measures in 1993 that help to address public concern on this subject, including the deployment of no/low cost steps to reduce EMF levels in new or upgraded facilities, residential and workplace EMF measurement programs available to utility customers, and an education and research program managed by DHS. Pending clear scientific direction regarding possible harm from utility facilities, the CPUC has pursued a policy of avoiding any unnecessary new exposure that can be avoided at a reasonable cost. The CPUC authorized utilities to implement no and low-cost field-reduction measures on new and upgraded facilities. Low-cost is defined by the CPUC as approximately 4% of the project cost. The CPUC has determined that precautionary field-reduction measures costing much more than 4% of the project cost cannot be justified given the dearth of scientific evidence of a causal relationship between electrical facilities and health risks. Given the absence of a scientific demonstration that EMF causes health effects, any potential impact would be entirely speculative and, therefore, cannot be considered significant.

In October 1996 the National Research Council of the National Academy of Sciences published the results of its evaluation of the research on health effects attributable to EMF. The Committee conducting the study examined more than 500 studies conducted over the last 17 years and released its findings in a report titled, "Possible Health Effects of Exposure to Residential Electric and Magnetic Fields." Dr. Charles Stevens, chairman of the committee concluded that the findings to date do not support claims that electromagnetic fields are harmful to a person's health (NRC, 1996). He continues, "Research has not shown in any convincing way that electromagnetic fields common in homes can cause health problems, and extensive laboratory tests have not shown that EMFs can damage the cell in a way that is harmful to human health."

On June 27, 1998, a 28-member advisory panel sponsored by the National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health, voted 19 to 9 to label EMF's a "possible human carcinogen," which kept open funding for continuing government studies. On May 4, 1999, NIEHS issued a report entitled *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields* (NIEHS, 1999). The report concludes: "The NIEHS believes that the probability that EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm." Although the NIEHS concluded "that ELF-EMF exposure cannot be recognized as entirely safe" with regard to leukemia, it found the scientific evidence of a leukemia risk to be "weak."

The Applicant will follow its guidelines for no/low-cost field-reduction, as approved by the California Public Utilities Commission (CPUC), in developing the facility and related transmission lines, as applicable. The CPUC defines low-cost as approximately 4 % of the project cost. The CPUC has determined that precautionary field-reduction measures costing more than approximately 4% of the project cost cannot be justified given the paucity of scientific evidence linking EMF with health risks. SDG&E will also comply with DOE stipulations in Presidential Permit No. 68, as amended, regarding this matter.

4.2.2.3 Induced Currents and Hazardous/Nuisance Shocks

Introduction. The double circuit transmission line will contain six phases with two conductors per phase (a total of 12 conductors). Each conductor will be 900 kcmil size, type ACSS, Aluminum Association code word "Canary."

Possible human exposure effects associated with the interaction of electric fields from transmission lines, on and near a right of way, fall into two categories: perceived short-term effects that may represent a nuisance, and possible long-term health effects. Only short-term effects are discussed here.

Electric Fields: Short-Term Effects. Since the proposed project will not materially change the electric fields on the right of way, the following discussion also applies to the existing SDG&E facilities.

Short-term effects from transmission line electric fields are associated with perception of induced currents and voltages or perception of the field. Induced current or spark discharge shocks can be experienced under certain conditions when a person contacts metallic objects in an electric field. Such effects can often occur in the fields associated with transmission lines that have voltages of 230 kV or higher.

Primary shocks are those that can result in direct physiological harm. Such shocks are not possible from induced currents associated with the proposed line.

Secondary shocks are defined as those that could cause an involuntary and potentially harmful movement, but no direct physiological harm. Secondary shocks could be produced by the existing 230 kV line. However, such occurrences are very infrequent and when they do occur, are most likely to be barely perceptible. Induced currents can be mitigated via grounding of objects and such currents are very unlikely to be perceived outside the right of way.

Transmission lines can, under some conditions, induce currents on railroad signal communication conductors. This is not an issue for this project since no operating railroad track parallels any part of the project.

Grounding mitigates the secondary effects for stationary objects like fences and buildings. Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. The National Electrical Safety Code (ANSI C2-1997) requires that, for lines with voltages exceeding 98 kV line-to-ground (170 kV line-to-line), sufficient conductor clearance be maintained to limit the induced short-circuit current in the largest anticipated vehicle under the line to 5 milliamperes (mA) or less. For example, with a maximum electric field of 4 kV/m under the conductors, the induced current even for a triple trailer truck 13.5 feet high, 8.5 feet wide, and 77 feet long (not permitted on California highways), would be less than 4.0 mA, well within the 5mA criterion. This has been accomplished by maintaining a conductor ground clearance of 30 feet not only where large vehicles could be present but elsewhere as well.

SDG&E designs and operates 230 kV lines to be in compliance with the NESC and applicable California state codes, and this project would not alter this design.

Magnetic Field: Short-Term Effects. Magnetic fields associated with transmission and distribution systems can induce voltage and current in long conducting objects, such as fences, that are parallel to the transmission line. As with electric field induction, these induced voltages and currents are a potential source of shocks. Magnetic fields are caused by the current in the conductor.

Magnetically induced currents from power lines have been investigated for many years, and calculation methods and mitigating measures are available. The study of gas pipelines near transmission lines has led to prediction methods and mitigation techniques specifically for induced voltages on pipelines. Similar techniques and procedures are available for irrigation pipes and fences. Grounding policies employed by utilities for long fences reduce the potential magnitude of induced voltage. Because this project will increase line current, the grounding of fences on the right of way will be accomplished as part of the construction phase in accordance with SDG&E practice, including applicable codes and regulations.

Cardiac Pacemakers. The final short-term electrical field consideration is possible interference with cardiac pacemakers. The magnetic fields even directly under the transmission line are too weak to interfere with most pacemaker designs.

There are two general types of pacemakers; asynchronous and synchronous. The asynchronous pacemaker pulses at a predetermined rate. It is practically immune to interference since it has no sensing circuitry and is not exceptionally complex. The synchronous pacemaker only pulses when its sensing circuitry determines pacing is necessary. In pacemakers with specific electrode configurations, interference may result from the transmission line electric field causing a spurious signal on the pacemaker's sensing circuitry. When these pacemakers detect a spurious signal such as a 60 Hz sinusoid, they are

programmed to revert to an asynchronous mode of operation. While it is possible for the transmission line electric fields to interfere with the normal operation of some pacemakers, the interference may not be a problem unless exposure is prolonged. Interference from transmission lines is much less likely than for other sources of electrical interference such as microwave ovens and cellular phones (Silberberg, 1993).

Inductive Interference. Because there are no parallel utilities (i.e., telephone, telegraph, railroad or pipeline), no adverse effects from inductive interference is expected. If an unanticipated effect occurs, the project will take all necessary steps to mitigate impacts by working directly with the owner/operator of the utility affected.

4.2.2.4 Wildlife

Transmission Line. Operation of the proposed interconnection project has the potential to adversely impact sensitive wildlife species due to bird collisons with transmission conductors. The proposed project will introduce a new, short (0.1 mile) transmission line between the new 230 kV switchyard (to be installed at the Otay Mesa Generating Plant) and the existing Miguel-Tijuana 230 kV line. The new line will run at approximately a 45° angle where it intersects the existing line. The potential exists for bird strikes on this new line. However, bird collisions have not been a problem in the project area since the Miguel-Tijuana line was built in 1981. SDG&E has installed orange balls along portions of the transmission line. The balls are primarily meant to warn low-flying aircraft (e.g., Sheriff's Department, Border Patrol, etc.), but also function to make the line more visible to birds. The doubling of conductors along the existing Miguel-Tijuana 230 kV line will make the conductors more visible to birds, therefore, the potential for bird collisions is expected to be lowered along the Miguel-Tijuana 230 kV line if the project is implemented. The increased line visibility would be expected to reduce the potential for migratory or other birds to strike the existing line where it crosses the Otay River Valley downstream of Lower Otay Lake.

An extremely low potential for electrocution of large birds (e.g., raptors) exists along the existing Miguel-Tijuana 230 kV line. The proposed reconductoring/bundling of conductors would not increase the potential for electrocution since the added conductors will be the same voltage as the adjacent conductor – i.e., can simultaneously touch the adjacent, bundled conductors without a potential for electric shock. The distance between conductors of different voltage on the Miguel-Tijuana 230 kV line is greater than 12 feet – i.e., minimum raptor wing span of greater than 12 feet needed to have any potential for electrocution. No raptors with such a wide sing span exist in the San Diego area.

In summary, no significant impacts to wildlife are expected to occur during the operational phase for the project.

Power Plant. Operation of the power plant is not expected to have significant impacts on wildlife. The height of the power plant stacks is expected to be below 150 feet. Bird collisions are not expected with structures of this height.

The CEC Decision required that appropriate mitigation measures would be developed for federal and state protected species to provide protection from any emissions of power plant operation.

4.2.2.5 Vegetation

Transmission Line. Operation of the proposed interconnection project would not adversely impact vegetation during the operational phase. A small amount (less than 1 acre) of non-native grassland would be taken out of production over the life of the project at the proposed 230 kV switchyard, and under the two new steel lattice structures to be installed at the interconnection tie-in point on the existing Miguel-Tijuana line. The Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) for the Otay Mesa Generating Project (URS, 2000) provides mitigation and compensation for the plant switchyard.

SDG&E maintains its key, gated access roads along the Miguel-Tijuana line, but the right of way is not actively maintained or disturbed. SDG&E does not clear vegetation along the right of way and no herbicides are utilized. Biological resources along the right of way will continue to be protected by the operational protocols adhered to by SDG&E in accordance with the Subregional and Natural Community Conservation Plan (NCCP) (SDG&E, 1995).

In summary, no significant impacts to vegetation, including wildlife habitat, are expected to result from operation of the proposed interconnection project.

Power Plant. Operation of the power plant is not expected to impact vegetation downwind of the plant. Concentrations of gaseous emissions will be extremely low. The CEC however, has required a vegetation endowment fund be established for 60 acres of native vegetation so that weeding on a regular basis can be used to remove non-native species that may result from nitrogen deposition potentially associated with nitrogen oxide emissions from the power plant.

4.2.2.6 Transportation and Noise

Transportation.

230 kV Switchyard. Operation of the switchyard will be coordinated between the operators of the Otay Mesa Generating Plant, SDG&E, and the Cal ISO. Operation of the switchyard will not require any extra full-time employees.

The contemplated expansion of Brown Field Airport would extend the existing runway about 3,500 feet to the east, to a location of about 2.6 miles west of the proposed switchyard site. FAA obstruction standards were reviewed to determine the potential for air safety hazards associated with the proposed runway extension and the height of the switchyard and transmission facilities. Based on the FAA's height and distance methodology, it was determined by the FAA in May 2000 that the project components would not exceed FAA obstruction standards and would not be a hazard to air navigation.

In summary, operation of the switchyard will not: generate substantial vehicular movement; alter present patterns of circulation; alter waterborne, rail, or air traffic; substantially increase traffic hazards to motor vehicles, bicyclists, or pedestrians; violate adopted LOS standards; generate traffic for which affected routes are not suitable; or create demand for new parking that cannot be accommodated by the project design. There are no road features in the project area that would affect public safety. Therefore, the proposed project is not expected to result in significant impacts on the local transportation system.

Transmission Line Route. Potential impacts associated with modification of the existing 230 kV transmission line route include operation-related impacts. Operation-related impacts will result from periodic maintenance of the transmission line during operation of the project. Maintenance requirements for the modified 230 kV transmission line are expected to be the same as for the existing line. Maintenance of the 230 kV transmission line system will result in negligible vehicle travel along access roads to towers, and is therefore unlikely to have any adverse impact on the existing roadways crossed by, or located in the vicinity of, the transmission line towers. Use of helicopters to inspect and periodically wash the line will continue to occur. No significant impacts to traffic and circulation patterns are expected to result from operation of the proposed project.

The proposed tower structures (120 feet tall) to be constructed where the short, 0.1-milt interconnection ties into the existing Miguel-Tijuana 230 kV line will not exceed FAA height limitations. In accordance with PP-68 permit conditions, the towers will have red lights installed on the tops.

Noise. Operational phase noise from the interconnection project is expected to be minimal. Operational noise from the plant switchyard will be insignificant and will be masked by noise from the adjacent power plant. The noise levels from the power plant; including the plant switchyard, were modeled and compared to applicable USEPA, USOSHA, CalOSHA, and San Diego County guidelines and standards (OMGC, 2000). No significant noise impacts are anticipated for operation of the combined power plant and switchyard. Operation of the short interconnection line and the reconductored line are not expected to cause my significant noise impacts. Corona noise levels are expected to be negligible (refer to Section 4.2.2.1). Operation and maintenance activities along the portion of the Miguel-Tijuana line to be

reconductored are expected to be similar to the activities currently performed by SDG&E along the corridor.

In summary, no significant noise impacts are expected to result from implementation of the proposed project.

4.2.2.7 Materials and Waste Management for Power Plant

Hazardous materials used and stored at the OMGP site include aqueous ammonia, sulfuric acid, hydrochloric acid, and cyclohexylamine. All but aqueous ammonia will be used in quantities below thresholds listed under the California Accidental Release Prevention (CalARP) Program. Impacts from the accidental release of ammonia were evaluated through an Off-Site Consequences Analysis (OCA) using a worst-case accident scenario involving truck unloading. Air modeling showed that a threshold level of concern of 75 ppm would be confined almost entirely to the site and that no public sectors would be impacted at this level.

Other materials of concern used at the plant include hydrogen used to cool combustion turbines, and natural gas, the plant fuel. As a condition of plant certification by the CEC, the plant must prepare a Safety Management Plan for the delivery, storage, and handling of hydrogen, which includes measures for avoiding storage in areas that could be affected by turbine over-speed accidents or seismic events.

Natural gas, while not stored on site, poses fire and explosion concerns. The CEC Decision on certification of the plant concluded that such risks would be reduced to insignificance through the adherence to all applicable fire and safety codes and through the implementation of effective safety management practices. Conditions of certification ensure that construction and operation of gas pipelines complies with applicable safety requirements.

Wastes generated during construction would be primarily solid, non-hazardous wastes, including paper, wood, glass, plastic, and scrap metal. These wastes will be recycled, if possible, or disposed in a Class III (non-hazardous waste) landfill. Hazardous wastes generated during construction will include oil and grease, paint, batteries, solvents, welding materials, and cleaning agents. Hazardous wastes will be recycled if possible, with the remainder to be removed by a certified waste handler for disposal at a licensed Class I (hazardous) waste treatment or disposal facility.

Non-hazardous wastes generated during plant operation, including trash, office wastes, empty containers, packaging materials, and used filters will be disposed at a Class III facility, most likely Otay landfill. Hazardous wastes generated during operation, including spent air pollution control catalysts, used oils and filters, used cleaning solvents, and hydraulic fluids, if not recycled, will be taken by a certified waste hauler to a Class I landfill.

The materials and waste management practices to be implemented at the plant and the Conditions of Certification ensure the safe use and handling of materials and management of wastes and reduce potential impacts to the environment and public to levels below concern.

4.2.2.8 Technical Areas Not Impacted by Power Plant Operations

Operation of the power plant is not expected to impact cultural resources, paleontological resources, recreation, or land use in the project vicinity. The use of dry cooling towers would eliminate potential cooling tower plumes from mechanical draft cooling towers that potentially could have visual impacts.

4.3 CUMULATIVE IMPACTS

The AFC prepared for the Otay Mesa Generating Project (99-AFC-5) (Section 5.18-Cumulative Impacts) identified various planned projects in the project vicinity. Figure 4.3-1 (Location of Projects Considered in the Cumulative Impacts Assessment) illustrates the general geographical locations of these projects.

4.3.1 East Otay Mesa Specific Plan

The East Otay Mesa Specific Plan sets forth a comprehensive and long range vision for the development of approximately 3,300 acres within the East Otay Mesa Specific Plan area as a modern industrial and business center. Over the next 20 years, the Otay Mesa area (including the East Otay Mesa Specific Plan area) is anticipated to become an international industrial and business district, with over 6,700 acres of industrial and commercial planned land use. The Specific Plan sets the framework for future development, including policies, standards and guidelines that guide and facilitate private development over time. The Specific Plan further establishes an implementation program, including infrastructure and public facility plans, and a phasing and financing strategy.

Although not a project, the East Otay Mesa Specific Plan will substantially alter the current land use of the area and will result in significant environmental impacts as indicated in the EIR for the Plan (County of San Diego, 1994). Significant and mitigable impacts identified in the EIR include land use, landform alteration/visual quality, cultural resources, geology and soils, hydrology and water quality, traffic and transportation, air quality, health and safety, and public services and utilities. Impacts to biological resources have been determined to be significant and not mitigable in the EIR. At this early stage in the development of the area, it is not possible to predict the time when, or the specific location where, these impacts may occur. The proposed interconnection project will be a small component of the overall development of the area and is not anticipated to result in direct, unmitigable significant impacts. Therefore, the interconnection project will contribute to the cumulative impacts

within the Specific Plan area but is not considered to be a significant contributor to the overall level of cumulative impacts.

4.3.2 Otay Ranch

The Otay Ranch Project comprises the development of about 50,700 residences and other uses forming an approximately 23,100 acre new town, located about 3.5 miles east of downtown Chula Vista in the southwestern portion of the County. The "New Town Plan" proposes a mix of residential neighborhoods utilizing a village concept, commercial centers, research oriented industrial uses, a civic center, art centers, resort facilities, recreational parks, a town center, and a university site. Natural open space would be conveyed into a permanent reserve. The New Town Plan would be developed in phases over a 30-50 year period and result in a total population of about 150,000 persons.

Environmental review for the project consisted of the preparation of an EIR, completed in 1992. Critical issues identified during environmental review of the project were land use and planning, landform alteration/aesthetics, biology, cultural resources, geology and soils, paleontology, agricultural resources, mineral resources, water resources and quality, transportation and circulation, air quality, noise, public services and utilities, and risk of upset. Significant environmental impacts of the project were mitigated to below a level of significance for geology and soils, paleontology, mineral resources, water resources and quality, public services and utilities, and risk of upset. For the other environmental disciplines listed above, the EIR determined that selected impacts were unmitigable or would remain significant after mitigation (URS Greiner Woodward Clyde, 1999).

Development is planned to occur in stages. Areas not under active development will remain vacant and in an unimproved condition. The Otay Ranch is in the cumulative impact study area; although the existing 230 kV transmission line traverses the Otay Ranch area, the proposed project-related modifications to the transmission line will not result in substantial new ground disturbance and are expected to be similar to routine maintenance activities for the existing line. Additionally, project-related disturbances will avoid areas of critical biological habitat. Therefore, no significant cumulative impacts are anticipated as a result of the proposed interconnection project.

4.3.3 State Route 125

An extension of State Route 125 is planned to connect the Otay Mesa Port of Entry with the regional and inter-regional highway network in San Diego. The new highway segment will be approximately 11.2 miles long and will run from Otay Mesa Road to State Route 54. The right of way will be wide enough to accommodate up to 8 regular highway lanes and two high occupancy vehicle lanes (HOV) or fixed guideway transit. Interchanges will be at Otay Mesa Road, future Long Star Road, three proposed future interchanges in Otay Ranch, future

Olympic Parkway, Otay Lakes Road, East H Street, future Mt. Miguel Road, and State Route 54. The estimated future use of the highway after development of Otay Ranch and other projects in the Otay Mesa area is 200,000 vehicles per day.

The State Route 125 project was approved for study in June 1988 by Caltrans headquarters. Construction is slated to begin in 2000, and an initial 4-lane highway from State Route 54 to Otay Mesa Road is expected to be completed by 2002. The project is under development by a public/private partnership between Caltrans, San Diego Association of Governments (SANDAG), and a private California corporation, California Transportation Ventures, Incorporated (SANDAG, 1999; Caltrans, 1997; Tahlke, 1999).

The proposed Otay Mesa switchyard, power plant and the existing 230 kV transmission line are located east of the State Route 125 area. The proposed SR125 route crosses the existing 230 kV Miguel-Tijuana line near the Eastlake Residential Area and again near the San Miguel Ranch South Parcel (see Figure 4.3-1). Additionally, proposed SR125 comes very close to the existing Miguel Substation. The construction sequence (e.g. north to south versus south to north) will not be determined until a contractor is selected. There may be some overlap during construction of the Otay Mesa switchyard, reconductoring of the Miguel-Tijuana line, and State Route 125. During construction, cumulative traffic, air quality, and noise impacts may occur. However, these potential impacts would be reduced via implementation of Applicant-committed mitigation measures for the interconnection project and coordination during construction of the two projects. Therefore, no significant cumulative impacts are anticipated due to the proposed interconnection project.

4.3.4 Route 905 Upgrade

An upgrade is planned for Otay Mesa Road/Route 905 in the Otay Mesa area. The project will extend Route 905 to the east, just south of Otay Mesa Road, from I-805 to the Otay Mesa Port of Entry, a distance of 6.3 miles and approximate total area of 310 acres. The new Route 905 will be a six-lane freeway/tollway, with space in the median for future expansion to an eight-lane facility. Route 905 will eventually become an interstate route. Construction of the project is expected to require or directly result in the relocation of existing local roadways and facilities. Otay Mesa Road will be widened from the State Route 125 corridor to Sanyo Road, and Sanyo Road will be widened to two lanes from Otay Mesa Road to the point at which it is currently two lanes. An overcrossing at Airway Road and an undercrossing at La Media Road will be constructed to accommodate local roads. A multilevel interchange is planned with State Route 125, with provisions for future expansion of Route 905 to the east. The project is currently in the preliminary environmental planning stage. A draft EIS is expected to be issued in 2000 (Hicks, 1999).

The proposed interconnection project lies east of the area where Route 905 and State Route 125 will intersect. The proposed inter connection project is expected to be substantially

completed before construction of the Route 905 improvement and interchange with State Route 125 begins. No significant cumulative impacts are anticipated due to the interconnection project. Other planned projects on Otay Mesa (including the Otay Mesa Generating Plant) have the potential to contribute to traffic congestion at the intersection of SR-905/Otay Mesa Road, especially during the p.m. commute. In June, 2000, OMGC, LLC proposed additional traffic management measures to avoid contributing to significant traffic congestion impacts at the subject intersection. The proposed interconnection project has a small workforce for a 3-4 month timeframe. With implementation of the traffic mitigation, no significant project specific or cumulative effects are anticipated. The Applicant and OMGC, LLC will coordinate with the City of San Diego and Caltrans regarding the final timing of the two projects and associated construction activities in order to minimize any potential conflicts.

4.3.5 Conservation Plans

The Multiple Species Conservation Program (MSCP) has been developed to assemble and manage a preserve for conservation of biological resources throughout San Diego County. A Master EIR has been prepared for the MSCP by the City of San Diego and the U.S. Fish and Wildlife Service. The preserve will be created from connected parcels of land in the Plan's Multiple Habitat Planning Area (MHPA). The goals of the MHPA are to preserve core biological areas and linkages and maximize inclusion of public lands. The City of Chula Vista and the Otay Water District have adopted Subarea Plans based on the MSCP Plan for the MHPA. In addition, the Bureau of Land Management and the U.S. Fish and Wildlife Service are participating in the MHPA development in San Diego County and each have study areas in Chula Vista and Otay Mesa (City of San Diego and U.S. Fish and Wildlife Service, 1996). In general, these are study areas and management plans, and construction is not anticipated for these areas. The MSCP has the potential to affect land use and to protect biological resources in San Diego County. No significant cumulative impacts are anticipated.

4.3.5.1 Otay Valley Regional Park

The Otay Valley Regional Park project area is part of the City of Chula Vista's Subarea Plan within the MSCP. The park area is located in the Otay River Valley watershed from Otay Lakes to the Pacific Ocean (see Figure 4.3-1). The park will be one of the major open space areas in the Multiple Habitat Planning Area, linking south San Diego Bay and Lower Otay Lake. Recreational facilities will include a nature interpretive center, wetland areas, regional trails, and other open space uses. A Draft Concept Plan has been prepared for Otay Valley Regional Park, which is being coordinated through a Joint Exercise of Powers agreement between the County of San Diego, City of San Diego, and City of Chula Vista (URS Greiner Woodward Clyde, 1999).

The existing 230 kV transmission line crosses the east side of the park area and/or trails associated with the park. The 230 kV transmission line is already in place and potential modifications to the line will not result in substantial new ground disturbance and will avoid critical biological habitat. No significant cumulative impacts associated with the Otay Valley Regional Park are anticipated as a result of construction and operation of the interconnection project, including potential modifications to the existing 230 kV transmission line. Any areas disturbed (e.g., pull site locations, tower bases) will be restored following construction activities, thereby limiting potential cumulative effects on resources within the park.

4.3.5.2 Otay Mountain/Kuchamma Cooperative Management Area

The Otay Mountain/ Kuchamma Cooperative Management Area has been designated by the Bureau of Land Management as an acquisition project area under the MSCP. The area includes Otay Mountain and extends south to the border and east as far as Route 94 in Campo (see Figure 4.3-1). The Bureau of Land Management aims to establish an open space and wildlife area by acquiring privately owned holdings and consolidating public land ownership in this area. The land acquisition will be accomplished through exchanges of other Bureau of Land Management lands and with funds appropriated through the Land and Water Conservation Fund Act (City of San Diego and USFWS, 1996). The Otay Mountain/Kuchamma Cooperative Management Area is addressed in the Master EIR for the City of San Diego's MSCP, completed in January 1997.

The Otay Mountain/Kuchamma Cooperative Management area lies to the east of the power plant area and transmission lines. Because the Otay Mesa Generating Project power plant and transmission lines are not contained in the Otay Mountain/Kuchamma Cooperative Management Area, and because no construction is planned for the Otay Mountain/Kuchamma Cooperative Management Area by the BLM, no significant cumulative impacts are anticipated.

4.3.5.3 San Diego National Wildlife Refuge/Otay-Sweetwater Planning Area

The Otay-Sweetwater Planning Area is an area of Chula Vista that is included in a study initiated by the U.S. Fish and Wildlife Service to expand the San Diego National Wildlife Refuge under the MSCP. The Otay-Sweetwater Planning area is adjacent to the Otay Valley Regional Park project area and the Otay Mountain/Kuchamma Cooperative Management Area, and includes up to 48,000 acres from Otay Mesa north and east to the upper Sweetwater River (see Figure 4.3-1). The land is currently being used by the County of San Diego, Caltrans, and SANDAG as a mitigation bank. Newly acquired lands in these areas will be added to the existing San Diego Wildlife Refuge (City of San Diego and USFWS, 1996). The study is addressed in the Master EIR for the City of San Diego's MSCP, completed January 1997.

The existing 230 kV transmission line traverses the western part of the Otay-Sweetwater Planning Area. However, because the line is already in place and the potential modifications to the line are not expected to result in substantial new ground disturbance, no significant cumulative effects are anticipated as a result of the interconnection project.

4.3.6 Brown Field Airport Master Plan

The Brown Field Airport Master Plan is being prepared for the conceptual development of the airport for the next 20 years. The Plan considers alternative development options including a maximum eastern runway extension. This extension would expand the existing runway from its current length of 8,000 feet to up to 11,500 feet. This maximum runway extension/airport expansion would include airport associated retail, commercial, industrial and air cargo improvements.

A Notice of Preparation of a Draft EIR/Environmental Assessment (EA) for the Brown Field Airport Master Plan was issued on November 3, 1997. The study area analyzed in the Draft EIR/EA includes the current limits of Brown Field, the current airport property (17.7 acres) on southeastern corner of the intersection of Heritage and Otay Mesa Roads, and a potential eastern expansion area (235 acres) that would expand the airport from its current eastern boundary at La Media Road to the adopted alignment of SR 125 to the east. The Draft EIR/EA for this project was issued in July, 1999.

Otay Mesa Generating Company, LLC has coordinated with the Federal Aviation Administration to ensure the project's compliance with FAA regulations relative to Brown Field Airport and aviation safety. The FAA has determined (May 2000) that the project would not obstruct navigable airspace. No significant cumulative impacts are anticipated.

4.3.7 San Miguel Ranch

The San Miguel Ranch Project was a proposed 2,590-acre master planned residential community. It was composed of two parcels (North Parcel and South Parcel) of land separated by an easement of land owned by SDG&E, which operates the Miguel substation and transformer yard on the intervening land and which contains associated transmission lines. Mother Miguel Estates is also located between the North and South parcels of the San Miguel Ranch project (see Figure 4.3-1). The North Parcel is 1,852 acres, and the South Parcel is 738 acres. The land is currently in the unincorporated area of San Diego County, northeast of Chula Vista, but within the adopted sphere of influence of the City of Chula Vista. The original San Miguel Ranch General Development Plan (GDP), Final EIR, and Supplement to Final EIR were approved in March 1993. The project has since been redesigned and annexed to the City of Chula Vista. The North Parcel was sold to the federal government and the South Parcel is owned by Tri Mark Pacific Homes. Tri Mark is preparing a draft Sectional Planning Area (SPA) and subsequent EIR. The development will consist of

varying residential densities (low, low-medium, medium, and high), and several community facilities including an elementary school, community service facility, retail commercial center, and community and neighborhood parks. The development will also retain areas of natural open space. Construction is scheduled to begin in 2000 (Batchelder, 1999). The City of Chula Vista anticipates potential cumulative impacts as a result of the proposed project and surrounding development in land use, landform/visual quality, biological resources, transportation, air quality, noise, and public services and utilities. No cumulative impacts are expected to occur in the issue areas of parks, recreation, and open space (City of Chula Vista, 1996).

The existing 230 kV transmission line passes through the South Parcel of the San Miguel Ranch Project area. However, impacts from the potential modifications to the transmission line are not significant relative to the effects of the development of San Miguel Ranch. Although some cumulative impacts are anticipated within the San Miguel Ranch project itself, the proposed interconnection project is not expected to contribute substantially to these impacts. The Applicant committed mitigation measures proposed in this EA will limit the project's contribution to cumulative impacts to acceptable levels for all disciplines.

4.3.8 Otay Mountain Wilderness Area

The Otay Mountain Wilderness area is an 18,500-acre tract located approximately 3 miles to the northeast of the plant switchyard site, near the Lower Otay reservoir. This area is expected to become a federally-designated wilderness area once the Otay Mountain Wilderness bill (HR 15) is passed by the U.S. Senate (bill passed the House of Representatives on April 12, 1999). This area is being designated wilderness due to its pristine location, diversity of habitat, and role in San Diego's MSCP. The property is managed by the California Desert District of the BLM. This wilderness designation is not Class I for the purposes of the Clean Air Act. No significant adverse environmental impacts are anticipated from the interconnection project.

4.3.9 Conclusion

The portion of San Diego County where the proposed interconnection project is located is expected to grow significantly over the next 50 years. This includes the buildout of the East Otay Mesa Specific Plan area and the Otay Ranch development. Cumulative impacts from these projects alone were considered significant in their respective EIRs. Therefore, even without the proposed project, significant cumulative environmental impacts are anticipated to occur. The proposed project is a small contributor to these impacts when compared to the other projects in the area and will incrementally contribute to the cumulative impacts. The Applicant-committed environmental protection measures proposed in this EA will limit the project's contribution to cumulative impacts to acceptable levels for all disciplines.

4.4 SUMMARY

The proposed electrical interconnection of the Otay Mesa Generating Project to the SDG&E grid, including switchyard, short (0.1 mile) interconnection, and reconductoring of the existing Miguel-Tijuana 230 kV line, would require relatively minor construction activities and modifications to the existing Miguel-Tijuana line. The switchyard is located on the northeast portion of the Otay Mesa Generating Plant parcel and has been designed to conform to the design guidelines (site/grading plan, landscaping, etc.) specified in the County of San Diego's East Otay Mesa Specific Plan. The County of San Diego Board of Supervisors unanimously approved the OMGP on April 12, 2000. Otay Mesa Generating Company, LLC has committed to fully mitigating OMGP project impacts including biology, cultural resources, soils/water resources, and land use.

The short (0.1 mile) interconnection between the switchyard and the existing Miguel-Tijuana line has been designed to span the intervening terrain, thereby avoiding on-the-ground impacts. The two steel lattice towers to be added at the tie-in point on the Miguel-Tijuana line will appear similar to the existing SDG&E 230 kV towers along the existing line. Views of the new towers from Alta Road will be screened from view by the intervening Otay Mesa Generating Plant.

Reconductoring of the existing Miguel-Tijuana 230 kV transmission line will involve use of existing access roads that SDG&E maintains. The reconductoring will also involve use of existing towers which will readily accept the bundled conductors.

With implementation of the Applicant-committed environmental protection measures presented in Section 2.2.3, no significant impacts are expected to result from construction and operation of the proposed interconnection project and power plant. The interconnection project will result in minor incremental additions to cumulative impacts considering other projects currently identified in the project region. The proposed interconnection project is not expected to cause any significant cumulative impacts.

The proposed project will not result in: unavoidable adverse significant effects, irreversible or irretrievable commitments of resources, short-term benefits at the expense of long-term environmental degradation, or conflict with the intent of any Executive Orders relative to NEPA compliance.

The benefits of the proposed interconnection project are substantial. The project, if approved and built, will substantially reduce the critical future energy shortage projected by the Cal ISO for the San Diego region.

Figure 4.3-1
Location of Projects Considered in the Cumulative Impacts Assessment
(Landscape)

5.0

AGENCIES, PERSONS, AND INSTITUTIONS CONSULTED

The following entities were consulted associated with compilation of the information presented in this EA, including collection of baseline data and performance of impact assessments.

- Brownfield Air Station
- California Academy of Sciences
- California Department of Conservation
- California Department of Fish and Game
- California Department of Transportation
- California Energy Commission
- California Native American Heritage Commission
- City of Chula Vista
- City of San Diego
- County of San Diego
  - Planning Department
  - Board of Supervisors
  - Public Works Department
  - Air Pollution Control District
- Federal Aviation Administration (FAA) (Hawthorne, CA)
- Los Angeles County Museum
- San Diego Association of Governments
- San Diego Museum of Natural History
- San Diego State University, South Coastal Information Center

- SANGIS (San Diego Geographic Information System Database)
- State Historic Preservation Office (SHPO)
- University of California, Museum of Paleontology
- U.S. EPA, Region IX
- U.S. Fish and Wildlife Service.

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REFERENCES

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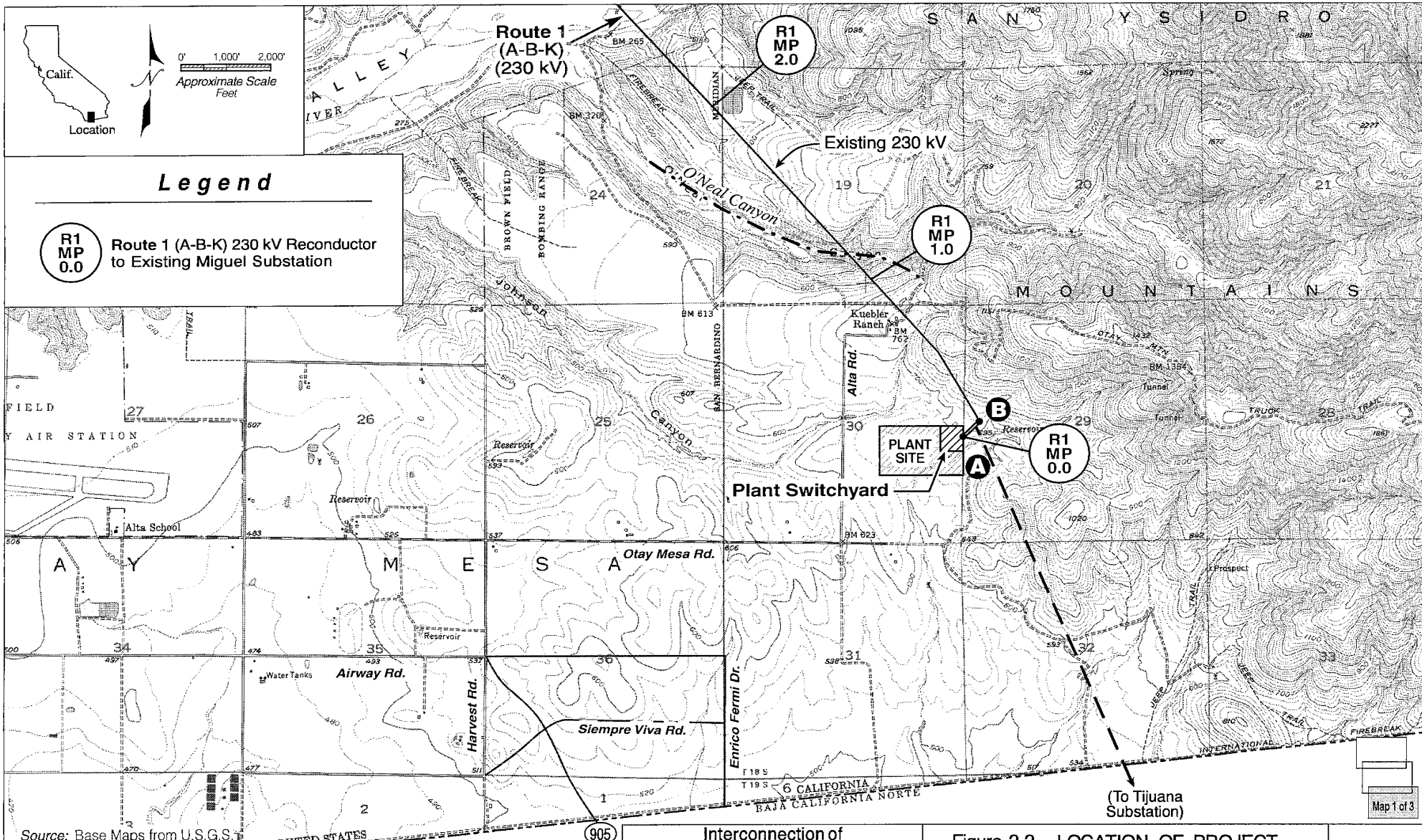


Source: Base Maps from U.S.G.S. 7.5 Minute Topographic:
Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)*
Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

Interconnection of
Otay Mesa Generating Project

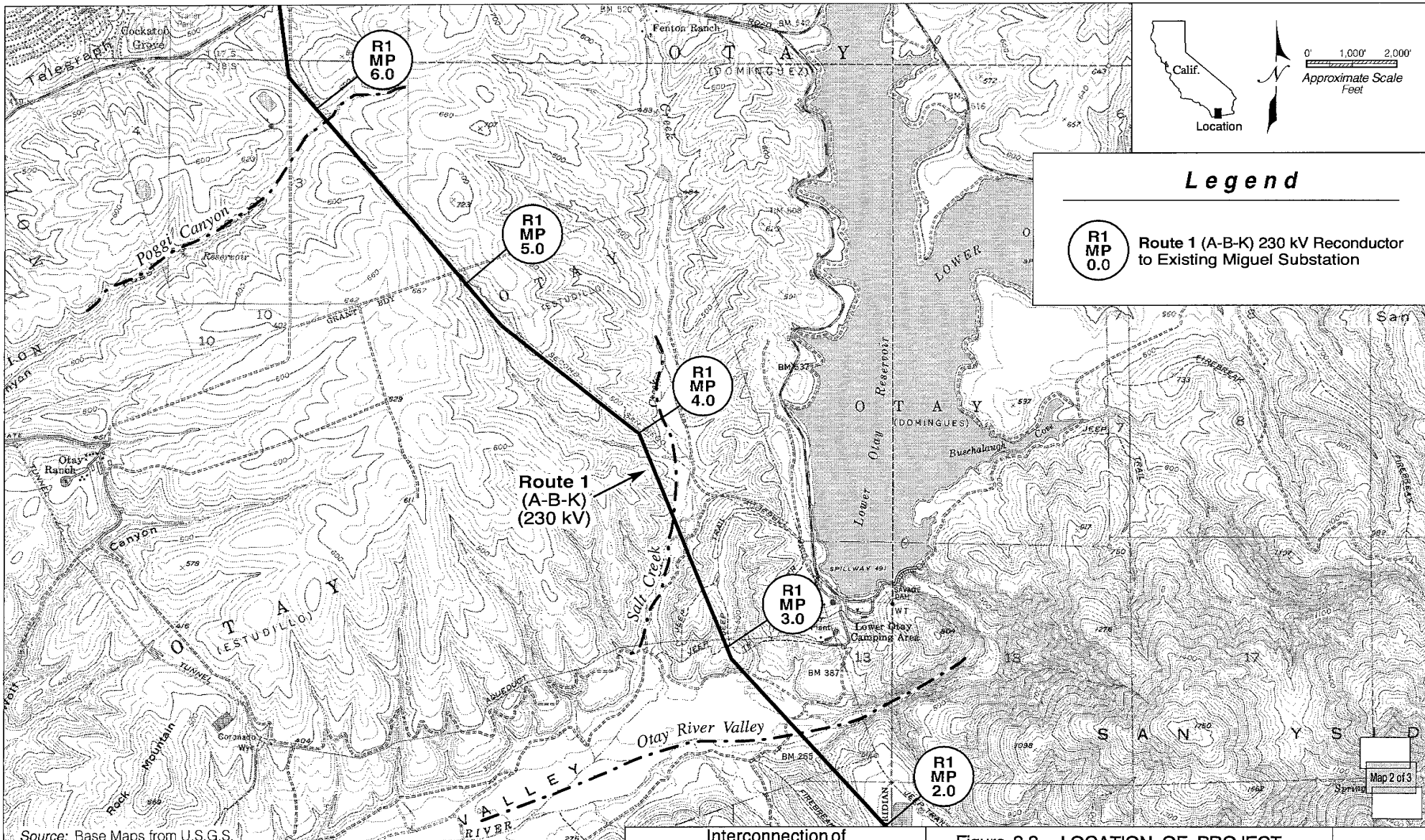
URS Corporation

Figure 2-2. LOCATION OF PROJECT COMPONENTS

Map 1 of 3

2001

S\Ladd\Otai\1200-297 (1of3) (ST)



Source: Base Maps from U.S.G.S. 7.5 Minute Topographic: Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)* Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

Interconnection of Otay Mesa Generating Project

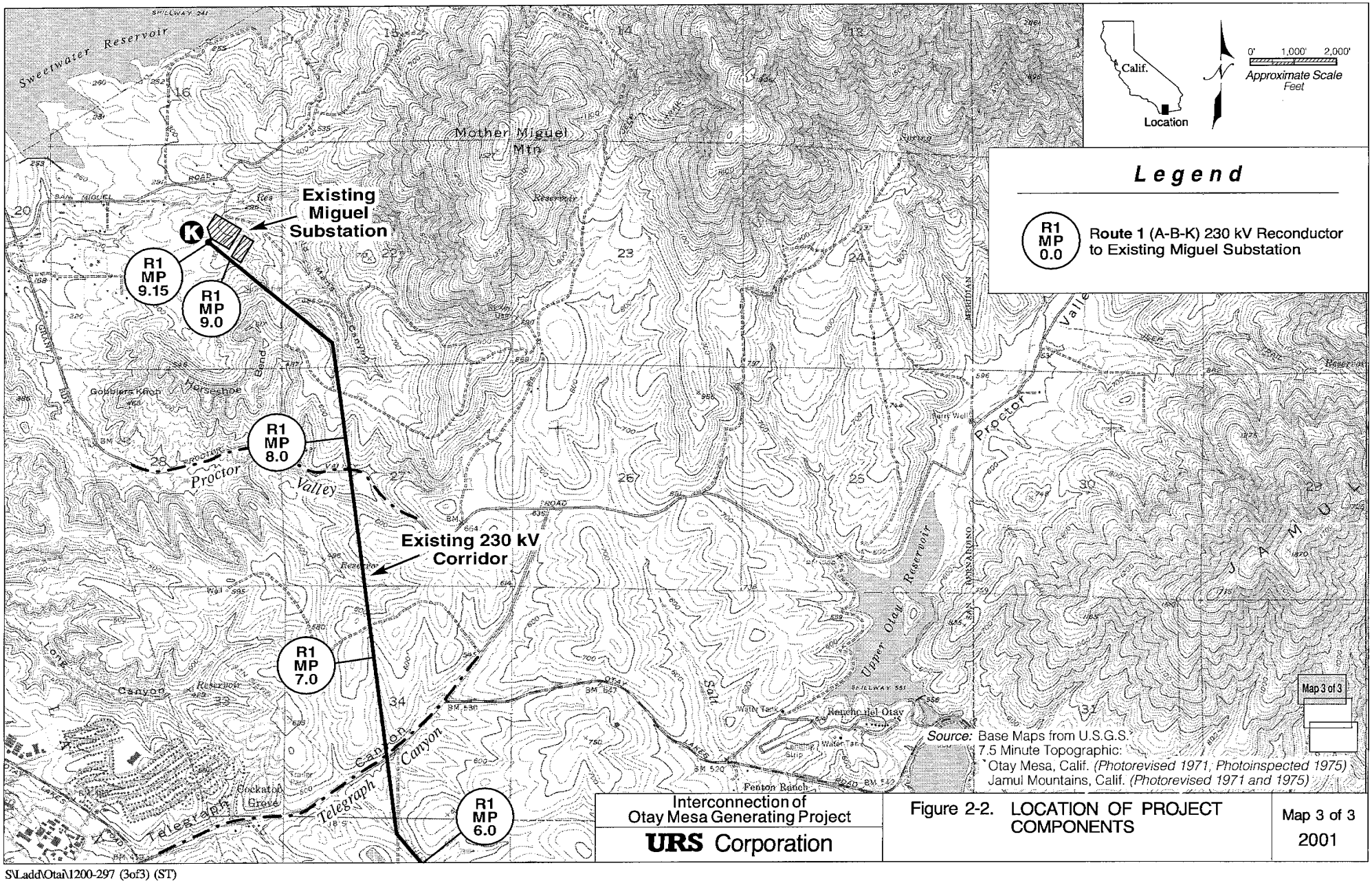
URS Corporation

Figure 2-2. LOCATION OF PROJECT COMPONENTS

Map 2 of 3

2001

S\Ladd\Otai\1200-297 (2of3) (ST)



Source: Base Maps from U.S.G.S. 7.5 Minute Topographic:
Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)*
Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

Interconnection of Otay Mesa Generating Project

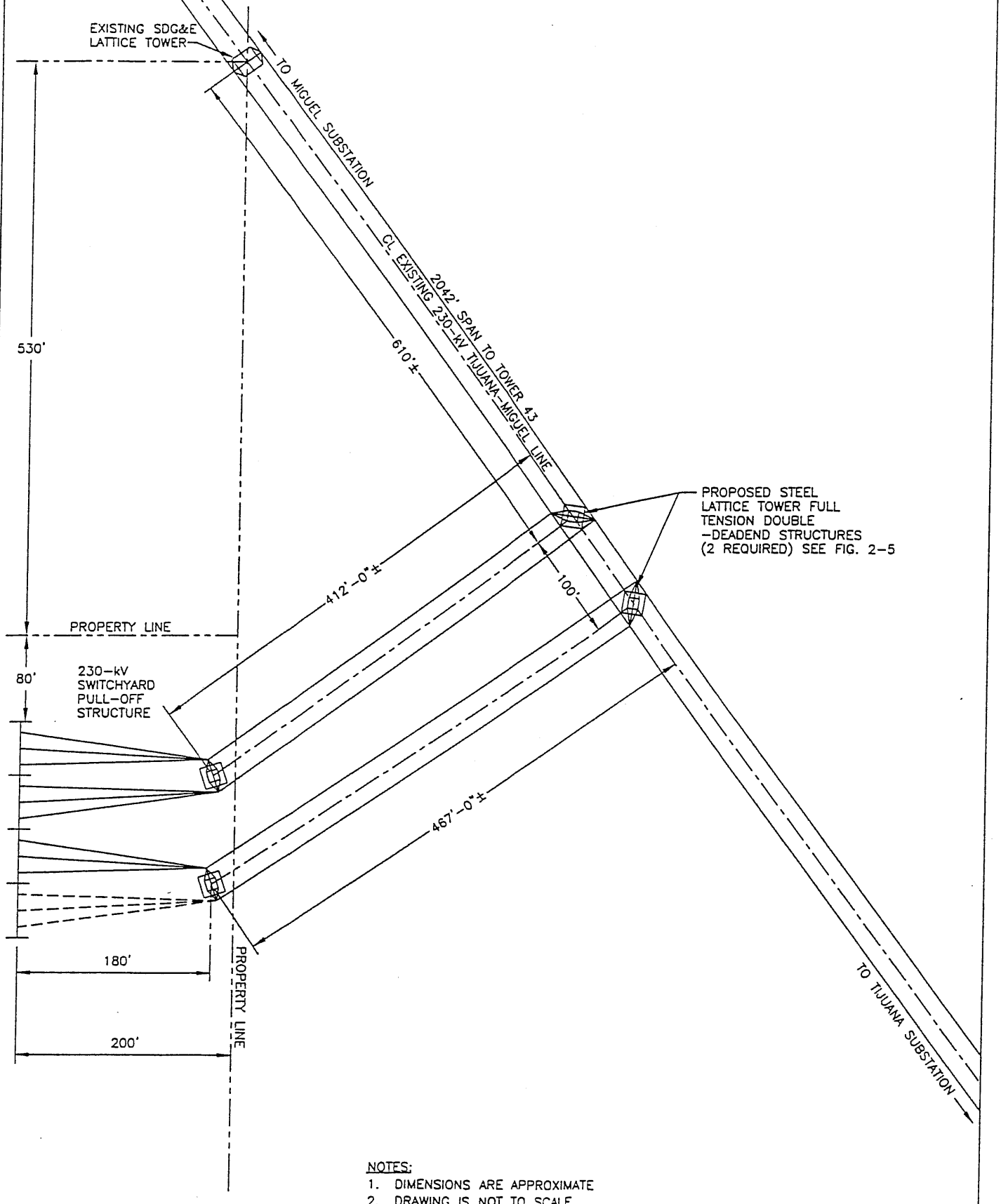
URS Corporation

Figure 2-2. LOCATION OF PROJECT COMPONENTS

Map 3 of 3

2001

S\Ladd\Otai\1200-297 (3of3) (ST)



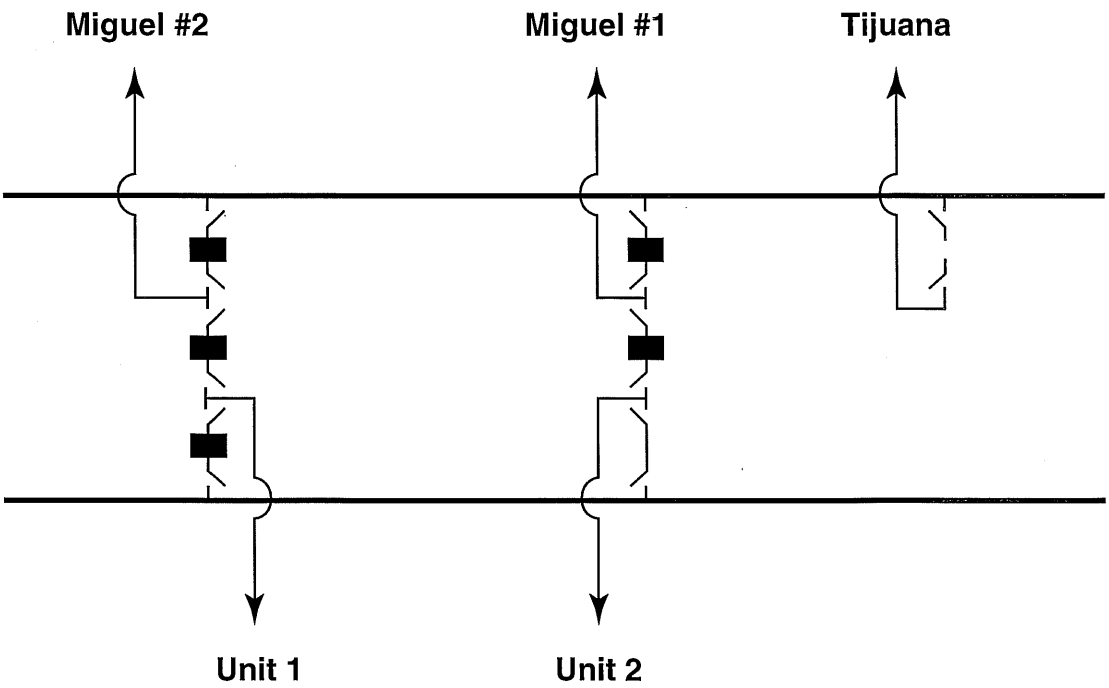
NOTES:
1. DIMENSIONS ARE APPROXIMATE
2. DRAWING IS NOT TO SCALE.

Interconnection of Otay Mesa Generating Project

TriAxis Engineering, Inc.

FIGURE 2-3
INTERCONNECTION CONCEPT FROM THE PLANT SWITCHYARD TO THE EXISTING 230-kV DOUBLE-CIRCUIT MIGUEL-TIJUANA LINE

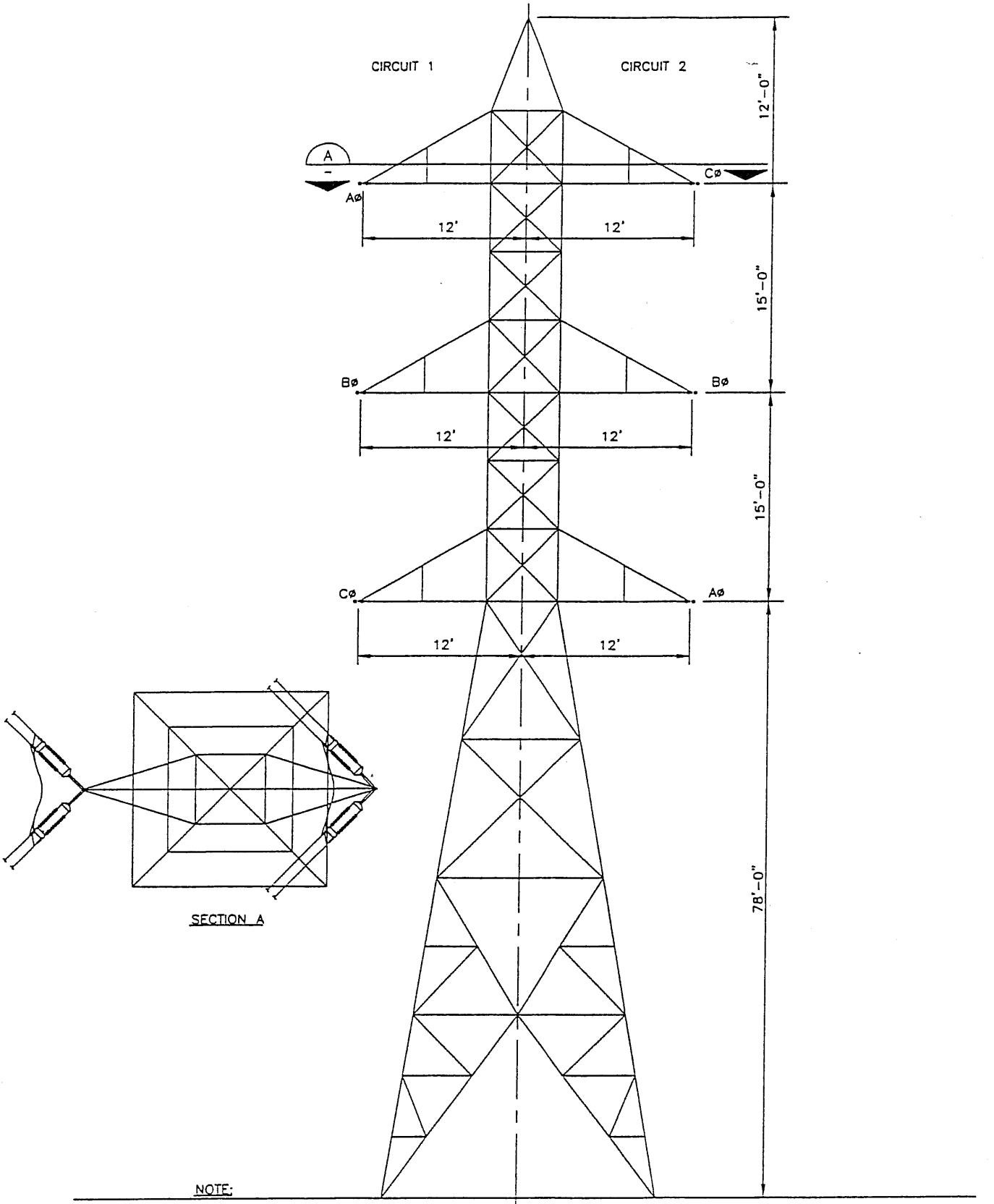
FIGURE55.DWG



Proposed Otay Mesa 230 kV Switchyard

Source: Otay Mesa Generating Project, Facilities Study Final Report. SDG&E, May 9, 2000.

Interconnection of Otay Mesa Generating Project **URS** Corporation	Figure 2-4. SCHEMATIC DIAGRAM OF SWITCHYARD FUNCTION	2001



NOTE:

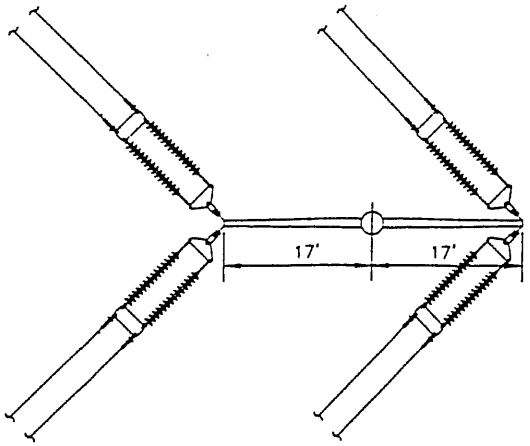
1. ABOVE STRUCTURE IS SIMPLIFIED TO ILLUSTRATE THE BASIC CONCEPT FOR THE TIE-IN STRUCTURES.
2. DRAWING IS NOT TO SCALE.

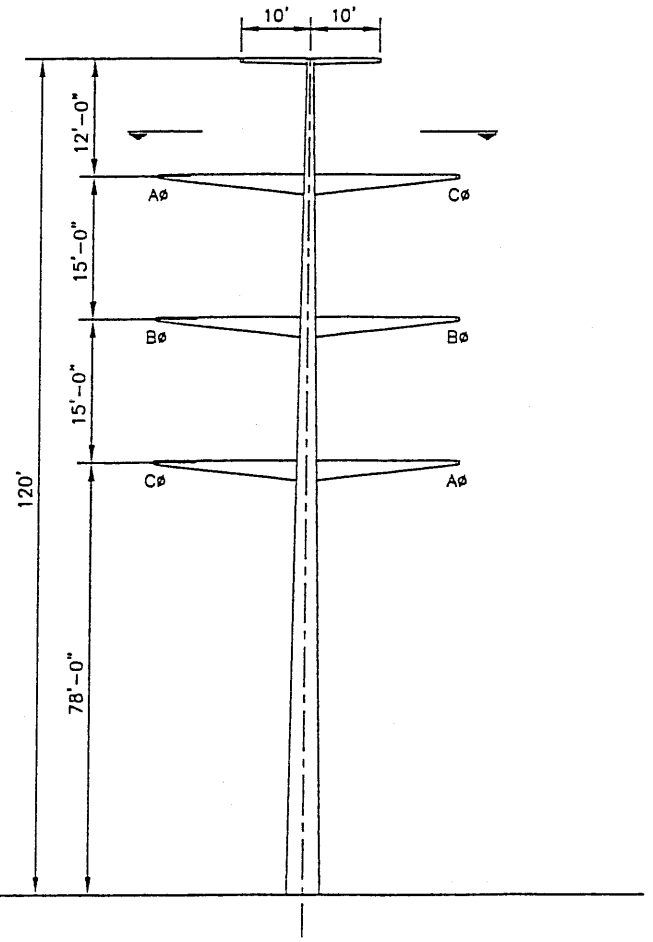
Interconnection of
Otay Mesa
Generating Project

TriAxis
Engineering, Inc.

FIGURE 2-5
SPECIAL 230-KV DOUBLE CIRCUIT
STEEL LATTICE DOUBLE-DEADEND
CONFIGURATION

figure56.DWG



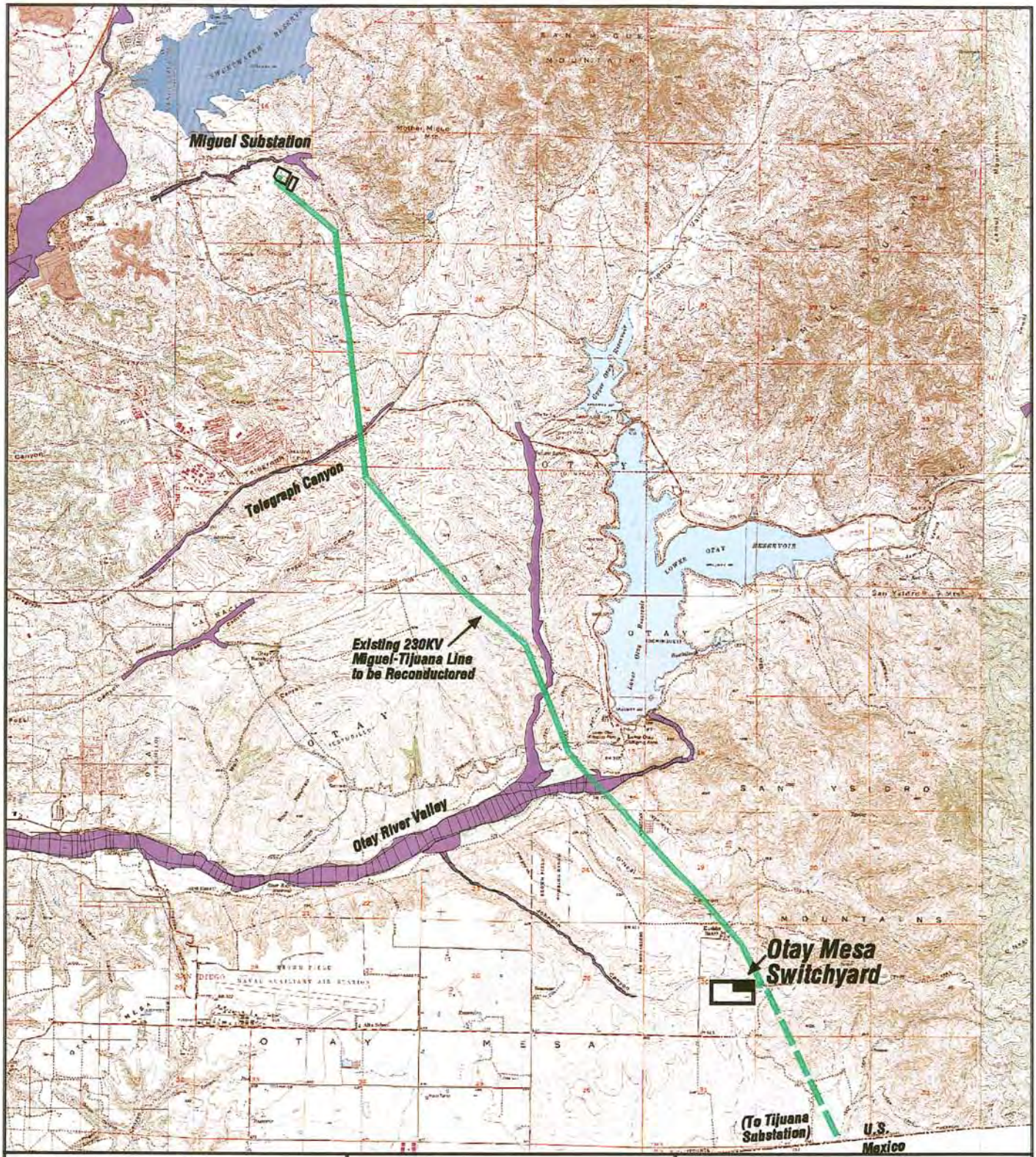


NOTES:

1. ABOVE STRUCTURE IS SIMPLIFIED TO ILLUSTRATE THE BASIC CONCEPT FOR THE TIE-IN STRUCTURES.
2. DRAWING IS NOT TO A SCALE.

Interconnection of Otay Mesa Generating Project TriAxis Engineering, inc.	FIGURE 2-6 SPECIAL 230-KV SINGLE-SHAFT TUBULAR STEEL POLE DOUBLE-DEADEND CONFIGURATION	

figure58.DWG



LEGEND

- FEMA 100 Year FloodPlains
- Miguel-Tijuana Line
- Power Plants and Substations

MAP NOTES

Map Coordinates: Stateplane NAD83 feet, Zone VI

DRG Base: 1:24000 USGS Topo Quads
Source: Horizon Technologies, Inc.

Map prepared by Ogden for URS Corp.

FloodPlain Source: Federal Emergency Management Agency (FEMA) using SANGIS map data, June 1997.

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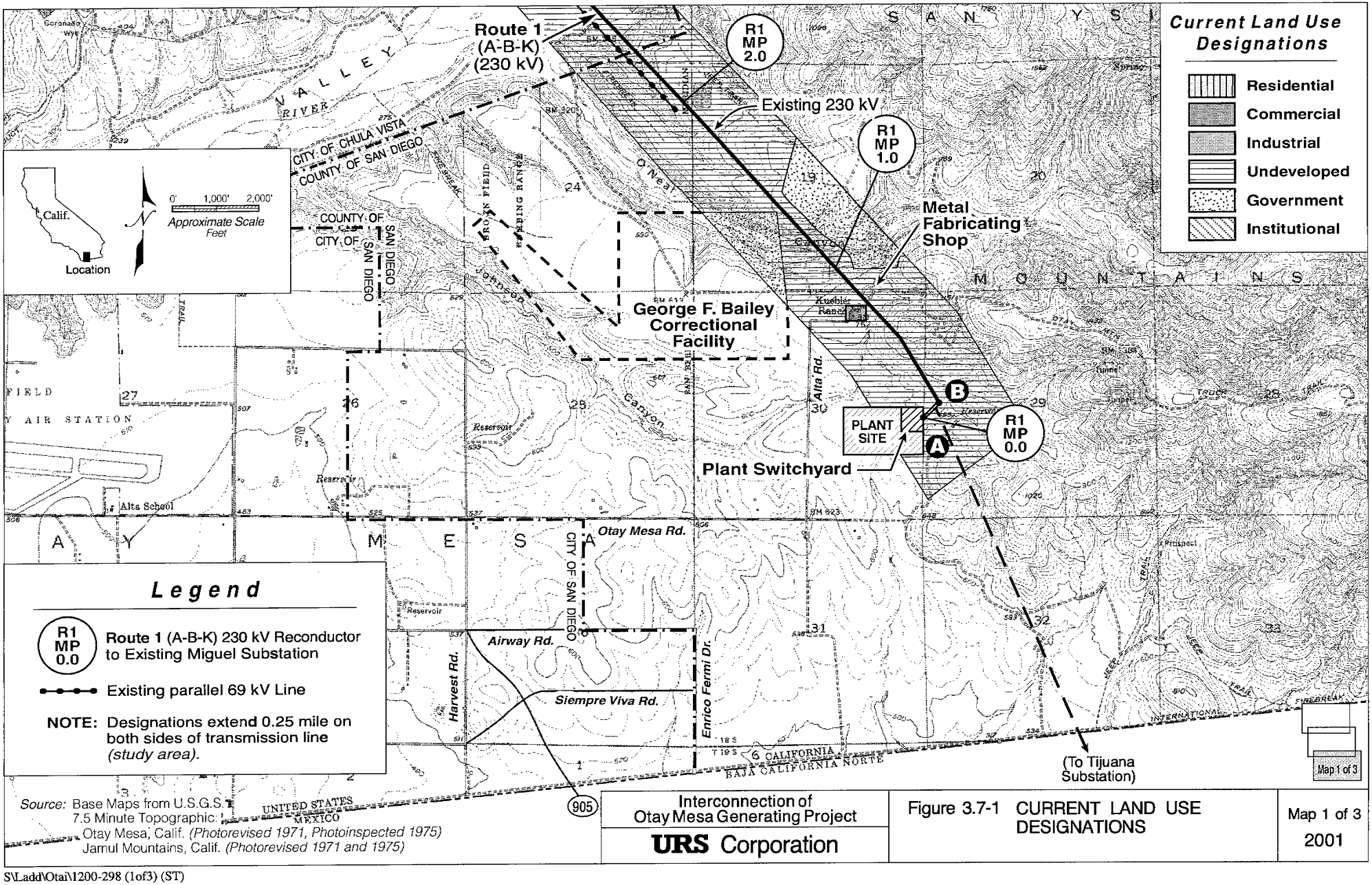
Interconnection of Otay Mesa Generating Project

Ogden Environmental

Figure 3.3-1. FEMA 100 YEAR FLOODPLAINS

/net/arc/sorol/usgen2/plots/figures/floodplain811.aml



Source: Base Maps from U.S.G.S. 7.5 Minute Topographic:
Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)*
Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

Interconnection of
Otay Mesa Generating Project

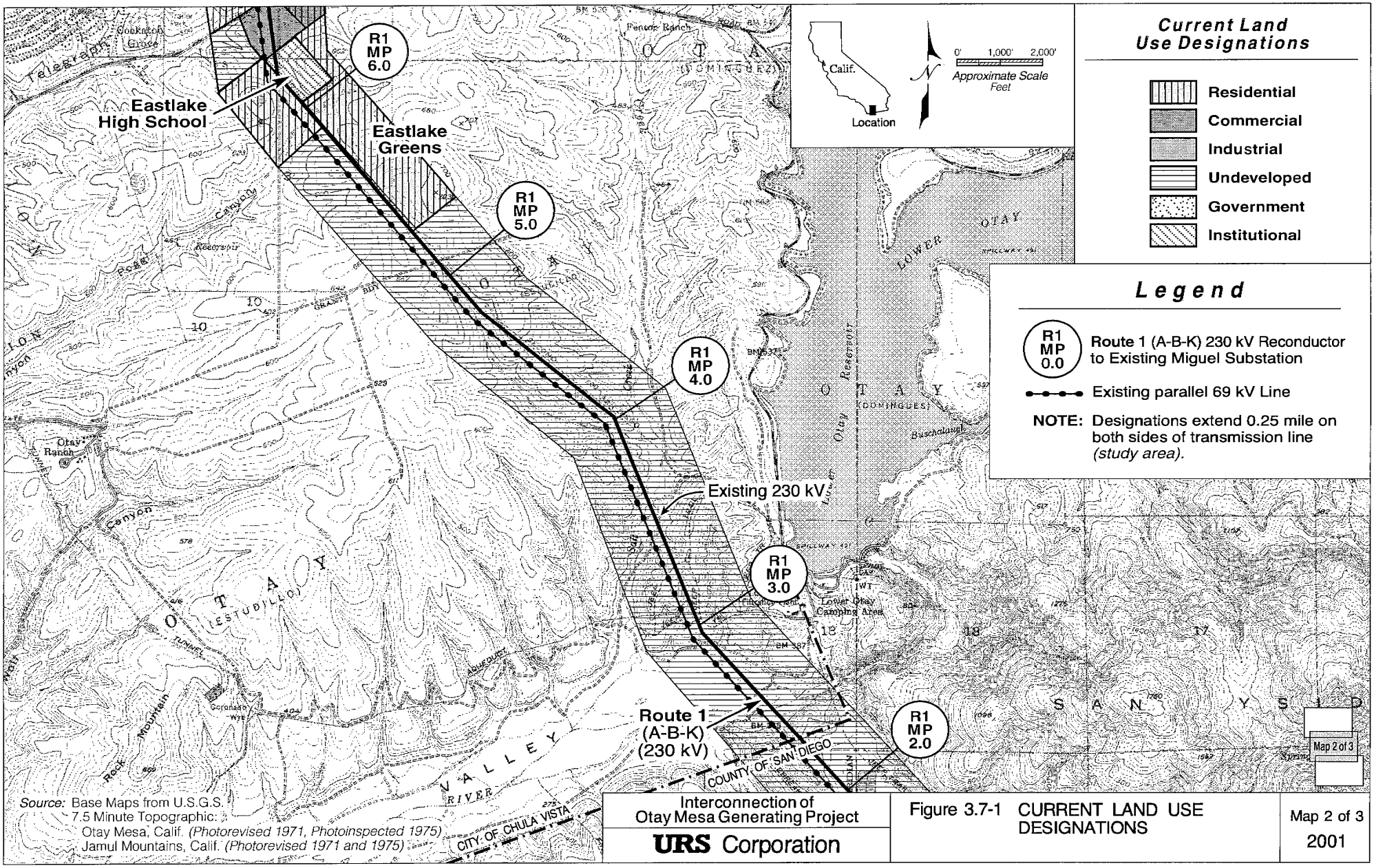
URS Corporation

Figure 3.7-1 CURRENT LAND USE DESIGNATIONS

Map 1 of 3

2001

S\Ladd\Otai\1200-298 (1of3) (ST)



Source: Base Maps from U.S.G.S.
7.5 Minute Topographic:
Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)*
Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

Interconnection of Otay Mesa Generating Project

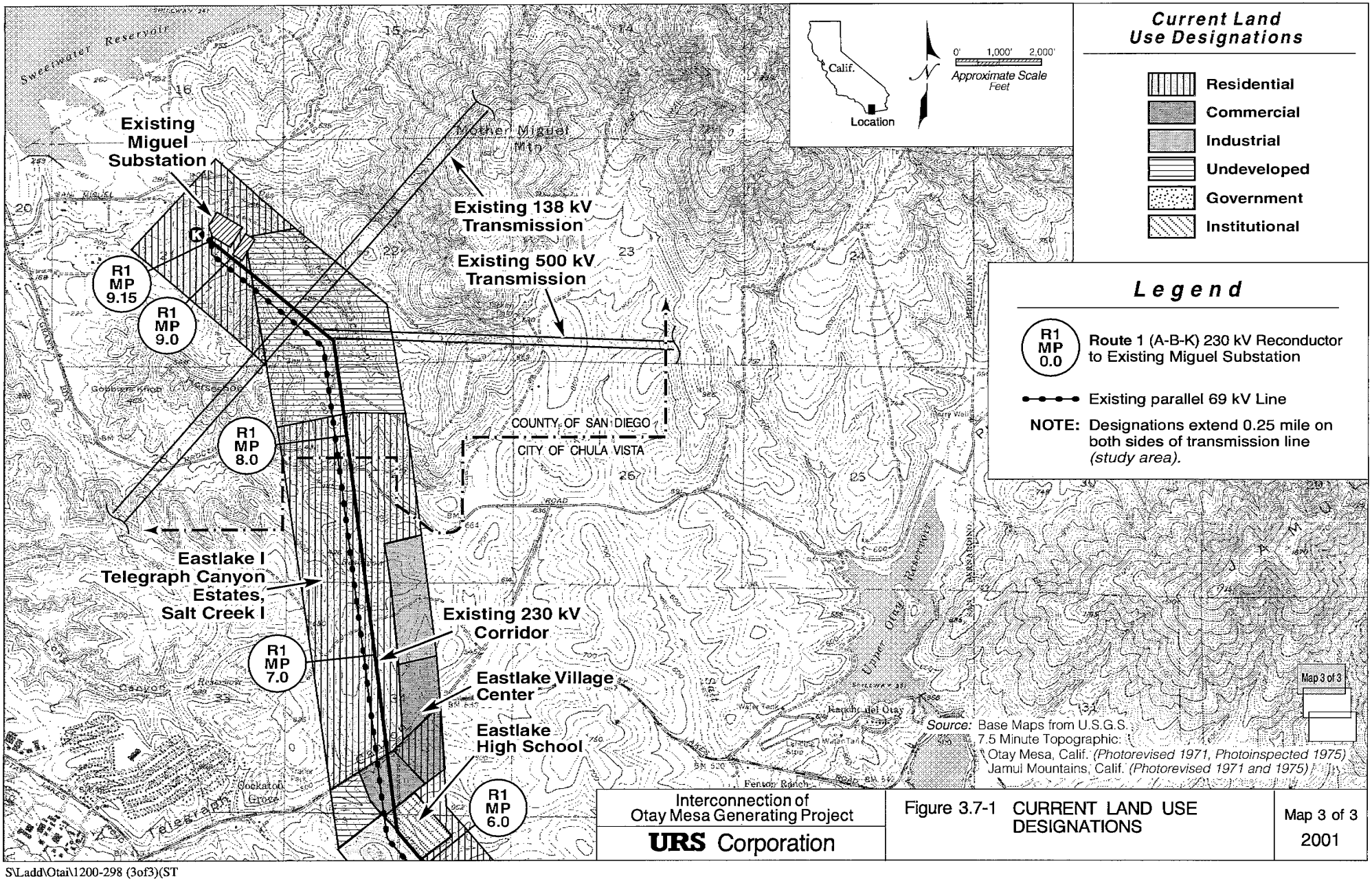
URS Corporation

Figure 3.7-1 CURRENT LAND USE DESIGNATIONS

Map 2 of 3

2001

S\Ladd\Otai\1200-298 (2of3)(ST)



Interconnection of Otay Mesa Generating Project

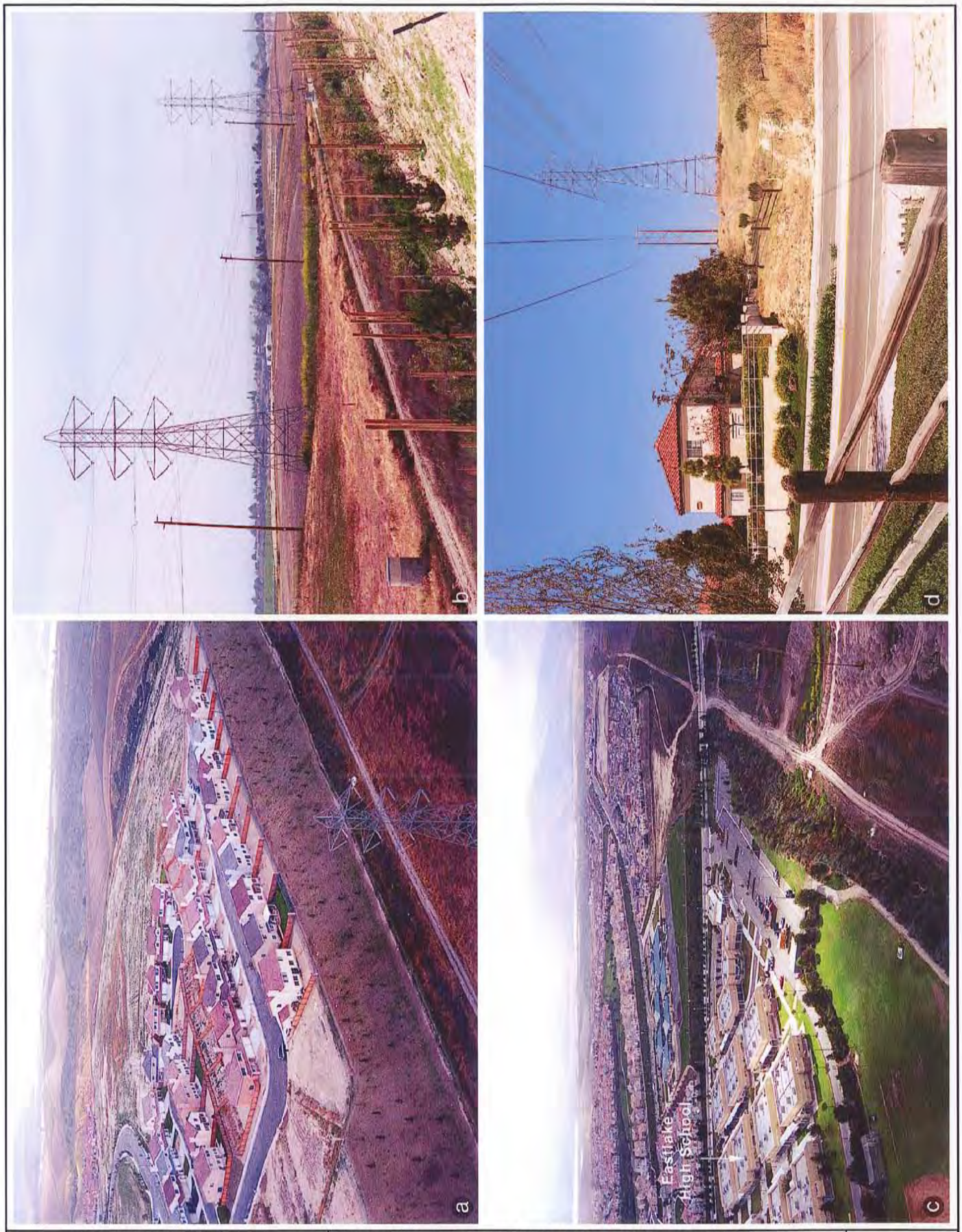
URS Corporation

Figure 3.7-1 CURRENT LAND USE DESIGNATIONS

Map 3 of 3

2001

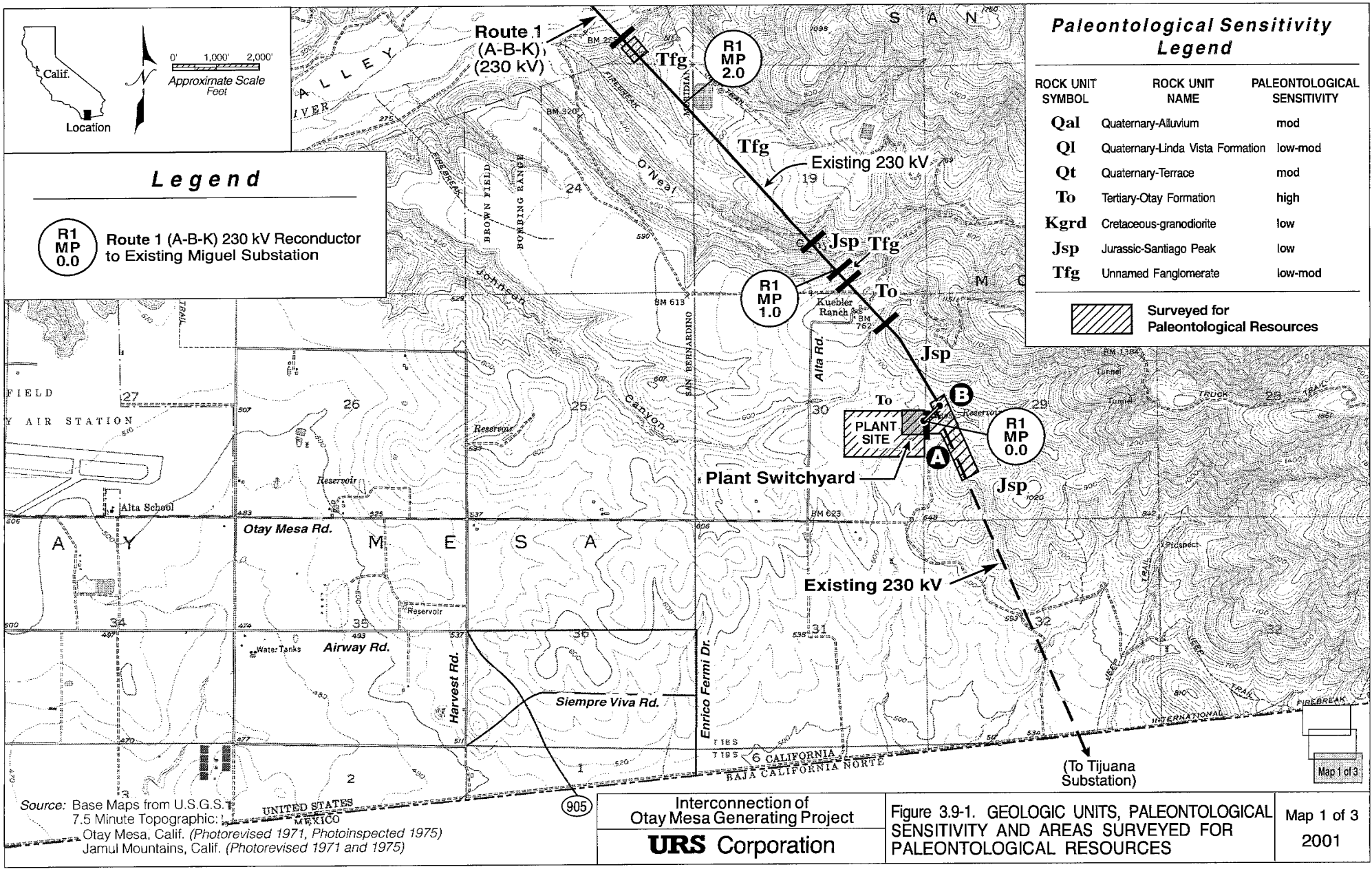
S\Ladd\Otai\1200-298 (3of3)(ST



Interconnection of Otay Mesa Generating Project	**Figure 3.8-1.** The existing Miguel-Tijuana 230 kV transmission line passes through residential, undeveloped and institutional lands from the south end of Eastlake Greens **(a, b and c)** to the northwest end of the Eastlake subdivision **(d)**.	2001
URS Corp.		

Interconnection of Otay Mesa Generating Project URS Corp.	**Figure 3.8-2: a)** The current view from VP 6, where the existing 230 kV transmission line crosses Otay Lakes Road, R1 MP 6.2 . **b)** A photo-simulation of the proposed 230 kV bundled transmission line at this crossing.	2001

Interconnection of Otay Mesa Generating Project URS Corp.	**Figure 3.8-3: a)** The current view from VP 7, where the existing 230 kV transmission line crosses Eastlake Drive, R1 MP 6.73. **b)** A photo-simulation of the proposed 230 kV bundled transmission line at this crossing.	2001



Source: Base Maps from U.S.G.S. 7.5 Minute Topographic: Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)* Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

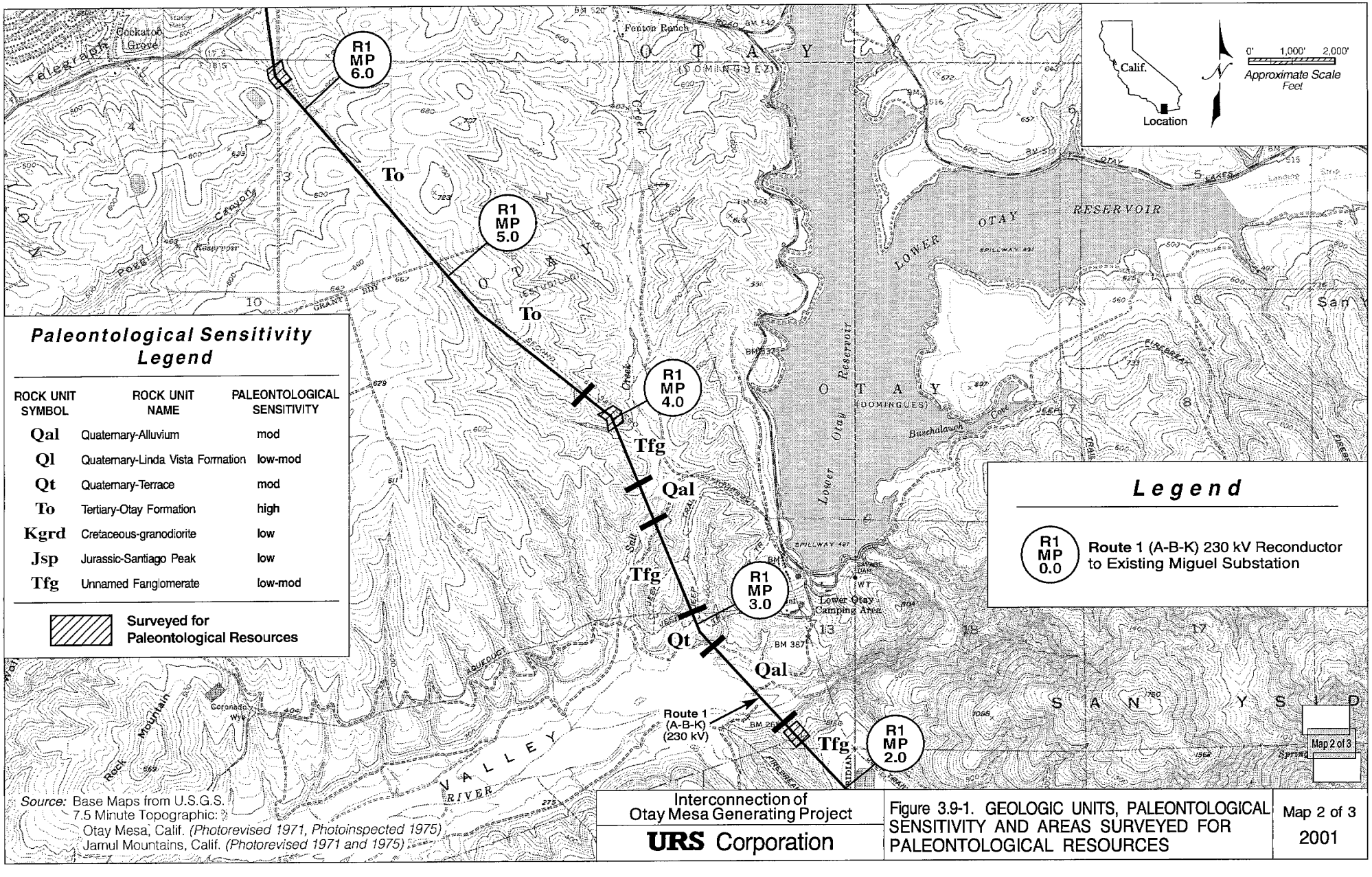
Interconnection of Otay Mesa Generating Project

URS Corporation

Figure 3.9-1. GEOLOGIC UNITS, PALEONTOLOGICAL SENSITIVITY AND AREAS SURVEYED FOR PALEONTOLOGICAL RESOURCES

Map 1 of 3

2001



Source: Base Maps from U.S.G.S. 7.5 Minute Topographic: Otay Mesa, Calif. *(Photorevised 1971, Photoinspected 1975)* Jamul Mountains, Calif. *(Photorevised 1971 and 1975)*

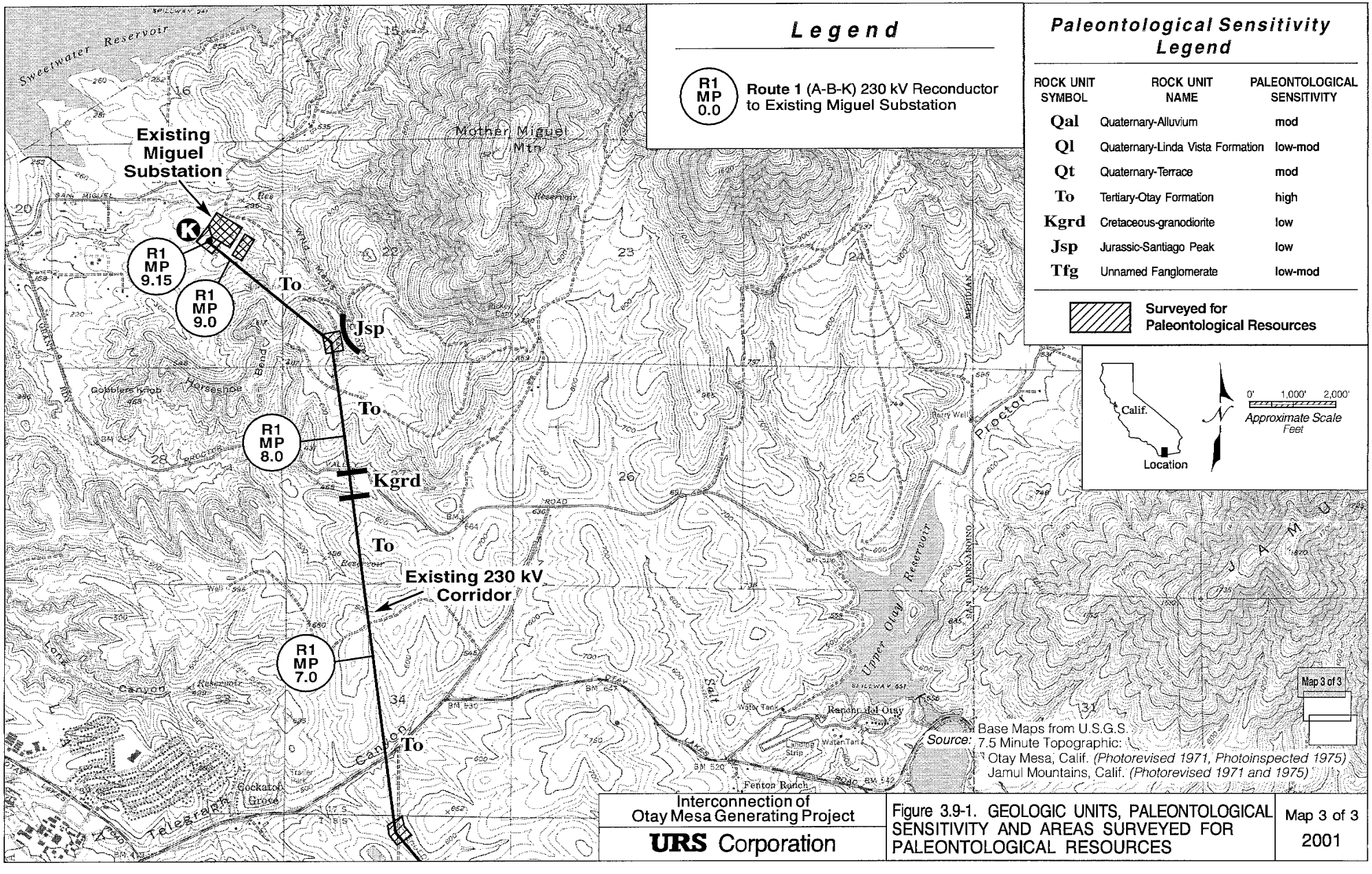
Interconnection of Otay Mesa Generating Project

URS Corporation

Figure 3.9-1. GEOLOGIC UNITS, PALEONTOLOGICAL SENSITIVITY AND AREAS SURVEYED FOR PALEONTOLOGICAL RESOURCES

Map 2 of 3

2001



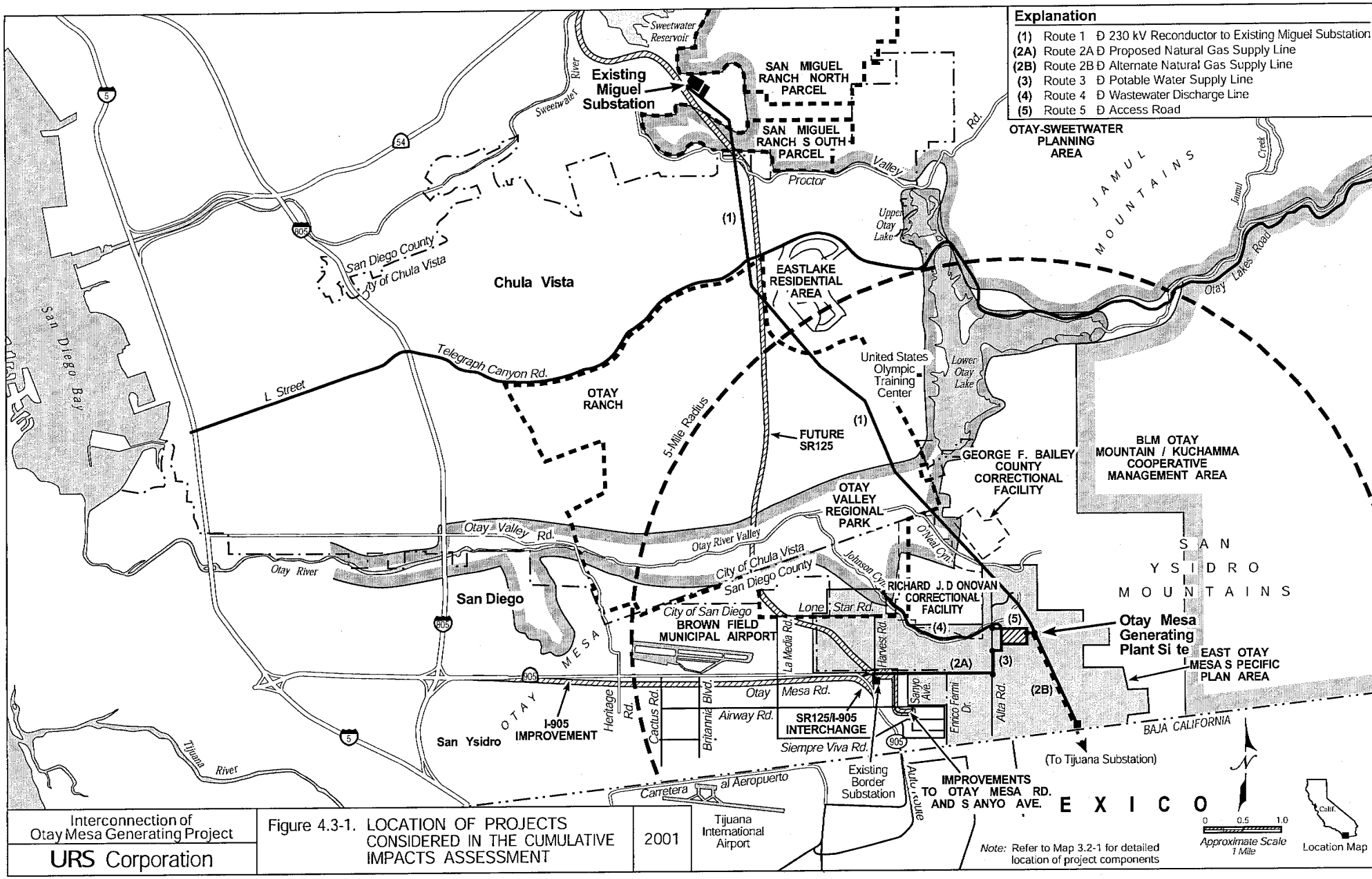
Interconnection of Otay Mesa Generating Project

URS Corporation

Figure 3.9-1. GEOLOGIC UNITS, PALEONTOLOGICAL SENSITIVITY AND AREAS SURVEYED FOR PALEONTOLOGICAL RESOURCES

Map 3 of 3

2001



Interconnection of Otay Mesa Generating Project URS Corporation	Figure 4.3-1. LOCATION OF PROJECTS CONSIDERED IN THE CUMULATIVE IMPACTS ASSESSMENT	2001	

S\Ladd\Otai\1200-313 (ST)