APPENDIX B

Mitigation Monitoring, Compliance, and Reporting Program

FINAL

Mitigation Monitoring, Compliance, and Reporting Program

Sunrise Powerlink Project

Prepared for:
California Public Utilites Commission
U.S. Bureau of Land Management

Prepared by:
Aspen Environmental Group

April 1, 2010

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1.0 Introduction

The Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Sunrise Powerlink Project, as adopted by the California Public Utilities Commission (CPUC) on December 18, 2008**,** includes procedures for preparing and implementing a Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) to ensure compliance with mitigation measures approved in the Final EIR/EIS, as well as with the terms and conditions associated with the BLM Right of Way. The CPUC is the Lead Agency under the California Environmental Quality Act (CEQA). The Lead Agency for the National Environmental Policy Act (NEPA) is the Bureau of Land Management (BLM), which issued a Record of Decision approving the project on January 20, 2009. The route also crosses lands under jurisdiction of the U.S. Department of Agriculture (USDA) Forest Service (FS) on the Cleveland National Forest (CNF); however, the Forest Service has not yet issued its Record of Decision [update when published].

Section I of the Final EIR/EIS provides the recommended framework for the implementation of the MMCRP by the CEQA Lead Agency, the CPUC, and the BLM (NEPA Lead Agency), and describes the roles and responsibilities of government agencies in implementing and enforcing adopted mitigation measures. This MMCRP includes the information provided in EIR/EIS Section I, as well as specific protocols to be followed prior to and during construction by CPUC third-party Environmental Monitors (CPUC EMs) and SDG&E project staff. Long-term monitoring during operations and maintenance will be addressed through consultation and a plan with the appropriate resource agencies.

The project's MMCRP includes direct participation and commitment from SDG&E and CPUC EMs. The success of the program depends on the project management staff, monitors, and construction contractor personnel. Therefore, the goal of the MMCRP is to provide a clear understanding of the project's organization, establish lines of communication, and effectively document and report compliance with all of the mitigation measures.

The MMCRP was developed to provide guidelines and standardize procedures for environmental compliance on the project. The procedures have been developed by the CPUC and BLM, in coordination with SDG&E, USFS, and other responsible agencies to help define the reporting relationships, provide detailed information about the roles and responsibilities of the project's environmental compliance team members, define compliance reporting procedures, and to establish a communication protocol. The communication lists in the MMCRP will be updated throughout construction.

1.1 Authority for the Mitigation Monitoring, Compliance, and Reporting Program

Mitigation monitoring is required through both CEQA and NEPA. Section 21081.6 of the California Public Resources Code requires a public agency, such as the CPUC, to adopt a Mitigation Monitoring, Compliance, and Reporting Program when it approves a project that is subject to preparation of an EIR and where the EIR for the project identifies significant adverse environmental effects. *CEQA Guidelines* Section 15097 was added in 1999 to further clarify agency requirements for mitigation monitoring or reporting.

The Council on Environmental Quality (CEQ) has established regulation for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508). NEPA requires mitigation monitoring in 40 CFR 1505.2(c), with additional specificity provided in the BLM NEPA Handbook (H-1790-1), Chapter 10

(Monitoring). BLM also served as the lead federal agency for section 7 consultation under the Endangered Species Act, section 106 consultation under the National Historic Preservation Act, and is responsible for conducting Tribal Consultation. BLM is responsible for ensuring that mitigation measures adopted in its ROD are implemented and other terms and conditions associated the ROW Grant are adhered to on BLM land. The goal of the MMCRP is to seek prevention of problems and timely, comprehensive communication.

1.2 Agencies With Jurisdiction

In addition to the CPUC, BLM, and the Forest Service, many other local, state, and federal agencies have jurisdiction over lands or resources that are crossed by the project route. Table 1 lists jurisdictional agencies associated with the project.

The CPUC and BLM, as the Lead Agencies, are responsible for ensuring that all mitigation measures are implemented throughout construction and operation, and the CPUC monitors will verify SDG&E's compliance with conditions of permits issued by other agencies. Jurisdictional agencies' designated representatives may visit construction areas at any reasonable and safe time, and may require information regarding the status of compliance with particular mitigation measures. SDG&E is responsible for satisfying requests from jurisdictional agencies and will notify and copy the CPUC and BLM on all correspondences related to final approvals and verifications for the project if not otherwise copied on the correspondence. Additional information on communication protocols is presented in Section 2.3 below. Long-term monitoring during operations and maintenance will be addressed through consultation and a plan with the appropriate resource agencies.

Table 1. Jurisdictional Agencies Associated with the Sunrise Powerlink Project

Agency	Address	Contact Person	Phone	Email Address
LEAD AGENCIES				
California Public Utilities Commission	505 Van Ness Ave, 4th Floor San Francisco CA 94102	Billie Blanchard	415-703-2068	bcb@cpuc.ca.gov
Bureau of Land Management (BLM)	El Centro Field Office 1661 S. 4th St El Centro CA 92243	Daniel Steward	760-337-4424	Daniel_Steward@ca.blm.gov
		Carrie Simmons	760-337-4437	Carrie_Simmons@ca.blm.gov
	Palm Springs/South Coast Field Office 1201 Bird Center Dr Palm Springs CA 92262	Michael Bennett	760-833-7139	Michael_Bennett@blm.gov
		Greg Hill	760-833-7140	Greg_Hill@blm.gov
		Janaye Byergo (San Diego)	858-451-1767	Janaye_Byergo@blm.gov
FEDERAL AGENCIES				
U.S. Department of Agriculture (USDA) Forest Service	10845 Rancho Bernardo Rd Suite 200 San Diego CA 92127	Bob Hawkins	707-562-8699	rhawkins@fs.fed.us
	Cleveland National Forest	Kirsten Winter (Biologist)	858-674-2956	kwinter@fs.fed.us
	Cleveland National Forest	Stephen Harvey (Archaeologist)	858-674-2973	slharvey@fs.fed.us
	San Bernardino National Forest	Robert Taylor (Hydrologist)	909-382-2660	rgtaylor@fs.fed.us
	San Bernardino National Forest	Kermit Johansson (Landscape Architect)	909-382-2712	kjohansson@fs.fed.us
U.S. Fish and Wildlife Service	6010 Hidden Valley Rd Suite 101 Carlsbad CA 92011	Eric Porter	760-431-9440 x285	eric_porter@fws.gov
		Doreen Stadtlander	760-431-9440 x223	doreen_stadtlander@fws.gov
U.S. Army Corps of Engineers	6010 Hidden Valley Rd Suite 105 Carlsbad CA 92011	Robert R. Smith Jr., P.E. (404 Permit)	760-602-4831	robert.r.smith@usace.army.mil
U.S. Department of Transportation, Federal Highway Administration	Federal Highway Administration 1200 New Jersey Ave SE Washington, DC 20590	Director, Raja Veeramachaneni Office of Project Development & Environmental Review	202-366-2058	N/A [SDG&E does not anticipate direct contact with FHWA. Our contact is with Caltrans, who in turn will contact FHWA regarding any highway encroachment issues for I-8.]
U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms	Alcohol and Tobacco Tax and Trade Bureau Public Information Officer 1310 G St NW Suite 300 Washington DC 20220	General Contact	202-927-5000	ttbquestions@ttb.treas.gov [SDG&E does not anticipate direct contact with the Treasury Dept., BATF]

Table 1. Jurisdictional Agencies Associated with the Sunrise Powerlink Project

Agency	Address	Contact Person	Phone	Email Address
Federal Aviation Administration	Western-Pacific Regional Office Air Traffic Division, AWP-520 15000 Aviation Blvd Hawthorne CA 92060	General Contact/TBD	310-725-6557	N/A
U.S. Department of Defense – MCAS Miramar	Marine Corps Air Bases Western Area PO Box 452007 San Diego CA 92145-2007	Jack Harkins, Deputy Assistant Chief of Staff G-4 I&L	858-577-6678 (O) 858-864-3464 (C)	Jack.Harkins@usmc.mil
U.S. Department of Defense – La Posta Mountain Warfare Facility	U.S. Department of Defense NFEC SW Attn: Sheila Donovan, CPL 1220 Pacific Highway San Diego CA 92132	Sheila Donovan	619-532-1253	sheila.donovan@navy.mil
STATE AGENCIES				
State Lands Commission	100 Howe Ave Suite 100 South Sacramento CA 95825-8202	Jim Porter	916-574-1865	porterj@slc.ca.gov
California Dept of Fish & Game	South Coast Region 4949 Viewridge Ave San Diego CA 92123	Helen Birss (main contact)	805-569-6863	hbirss@dfg.ca.gov
		Marilyn Fluharty	858-467-4231	mfluharty@dfg.ca.gov
		Paul Schlitt (Region 5 CEQA/CESA)	858-637-5510	pschlitt@dfg.ca.gov
		James Sheridan (Region 6 CEQA/CESA)	760-200-9419	jsheridan@dfg.ca.gov
		Kelly Fisher (Region 5 LSAA Program within San Diego County)	858-467-4207	kfisher@dfg.ca.gov
		Heather Pert (Region 6 LSAA Program in Imperial County, Region 6).	858-395-9692	hpert@dfg.ca.gov
California Dept of Transportation	4050 Taylor St San Diego CA 92110	Jacob Armstrong	619-688-6960	Jacob.Armstrong@dot.ca.gov
California Dept of Toxic Substances Control	PO Box 806 Sacramento CA 95812-0806	General Contact/TBD	800-728-6942	webcoord@dtsc.ca.gov
State Historic Preservation Office	M. Wayne Donaldson 1416 9th St #1442-7 Sacramento CA 95814	M. Wayne Donaldson	916-653-6624	calshpo@parks.ca.gov

Table 1. Jurisdictional Agencies Associated with the Sunrise Powerlink Project

Agency	Address	Contact Person	Phone	Email Address
California Air Resources Board	1001 "I" St PO Box 2815 Sacramento CA 95812	General Contact	800-242-4450 916-322-3260	webmaster@arb.ca.gov [SDG&E does not anticipate direct contact with CARB, only with local air districts]
State Water Resources Control Board	1001 I St 15th floor Sacramento CA 95814	Cliff Harvey	916-558-1709	charvey@waterboards.ca.gov
Regional Water Quality Control Board, Region 7 (Colorado River Basin)	73-720 Fred Waring Dr Suite 100 Palm Desert CA 92260	Jay Mirpour	760-776-8981	jmirpour@waterboards.ca.gov
		John Carmona	760-341-6820	jcarmona@waterboards.ca.gov
Regional Water Quality Control Board, Region 9 (San Diego)	9174 Sky Park Ct Suite 100 San Diego CA 92123	Chiara Clemente	858-467-2359	Cclemente@waterboards.ca.gov
California Reclamation Board	PO Box 942836 Sacramento CA 94236	Jill Phinney Support Staff	916-574-0609	jphinney@water.ca.gov
LOCAL AND REGIONAL				
Imperial County	155 So. 11th St El Centro CA 92243	Jurg Heuberger, Community of Economic Development	760-482-4462	jurgheuberger@imperialcounty.net
San Diego County	Resource Management Division 9150 Chesapeake Dr Suite 200 San Diego CA 92123	Trish Boaz, Chief, Resource Management for Department of Parks and Recreation	858-966-1371	Trish.boaz@sdcounty.ca.gov
	5201 Ruffin Rd Suite B San Diego CA 92123	Leann Carmichael, Planning Manager for Department of Planning and Land Use	858-694-3739	Leann.Carmichael@sdcounty.ca.gov
City of San Diego	Public Utilities Department	Jeff Pasek – Watershed Manager/Senior Biologist	619-533-7599 (O); 619-980-5332 (C)	jpasek@sandiego.gov
		Niki McGinnis – Water Resources Protection Manager/Senior Environmental Planner	619-533-4101 (O); 619-756-3478 (C)	nmcginnis@sandiego.gov
Imperial County APCD	Air Pollution Control Officer 150 S. 9th St El Centro CA 92243	Brad Poiriez	760-482-4606	bradpoiriez@imperialcounty.net
		Reyes Romero	760-482-4606	reyesromero@imperialcounty.net
San Diego County APCD	10124 Old Grove Road San Diego CA 92131	Bob Kard, Director	858-586-2600	Robert.Kard@sdcounty.CA.gov
		Rob Reider		Robert.Reider@sdcounty.CA.gov

Table 1. Jurisdictional Agencies Associated with the Sunrise Powerlink Project

Agency	Address	Contact Person	Phone	Email Address
Imperial County Environmental Health Services	935 Broadway El Centro CA 92243	Robin Hodgkin, M.P.A., Department Director	760-482-4438	icphd@imperialcounty.net
San Diego County Environmental Health Services	PO Box 129261 San Diego CA 92112-9261	General Contact/TBD	619-338-2231	hmdutyeh@sdcounty.ca.gov
OTHER UTILITIES				
San Diego & Arizona Eastern Railway	SD & AE Railway facilities are owned by the Metropolitan Transit System. 1255 Imperial Ave Suite 1000 San Diego CA 92101	Tim Allison	619-595-4903	tim.allison@sdmts.com
Union Pacific Railroad	Union Pacific Railroad 1400 Douglas St Omaha NE 68179	General Contact	UP Main Number: 402-544-5000 UP Operator: 888-870-8777	N/A
Imperial Irrigation District	333 E. Barioni Blvd Imperial CA 92251	General Contact	Energy Customer Service: 800-303-7756; Water Customer Service: 760-339-9322	N/A
San Diego County Water Authority	4677 Overland Ave San Diego CA 92123	General Contact	858-522-6600	info@sdcwa.org

1.3 Project Description

1.3.1 Project Overview

The CPUC granted a certificate of public convenience and necessity (CPCN), and the BLM issued two Right-of-Way grants (one for temporary use) for the Sunrise Powerlink Project as defined in the CPUC's Decision. The Sunrise Powerlink Project includes the construction of new electric transmission lines between the existing Imperial Valley substation near El Centro in Imperial County to SDG&E's Sycamore Canyon Substation in coastal San Diego County, and other system modifications to reliably operate the new lines. The entire Project will extend approximately 118.1 miles[1], and traverse private and public lands (*e.g.,* BLM land and Cleveland National Forest).

The 500 kV segment of the Project will include the following segments of alternatives or route options, from east to west.

- **Interstate 8 Alternative (including SWPL Archaeological Site Revision and Jacumba Breakaway Revision):** The route follows the Interstate 8 Alternative starting at the Imperial Valley Substation and continuing west for 40.0 miles and includes:
  - SWPL Archaeological Site Revision
  - Jacumba SWPL Breakaway Point Revision
- **BCD Alternative Revision:** The route turns north-northwest for 13 miles, then southwest for 2 miles to meet the BCD South Option Revision. The route will be slightly modified as dictated by Mitigation Measure WR-2a (Final EIR/EIS Figure E.2.1-1b), which provides for an additional route revision to be developed by SDG&E in consultation with the U.S. Forest Service.
- **BCD South Option Revision:** The BCD South Option Revision continues south for approximately 6 miles and joins the Modified Route D Alternative at MP MRD-3.6.
- **Modified Route D Alternative (including Cameron Reroute, PCT Route Option A, and Western Modified Route D Alternative Reroute):** The route follows the Modified Route D Alternative to the Modified Route D Substation for approximately 31 miles, including the following route revisions:
  - **Cameron Reroute** from approximately MP MRD-8.5 to MP MRD-10.15
  - **PCT Route Option A** from approximately MP MRD-10.9 to MP MRD-14
  - **Western Modified Route D Alternative Revision** from MP MRD-18.5 to the "Suncrest Substation" (called the "Modified Route D Substation" in the EIR/EIS) at MP MRD-34

There are two route options for the first 230 kV segment of the Project to exit the Suncrest Substation.

- The first option is the original **Modified Route D Alternative** route would exit to the north, and follow the Modified Route D Alternative until reaching the Interstate 8 Alternative at Alpine Boulevard (MP I8-71.3).
- The second option would be implemented if the first is found to be infeasible. This is the **Star Valley Option**, which would eliminate the eastern underground segment in Alpine Boulevard, and would exit the Modified Route D Substation to the west-northwest. The option would be an overhead double-circuit 230 kV transmission line, heading west and northwest for 2.2 miles, then north for approximately 0.3 miles to a location near Star Valley Road, the route would transition under-

[1] Note that the USFWS BO and CDFG CESA Application references 120 miles.

ground and continue north to Alpine Boulevard, where it would join the Interstate 8 Alternative in its underground segment on Alpine Boulevard.

After entering Alpine Boulevard underground, the route continues west as follows:

- **Interstate 8 Alternative:** The route reconnects with the Interstate 8 Alternative where it meets Alpine Boulevard. From the Star Valley Option, the route would remain underground for 6 miles along Alpine Boulevard.
- **Chocolate Canyon Option Revision:** The route follows the Chocolate Canyon Option including the Chocolate Canyon Option Revision for 3.7 miles (MP CC-0 to CC-3.7).
- **Interstate 8 Alternative (including High Meadow Reroute and Highway 67 Hansen Quarry Reroute):** The Chocolate Canyon Option Revision connects with the Interstate 8 Alternative at MP I8-82.2 and the route travels for 10 miles to meet the Proposed Project route at approximately MP 131. This route segment includes:
  - The High Meadows Reroute
  - The Highway 67 Hansen Quarry Reroute
- **Proposed Project: The route follows** the Proposed Project route from MP 131 to the Sycamore Canyon Substation for 5.3 miles (MP 131 to MP 136.3). The approved Project includes the "Other System Upgrades" (Reconductoring of the existing 69 kV transmission line between the existing Sycamore Canyon and Elliot Substations, and improvements at the existing San Luis Rey and South Bay Substations).

Coastal Link System Upgrades Alternative Revision: The approved Project incorporates the Coastal Link System Upgrades Alternative Revision, in which the westernmost 15 miles of the Proposed Project will be replaced with upgrades to existing facilities (reconductoring and substation upgrades).

Schedule

SDG&E expects to have the project energized in 2012. Project related construction activities on each segment (see ***Table 2***) will not begin until pre-construction mitigation measures and submittals have been satisfied for that segment (see Section 1.3.2). Once pre-construction mitigation measures have been completed, the CPUC will issue a Notice-to-Proceed (NTP), indicating that construction can commence for that particular segment. The NTP may include CPUC or other agency conditions or requirements that must be satisfied prior to the start of work or during construction. In some cases, it may be appropriate to issue segment- or component-specific NTPs when pre-construction mitigation measures have been completed for one segment or component and not another. Section 6.3 lists the mitigation measures, the timing for completion, and whether CPUC review or approval is required before construction can commence.

1.3.2 Construction Segments and Components

A map of the construction segments is provided in ***Attachment A***. The project has been divided into 25 segments. The segments and anticipated start dates are shown in Table 2 below.

Table 2. Construction Segments

Segment	Section	Link	Description	Location	Dates*
1	IV		Imperial Valley Substation	Imperial Valley Substation	Jun-10
2	10B	Link 1 (500 kV)	Imperial Valley Sub to Pyramid Mining	MP0 to MP19.2	Jun-10
3			Pyramid Mining to Mountain Springs Grade	MP19.2 to MP23.2	Jun-10
4	9C/10A		Mountain Springs Grade to Jade	MP23.2 to MP30.3	Aug-10
5	9C		Jade to I-8 (McCain Valley)	MP30.3 to MP39.7	Jun-10
6	9B		I-8 (McCain Valley) to USFS	MP39.7 to MP52.5	Jun-10
7	9A/8E	Link 2 (500 kV)	USFS East	MP52.5 to MP61.3	Jun-10
8	8E		USFS East to Cameron Substation	MP61.3 to MP65.4	Jun-10
9	8D		Section 8D	MP65.4 to MP70.9	Jun-10
10	8C		Section 8C	MP70.9 to MP74.8	Jun-10
11	8B		Section 8B	MP74.8 to MP77.6	Jun-10
12	8A		Section 8A	MP77.6 to MP90.0	Jun-10
13	Suncrest	Link 3	Suncrest Substation (Modified Route D Substation)	Suncrest Substation	Jun-10
14	7	Link 5	Section 7	MP90.0 to MP92.8	Jun-10
15	6	Link 4	Section 6 (Alpine Blvd. UG)	MP92.8 to MP99.0	Jun-10
16	5	Link 5 (230 kV)	Peutz Valley thru El Monte Valley	MP99.0 to MP105.5	Jun-10
17			El Monte Valley to Hwy 67	MP105.5 to MP112.7	Jun-10
18	4A		Hwy 67 to Sycamore Canyon Substation	MP112.7 to MP118.1	Jun-10
19	SX		Sycamore Canyon Substation	Sycamore Canyon Substation	Mar-10
20	SX-El		Sycamore to Elliot 69 kV Reconductor	Sycamore to Elliott	May-11
21	SX-SC		Sycamore to Scripps 69 kV Reconductor	Sycamore to Scripps	Apr-10
22	SX-POM		Sycamore to Pomerado 69 kV Reconductor	Sycamore to Pomerado	Oct-10
23	South Bay		South Bay Substation Upgrades	South Bay Substation	Jan-11
24	Encina		Encina Substation Upgrades	Encina Substation	Oct-10
25	SLR		San Luis Rey Substation Upgrades	San Luis Rey Substation	Jan-11

*The construction dates listed in the table are current as of November 4, 2009, but are subject to change based on design, permitting, and compliance needs.

Note: Section 7 (in Segment 14) includes the overhead portion of the Star Valley Option Revision and Section 6 (in Segment 15) includes the underground portion of the Star Valley Option Revision. As a result, the mileposts for Segments 14 to the end of the route at Segment 18 reflect incorporation of the Star Valley Option Revision and are subject to change depending on the route constructed.

The mitigation measures listed in Section 6.3 include the location in which the mitigation measure applies. In general, the mitigation measures are applicable to all project areas; however certain biological and other resource protection measures are segment specific. SDG&E will work closely with contractor staff to ensure that site-specific mitigation measures are clearly identified.

1.3.3 Project Authorizations by Lead, Responsible, and Cooperating Agencies

This Plan is intended to provide pertinent information necessary to successfully implement the MMCRP during construction. The mitigation measures listed in Section 6.3 are presented in Sections D.2 through D.15 and E.1 through E.4 of the Final EIR/EIS. These sections also present discussions that explain the

intent of each mitigation measure and the potential impacts that could result if the mitigation measures are not implemented properly.

In addition to complying with the adopted mitigation measures and APMs, construction activities must be conducted in accordance with the requirements of a wide range of additional authorizations as listed below.

Lead Agencies – CPUC and BLM

- **California Public Utilities Commission** Certificate of Public Convenience and Necessity [issued on December 18, 2008]
- **BLM** Right-of-Way grants [issued on January 20, 2009], Temporary Use Permit, Antiquities and Cultural Use Permit, Plan of Development, Notice to Proceed, Clean Air Act Conformity, Fire Prevention Control Plan

Federal Agencies

- **U.S. Department of Agriculture (USDA) Forest Service** Special Use Permit, Special Use Easement, Record of Decision, Plan Amendment
- **U.S. Fish & Wildlife Service (USFWS)** Consultation per Section 7 of the Endangered Species Act, Biological Opinion [issued January 2009]
- **U.S. Army Corps of Engineers** (Corps) Individual/Nationwide Section 404 Permit – Dredge and Fill of jurisdictional waters of the U.S.
- **U.S. Department of Transportation, Federal Highway Administration** Encroachment Permits, Review of obstruction and objects affecting airspace
- **U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms** Explosive User's Permit
- **Federal Aviation Administration** Helicopter Lift Plan, Form 7460-1
- **U.S. Department of Defense – Marine Corps Air Station (MCAS) Miramar** FAR Part 77 Request (via FAA), SECNAVINST 11011.47A (access road outside of easement).

State Agencies

- **California Independent System Operator** Interconnection approval
- **California State Lands Commission** Right-of-Way Easement
- **California Department of Fish and Game** Lake or Streambed Alteration Agreement (Fish and Game Code §§1600-1616), California Endangered Species Act Incidental Take Permit (Fish and Game Code §§2081(b)(c), Mitigation Monitoring, Compliance and Reporting Program Plan, Certification of EIR, Recorded Conservation Easements.

- **State Water Resources Control Board** Clean Water Act Section 401 Water Quality Certification and associated Waste Discharge Requirements; Stormwater Construction General Permit 99-08 DWQ (issued by State Board, then separately issued by Regional Boards):[2]
  - **Regional Water Quality Control Board**, **Region 7** (Colorado River Basin), Storm Water Construction General Permit 99-08-DWQ;
  - **Regional Water Quality Control Board**, **Region 9** (San Diego), Storm Water Construction General Permit 99-08-DWQ.
- **California Department of Transportation** Encroachment Permits, Traffic Control Plans
- **California Department of Toxic Substations Control** EPA Hazardous Waste Generator ID
- **California State Historic Preservation Office** Cultural Resources Use Permit, Field Use Authorization, or an Archaeological Resources Protection Act (ARPA) Permit (if required), Consultation for Section 106 of the National Historic Preservation Act
- **California Air Resources Board** Portable Engine Registration for specified non-mobile portable engines
- **California Reclamation Board** Encroachment Permit

Local Agencies

- **Imperial County** Road/Highway Encroachment/Crossing Permit, Grading Permit, Flood Control/Drainage Channel Encroachment/Crossing Permit, Explosives Permit
- **San Diego County** Road/Highway Encroachment/Crossing Permit/Review, Grading and Wall Permit/Review, Traffic Control Plans, Explosives Permit, New or Expanded ROW Grant, Flood Control/Drainage Channel Encroachment/Crossing Permit/Review, Excavation Permit/Review
- **Imperial County APCD, San Diego County APCD** Permit to Operate, Dust Control Plan
- **San Diego and Imperial County Environmental Health Services** Hazardous Materials Business Plan, Spill Prevention Control & Countermeasures Plan
- **Cities of San Diego and Poway** Road/Highway Encroachment/Crossing Permit/Review, Flood Control Channel, Encroachment/Crossing Permit/Review, Temporary Use/Occupancy Permit/Review – Material and Storage Yards

[2] Note that while the Stormwater Construction General Permit is issued by the State Water Board, enforcement of this statewide permit is typically conducted by the staff of the regional Water Boards. State Water Board staff may also inspect and enforce compliance with this permit.

2.0 Roles and Responsibilities

This section describes the roles and responsibilities of key project personnel with respect to the MMCRP.

Figure 1 provides an organizational chart of project members responsible for implementing the MMCRP and their relationship to other staff working on the project. The organization chart also establishes preliminary lines of communication between the project team.

Figure 2 provides an organizational chart of San Diego Gas & Electric project members responsible for implementing the MMCRP and their relationship to other staff working on the project.

Following Figures 1 and 2, the roles and responsibilities of each position shown on the Organization Charts have been defined.

Attachment B, Mitigation Monitoring Program Contact List contains contact information for each position shown in Figure 2.

2.1 Organization and Roles of Each Entity

2.1.1 SDG&E

SDG&E Vice President

SDG&E's Vice President (VP), as referenced in the ***Contact List*** *(Attachment B)* provides the overall direction, management, leadership and corporate coordination for the construction project. The VP's responsibilities related to the environmental program include, but are not limited to:

- Coordinate between financial, safety, public affairs, construction, engineering, land services and environmental staff
- Provide direction by integrating environmental compliance into all levels of the project organization
- Communicate corporate coordination for all levels of the project organization
- Assure financial support, corporate leadership and management staff to effectively comply with all project policies, requirements and procedures.

Figure 1. MMCRP Organization – Reporting Relationships

Lines of authority shown in yellow.

Coordination shown in purple.

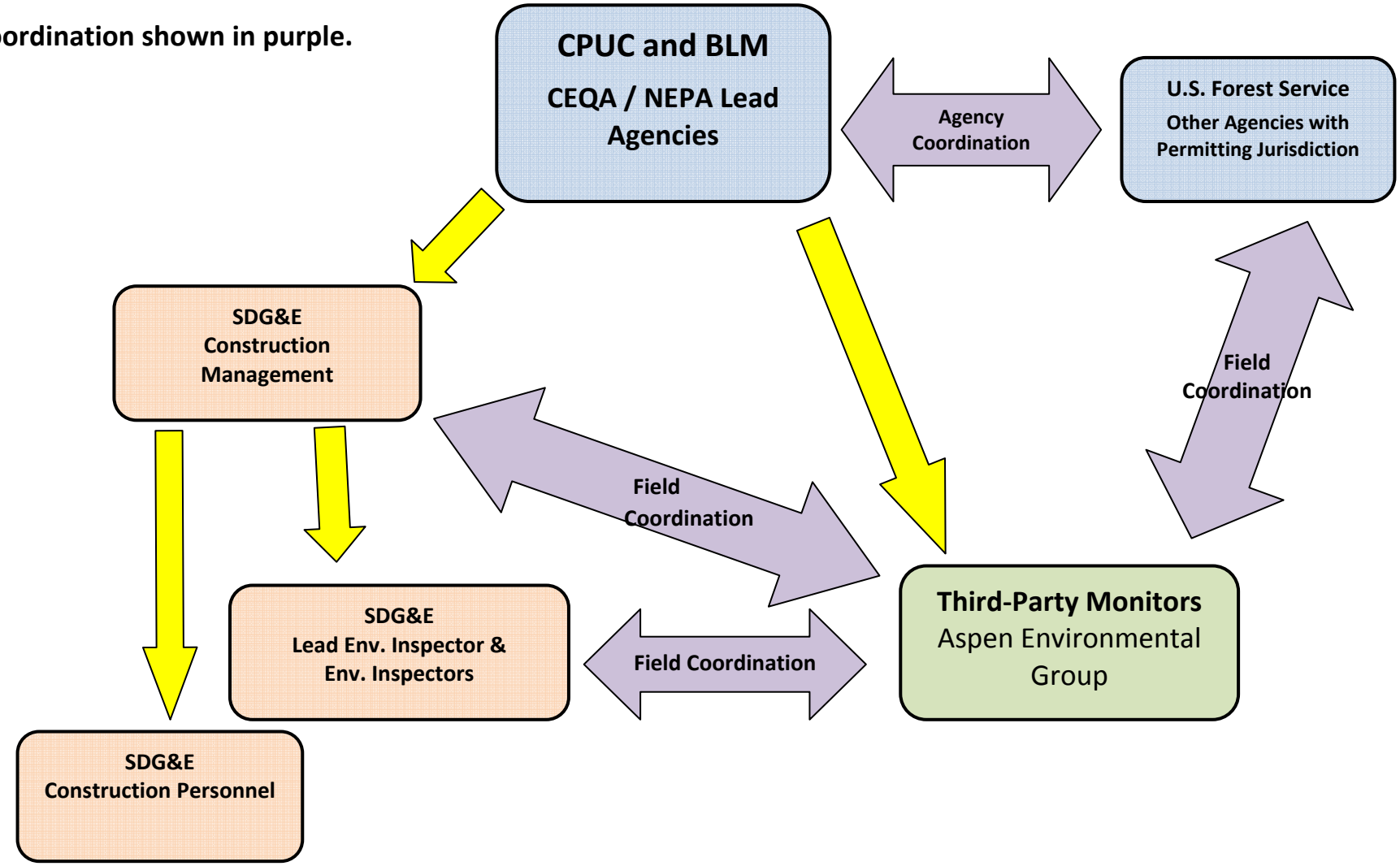
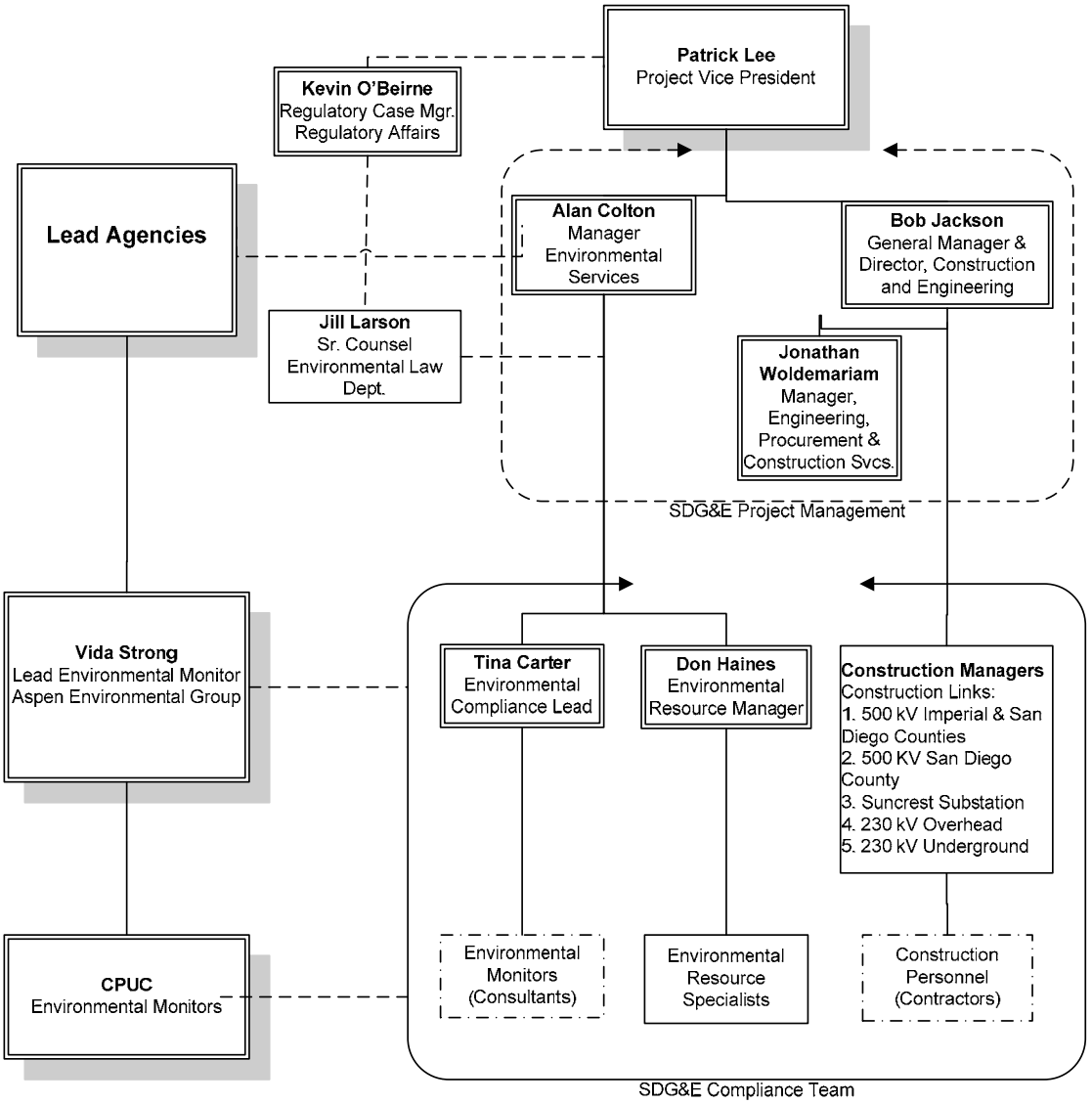


Figure 2. MMCRP Organization – San Diego Gas & Electric Company



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SDG&E General Manager and Director, Construction & Engineering

SDG&E's General Manager and Director (GM&D), Construction & Engineering, as referenced in the ***Contact List*** *(Attachment B)* provides the specific direction, management, leadership and corporate coordination for the construction project to the Construction & Engineering Managers. The GM&D's responsibilities related to the environmental program include, but are not limited to:

- Coordinate between construction management, engineering management, and environmental staff
- Provide leadership for the construction and engineering management by integrating environmental responsibility into the project organization
- Communicate corporate coordination for the construction and engineering management of the project organization
- Assure financial support for the construction and engineering management in order to effectively comply with all project policies, requirements and procedures.

SDG&E Manager, Engineering, Procurement & Construction Services:

SDG&E's Manager, Engineering, Procurement & Construction Services (MEPCS), as referenced in the ***Contact List*** *(Attachment B)* will provide the specific direction, management, and leadership for the construction project to the Engineering, Procurement & Construction Services. The MEPCS's responsibilities related to the environmental program include, but are not limited to:

- Coordinate between engineering, procurement, construction services, and environmental staff
- Provide leadership for the engineering, procurement & construction services by integrating environmental responsibility into the project organization
- Communicate engineering, procurement and construction services project activities and schedules to the environmental staff.
- Assure engineering, procurement and construction services compliance with all project policies, requirements and procedures, including the MMCRP.

SDG&E Project Managers

SDG&E's Project Managers (PMs), as referenced in the ***Contact List*** *(Attachment B)* oversee the activities of the assigned Construction Segments ***Table 2***, and the SDG&E designated construction Links. Specific responsibilities of the PMs include, but are not limited to:

- Ensure compliance with project specifications, drawings, permit conditions, construction contracts and applicable codes
- Notify Environmental Manager and Compliance Lead of project schedule changes
- Work with SDG&E Compliance Team to evaluate and improve the implementation of the MMCRP as construction progresses
- Regularly facilitate project meetings
- Assure all construction personnel receive environmental training, (Safe Worker and Environmental Awareness Program, SWEAP), as required under Mitigation Measures B-7b, Bio-APM-2, C-1f, CR-APM-1, PAL-1e, HS-APM-1, AQ-4c, WQ-APM-3, and F-1a as new workers arrive on the project. SDG&E may elect to have a construction management contractor design, deliver and record the SWEAP.

SDG&E Construction Personnel

Construction activity will take place at any given time within multiple Construction Segments ***Table 2***, and the SDG&E designated construction Links. Construction contractors will have significant responsibilities for implementation of and compliance with the environmental requirements of the project. The contractors will be responsible for incorporating all project environmental requirements into their day-to-day construction activities.

Key environmental responsibilities for contractors' staff include, but are not limited to:

- Verify that all construction workers attend the project's Safe Worker and Environmental Awareness Program (SWEAP) prior to beginning work on the project
- Review and understand the environmental requirements
- Implement and maintain mitigation measure requirements and conditions during construction
- Respond to requests by SDG&E Environmental Resource Specialists and Monitors, during construction

SDG&E Manager, Environmental Services

SDG&E's Manager, Environmental Services (MES), as referenced in the ***Contact List*** *(Attachment B)* is responsible for providing the appropriate level of resources for successful implementation of the MMCRP. The MES will provide management, direction, and leadership to the SDG&E Environmental Compliance Team. Specific responsibilities of the MES, include, but are not limited to:

- Directing the development and implementation of the pre-construction environmental planning, permitting, and compliance activities.
- Assures the development and implementation of the Safe Worker and Environmental Awareness Program (SWEAP)
- Provide the leadership and resources to assure compliance with the MMCRP
- Actively communicate with all Lead Agencies
- Establish and support the lines of communication between the SDG&E Environmental Staff, Construction personnel, Agencies and Third-Party Monitors.

SDG&E Environmental Resource Manager

SDG&E's Environmental Resource Manager (ERM) as referenced in the ***Contact List*** *(Attachment B)* will provide support to the MES, for successful implementation, planning, permitting and compliance activities required under the MMCRP. The ERM responsibilities include, but are not limited to:

- Coordinating the activities of the biological, paleontological, cultural and hazardous materials Environmental Resource Specialists
- Directing the development and implementation of the pre-construction environmental planning, permitting, and compliance activities.
- Provide leadership, direction and management of the Environmental Resource Specialists
- Actively communicate with all agencies respective to mitigation measures in the MMCRP
- Assure continued communication between the SDG&E Environmental Compliance Team, Construction personnel, Agencies, and Third-Party Monitors.

SDG&E Environmental Compliance Lead

SDG&E's Environmental Compliance Lead (ECL) as referenced in the ***Contact List*** *(Attachment B)* will provide oversight of all activities required for compliance of the MMCRP. The ECL will also provide coordination of activities for agriculture, transportation, fire and training. The ECL responsibilities include, but are not limited to:

- Coordination and tracking of the submittal process in order to receive Notices to Proceed
- Work closely with CPUC EMs to evaluate the effectiveness of mitigation measures
- Actively communicate with the Lead Agencies, particularly in regards to the MMCRP
- Provide coordination with construction and engineering groups to assure mitigation measures are understood and implemented
- Assure frequent and clear communication between the SDG&E Environmental Staff, Construction personnel, Agencies, and Third-Party Monitors.

SDG&E Environmental Resource Specialists

SDG&E's Environmental Resource Specialists, as referenced in the ***Contact List*** *(Attachment B)* will support the ERM for successful implementation, planning, permitting and compliance activities required under the MMCRP. The ERM responsibilities include, but are not limited to:

- Coordinating the activities of the biological, paleontological, cultural, air, water, visual, wilderness & recreation and noise mitigation measure requirements
- Coordinating the development and implementation of the pre-construction environmental planning, permitting, and compliance activities.
- Actively communicate with all agencies respective to the above mitigation measure requirements
- Provide direction and management of the Environmental Monitors

SDG&E Environmental Monitors

Several mitigation measures require a qualified specialty monitor during construction, as referenced in ***Table 3*** *(Mitigation Measures Requiring Onsite Monitoring)*. The measures listed in ***Table 3*** require SDG&E to provide an on-site specialty monitor. The information will be completed as it becomes available and as consultant and contract personnel are finalized. The Environmental Monitors will provide oversight, protection and direction for compliance within their field of expertise at the applicable Construction Segments (***Table 2***) and Construction Links.

Additional SDG&E Roles

SDG&E Regulatory Affairs

The SDG&E Regulatory Case Manager for Regulatory Affairs provides information and guidance to both the Sunrise Powerlink Project Construction Management and Environmental Management Teams as needed.

SDG&E Environmental Law Department

The SDG&E Senior Counsel Environmental, for the Environmental Law Department provides information and guidance to both the Sunrise Powerlink Project Construction Management and Environmental Management Teams as needed.

Table 3. Mitigation Measures Requiring Onsite Monitoring During Construction by Qualified Inspectors

Mitigation Measure No.	Resource	Purpose	Monitor	Segments
B-1c	Biology	sensitive vegetation communities or wildlife habitat	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments (segments 4 and 5, only, for the barefoot banded gecko)
B-5a	Biology	special status plants	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7a	Biology	wildlife (*e.g.,* reptiles and small mammals)	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7b	Biology	FTHL	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7d	Biology	burrowing owl	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7e	Biology	least Bell's vireo and southwestern willow flycatcher	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7i	Biology	QCB	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7j	Biology	arroyo toad	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-7l	Biology	coastal California gnatcatcher	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	TBD
B-8a	Biology	breeding birds	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
B-9a	Biology	bat nursery colonies	Natural History Museum	Pending survey results
BIO-APM-8	Biology	sensitive plant populations	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	Pending survey results
BIO-APM-14	Biology	wildlife entrapment	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
BIO-APM-16	Biology	nesting birds	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments
BIO-APM-17	Biology	vegetation along access roads	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	All segments

Table 3. Mitigation Measures Requiring Onsite Monitoring During Construction by Qualified Inspectors

Mitigation Measure No.	Resource	Purpose	Monitor	Segments
BIO-APM-27	Biology	active raptor nests	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD	Pending survey results
C-1a	Cultural	cultural resources	ASM Affiliates, 760-504-5757 jrcook@asmaffiliates.com	All segments
C-1b	Cultural	Potentially NRHP and/or CRHR eligible resources in environmentally sensitive areas	TBD	All segments
C-1c	Cultural	historic properties and cultural resources	TBD	All segments
C-1e	Cultural	cultural resource Environmentally Sensitive Areas	TBD	All segments
C-2a	Cultural	human remains	TBD	All segments
C-3a	Cultural	buried prehistoric or historical archaeological sites or Native American human remains	TBD	All segments
CR-APM-3	Cultural	previously unidentified cultural resource	TBD	All segments
PAL-1b	Paleon-tology	paleontological resources	TBD	All segments
PAL-1c	Paleon-tology	paleontological resources	TBD	All segments
GEO-APM-9	Paleon-tology	paleontological resources	TBD	All segments
P-1a	Public Health & Safety	Environment Field Represen-tative must be available at all times –either on site or on call	TBD	All segments
P-3a	Public Health & Safety	contaminated soil or groundwater	TBD	Pending Phase I Assessment
WQ-APM-16	Hydrology & Water	riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands	Pre-Constr.: Chambers Group, Inc., Recon, TRC Solutions, Inc. During Constr.: TBD*	For all segments, pending survey results

*Inspectors should be trained in stormwater, non-point-source and watershed modification/hydromodification impacts should be specified as an essential part of the inspection and monitoring teams. These inspectors should have experience and training in use, adaptation and inspection of BMPs for wild land settings, as well as an ability to assess watershed effects of construction practices. Inspectors that hold qualifications such as Certified Professional in Sediment and Erosion Control (CPESC) or similar certifications should be preferred.

Several additional mitigation measures require a qualified specialty monitor during maintenance of the transmission line. These measures are Mitigation Measure B-12a (nesting territories of the coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing owl), Mitigation Measure B-12b (arroyo toads), Mitigation Measure B-12c (QCB), and Mitigation Measure C-5a (NRHP and/or CRHR eligible properties).

Mitigation Compliance

SDG&E is responsible for successfully implementing all the adopted mitigation measures in the MMCRP. The MMCRP contains criteria that define whether mitigation is successful. Standards for successful mitigation also are implicit in many mitigation measures that include such requirements as obtaining non-discretionary permits or avoiding a specific impact entirely. Additional mitigation success thresholds may be imposed by applicable agencies with jurisdiction through the discretionary permit process.

SDG&E shall inform the CPUC and its monitors in writing (i.e., Variance Request) of any mitigation measures that are not or cannot be successfully implemented and their proposed mitigation options to reduce the subject impact(s) to less than significant. The CPUC in coordination with its monitors and jurisdictional agencies will assess whether alternative mitigation is appropriate and specify in writing to SDG&E the subsequent actions required.

2.1.2 California Public Utilities Commission

CPUC Project Manager

The CPUC Project Manager (see ***Attachment B, Contact List***) has the overall responsibility for ensuring that mitigation measures are implemented as adopted by the CPUC. She will determine the effectiveness of the MMCRP based on the success criteria included in the mitigation monitoring table. The CPUC delegates field monitoring and reporting responsibilities to Aspen Environmental Group, the third-party monitoring firm and the firm that prepared the EIR/EIS for the CPUC and BLM. The CPUC Project Manager will oversee Aspen's work through telephone calls, and review of daily and weekly status reports. The CPUC Project Manager will be notified of all noncompliance situations and may suggest measures to help resolve the issue(s). All variance requests will be submitted to the CPUC Project Manager for review and approval.

The CPUC PM will issue Notices to Proceed (NTPs) for construction of each segment identified by SDG&E. Where a NTP covers BLM, CNF, CDFG, or other jurisdictional lands, the CPUC's NTP does *not* authorize construction to start, but only documents compliance with all relevant mitigation measures and permit conditions. *No construction may occur on BLM or CNF or other jurisdictional lands without specific approval by those agencies*.

CPUC Third-Party Monitors

The overall monitoring program will be administered under the direction and oversight of the CPUC Project Manager. The CPUC has delegated daily monitoring and reporting responsibilities to Aspen Environmental Group, a third-party monitoring firm. Individual roles are defined in ***Attachment B, Contact List***. The number of third-party monitors (CPUC EMs) and frequency of site inspections will depend on the number of concurrent construction activities and their locations with respect to sensitive resources and land uses, and compliance with project mitigation measures and permit conditions during construction.

SDG&E environmental monitors have primary responsibility for ensuring that construction activities are conducted in accordance with approved Project mitigation measures, compliance plans and permit conditions. The role of the CPUC third-party monitors (Aspen) is to ensure and document that compliance is being achieved using verbal and written communications.

- **Aspen Monitoring Manager.** The Monitoring Manager supervises Aspen's Lead and Environmental Monitors, as well as determines the appropriate level of inspection frequency and is responsible for weekly report preparation. The Monitoring Manager also serves as the main point of contact with the CPUC Project Manager for major issues and noncompliance discussions.
- **Lead Environmental Monitor (CPUC LEM).** The CPUC LEM will oversee the day to day monitoring activities of the EMs, be the primary point of contact with in-field agency personnel, and coordinate preparation of draft weekly reports. The LEM will have the most direct contact with the CPUC Project Manager on day-to-day issues.
- **CPUC Environmental Monitors (CPUC EMs).** CPUC EMs will be an integral part of the project team and will stay apprised of construction activities and schedule changes, and will monitor construction activities for compliance with project mitigation measures, compliance plans, and permit conditions. The CPUC EMs will document compliance through maintaining daily logs and use of a mitigation measure tracking table. The CPUC EMs will also provide input for the draft weekly reports. The CPUC EMs shall note problems with monitoring, notify designated project members, and report the problems to the CPUC Project Manager. The enforcement and shut-down authority of the CPUC EM in the field is limited to issues that address imminent safety issues or resource danger. All other issues will be brought to the attention of the SDG&E field representative to address appropriately.

Enforcement Authority

The CPUC and other jurisdictional agencies are responsible for enforcing the procedures adopted for monitoring through the CPUC EMs assigned to each segment. Other jurisdictional agencies, including the BLM and USFS, have the independent authority to halt construction, operation, or maintenance activity associated with the Sunrise Powerlink Project within their respective jurisdictions if the activity is determined to be a deviation from the approved project or adopted mitigation measures or puts a sensitive resource at undue risk.

2.1.3 Bureau of Land Management

As the NEPA Lead Agency, BLM is responsible for ensuring that mitigation measures are implemented on BLM land. BLM intends to work with the CPUC in implementation of mitigation monitoring during construction of the Sunrise Powerlink Project, and will use Aspen, the CPUC's environmental contractor, for monitoring on its lands. However, BLM's resource specialists may also have a field presence for project inspection and to review and resolve any on-the-ground issues that may arise on BLM land. No activities may occur on BLM-managed lands without BLM approval.

Field Manager

The El Centro Field Manager is the authorized officer to make BLM decisions pertinent to this project. The Field Manager will issue all authorizations or permits for the use of BLM land. For portions of the project on lands under the jurisdiction of the Palm Springs/South Coast Field Office, the El Centro Field Manager would seek concurrence with the Palm Springs/South Coast Field Manager before issuing any decision.

BLM Project Manager

The Project Manager reports to the Field Office Manager and is responsible for coordinating the implementation of the project between the BLM staff at the field, district, and state office levels. The Project Manager is the primary point of contact with the SDG&E and other agencies for review of documents, reports, mitigation progress, and project planning.

BLM Resource Specialists

Various resource staff will be involved with implementation of this project. They will be assisting the Project Manager and environmental monitors with evaluation of conditions and project status relative to mitigation requirements or other stipulations. These support staff will include archaeologists, biologists, geologists, and other staff as required.

2.1.4 United States Department of Agriculture Forest Service

The approved project route crosses lands under jurisdiction of the U.S. Department of Agriculture (USDA) Forest Service on Cleveland National Forest (CNF), and therefore, requires issuance of a Special Use authorization from the Forest Service. As a result, the Forest Service was a Cooperating Agency during preparation of the Final EIR/EIS in compliance with NEPA, the Council on Environmental Quality (CEQ) regulation for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and the USDA Forest Service Handbook (CFR 1909.15, Environmental Policy and Procedures Handbook).

The Forest Service's Record of Decision, [not issued at this time, update when published] on [date], documents the decision to issue a Special Use Permit (SUP) to SDG&E for the construction, maintenance, and use of the 500 kV and 230 kV transmission lines along with ancillary improvements within the Descanso Ranger District of the CNF. The SUP is signed by the Forest Supervisor.

The SUP incorporates the appropriate terms and conditions that apply to National Forest System (NFS) lands, and is monitored and enforced by the Forest Service. The CPUC EMs (Aspen) will coordinate with the Forest Service and will serve as field monitors for the CPUC on NFS lands. No activities may occur without Forest Service and CPUC approval.

Authorized Officer

The Forest Supervisor will issue the permit if the project is approved by the Forest Service, and is responsible for the overall permit administration. Decisions to amend the permit or revoke or suspend permit operations are made at this level.

Authorized Officer for Administration

The District Ranger is delegated the authority to administer the day-to-day activities associated with the permit. The District Ranger may approve plans and activities as required under the permit, issue NTPs for activities on NFS lands, and would issue letters of non-compliance if necessary.

Permit Administrator

The District Special Uses staff handles the permit administration for the District Ranger and Forest Supervisor, included preparation of correspondence, plan review, NTPs, and field inspections.

Permit Monitor

The Permit Monitor is responsible for monitoring compliance with permit requirements in the field. The permit monitor documents observations and provides summaries of key findings to the Permit Administrator and Authorized Officer. Several permit monitors will be assigned to the project.

Project Coordinator

The Project Coordinator reports to the Forest Lands Staff Officer and is responsible for coordinating the permit implementation between the various staff units on the Cleveland National Forest. The Project Coordinator is the primary point of contact with the permittee and other agencies for plan review and approval prior to the SUP being issued.

Resource Specialists

Various resource staff will be involved with plan review and approval under the permit, as well as assisting the Permit Administrator and Permit Monitors with evaluation of conditions on the ground relative to permit requirements. These support staff will include engineers, botanists, biologists, earth scientists, fuels specialists, and other staff as required by permit conditions.

2.1.5 United States Department of Defense – Marine Corps Air Station (MCAS) Miramar

A portion of the approved route east of Sycamore Canyon Substation (approximately 0.7 miles) and the Sycamore-Elliot reconductoring would cross lands owned by the Department of Defense (DoD) MCAS Miramar. Therefore, MCAS Miramar was a Cooperating Agency for the EIR/EIS under NEPA. As part of the project, SDG&E must obtain the following permits from MCAS Miramar: FAR Part 77 Request (via FAA) and SECNAVINST 11011.47A (for access roads outside of the easement).

The CPUC EMs will coordinate with MCAS Miramar regarding construction on its land to determine whether MCAS Miramar would like CPUC EMs to monitor on its land. The CPUC EMs are familiar with the agency permit conditions and check for implementation in the field. If an issue arises during construction, the CPUC EMs will notify the MCAS Miramar representative so that he/she can take action. The MCAS Miramar representative will be included on the weekly report distribution.

2.1.6 United States Army Corps of Engineers

Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972) authorizes the U.S. Army Corps of Engineers (ACOE) to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands associated with the approved project. The ACOE issues individual site-specific or general (Nationwide) permits for such discharges. ACOE issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained.

The CPUC EMs are familiar with the ACOE permit conditions and check for implementation in the field. If an issue arises during construction, the CPUC EMs will notify the ACOE representative so that he/she can take action. In addition, the ACOE representative will be asked if he/she would like to be on the weekly report distribution. No activities that would potentially affect waters of the U.S. or adjacent wetlands may occur until the Section 404 permits are approved and certified.

2.1.7 United States Fish and Wildlife Service

Under Section 7 of the Federal Endangered Species Act (FESA) of 1973, as amended (16 U.S.C. 1531 et seq.) and the Fish and Wildlife Coordination Act, BLM has consulted with the United States Fish and Wildlife Service (USFWS) and the appropriate State wildlife agency (California Department of Fish and Game, see Section 2.1.8 below). As part of the FESA Section 7 consultation process, USFWS issued a

Biological Opinion (BO) in January 2009 in response to the Biological Assessment (BA) that was submitted by BLM, the NEPA Lead Agency. In its BO, USFWS stated the SDG&E had committed to implement general and species-specific conservation measures to avoid, minimize and offset the impacts of this project on endangered and threatened species and their designated and proposed critical habitats.

Where conservation measures relate to construction activities the CPUC EMs will ensure that the conservation measures in the BO are implemented. If a potential violation occurs during construction, the CPUC EMs will notify the USFWS representative(s) (as well as the CPUC and BLM PMs) so that appropriate action can be taken. USFWS representatives will also be consulted by the CPUC PM if an issue arises relevant to an adopted conservation measure to protect federally listed species, or if any species addressed in the BO are affected during construction in a manner not anticipated in the BO. In addition, the USFWS representative(s) will be included in the weekly report distribution. Long-term monitoring during operations and maintenance will be addressed through consultation and a plan with USFWS.

2.1.8 California Department of Fish and Game

The California Department of Fish and Game (CDFG) has jurisdiction over the conservation, protection and management of California's fish, wildlife, native plants and the habitats necessary for their sustenance. CEQA lead Agencies have a legal obligation to consult with CDFG as to their projects' impacts on biological resources.

The Department issues California Endangered Species Act ("CESA") Incidental Take Permits ("Permit") pursuant to Fish and Game Code sections 2081(b) and 2081(c), and California Code of Regulations, title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take of any species of wildlife designated as an endangered, threatened, or candidate species by the Fish and Game Commission. The Department, however, may authorize the take of such species by permit if the conditions set forth in Fish and Game Code sections 2081(b) and 2081(c) are met. (See also Cal. Code Regs., title. 14, § 783.4.)

As part of this CESA Section 2081 permitting process, CDFG was consulted by the CPUC during the development of the mitigation measures in the EIR/EIS. In addition, a set of measures and standards were developed by CDFG as part of its permit conditions for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

The California Fish and Game Code §3511, §4700, §5050, and §5515 provides for the highest level of protection for mammals, birds, reptiles and amphibians, and fish listed as Fully Protected. Designated species may not be taken or possessed at any time. CDFG cannot issue permits that authorize the "take of any fully protected species, except for certain circumstances such as scientific research and live capture and relocation to protect livestock.

Two statutes outside of CESA provide protection for birds, nests and eggs. They include Fish and Game Code §3503 that prohibits the taking, possession or needless destruction of nest or eggs of and bird and §3503.5 that prohibits the taking, possession, or destruction of birds of prey (*Falconiformes* and *Strigiformes*) or their nests and eggs.

CESA's protection for plants is subject to the Native Plant Protection Act (NPPA, §§ 1900-1913). The NPPA afforded the CDFG Commission the authority to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The CESA expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code.

The CDFG will require a Streambed Alteration Agreement, pursuant to Section 1600 *et seq.* of the Fish and Game Code, that prior to the commencement of any activity that will substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake; use materials from a streambed; and/or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. The CDFG's issuance of a Streambed Alteration Agreement for a project that is subject to the CEQA requires CEQA compliance actions by the Department as a Responsible Agency. As a Responsible Agency under CEQA, CDFG may consider the local jurisdiction (Lead Agency's) CEQA documentation for the project.

The CPUC EMs will coordinate with the CDFG, as needed during construction. The CPUC EMs are familiar with the CDFG permit conditions and will ensure implementation in the field. If an issue arises during construction, the CPUC EMs will notify the CDFG representative (as well as the CPUC and BLM PMs) so that appropriate action can be taken. In addition, the CDFG representative will be included in the weekly report distribution.

2.1.9 California Environmental Protection Agency – State Water Resources Control Board

Because the approved route spans more than one water quality control region, the State Water Resources Control Board (SWRCB) is responsible for the project's Water Quality Certification.

The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., as amended requires the Water Board and the nine RWQCBs to adopt water quality criteria to protect State waters. The Water Board's purpose is to avoid or to minimize impacts to waters of the State associated with the Sunrise Powerlink Project. The CPUC EMs will coordinate with the Water Board. The CPUC EMs shall be familiar with the SWRCB permit conditions and shall check for implementation in the field. The CPUC EMs shall include staff trained and experienced in wildland wetland and stream protection, wildland project stormwater management, and restoration/reclamation methods and practices. If an issue arises during construction, the CPUC EMs will notify the SWRCB representative so that he/she can take action. In addition, the SWRCB representative will be on the weekly report distribution. No activities can occur that would potentially affect waters of the State until all Water Boards orders, permits, certifications, WDRs and notifications are approved.

The approved route of the project spans more than one Water Quality Control Region: Region 7 under the Colorado River Basin Regional Water Quality Control Board (RWQCB), and Region 9, the San Diego RWQCB. Because of the multi-regional nature of the project, the State Water Resources Control Board (SWRCB) is responsible for the project's Water Quality Certification for discharges of dredge and fill to State waters including wetlands. The State Water Board also administers Storm Water Construction General Permit 99 08 DWQ, which is enforced by Regional Board Staff.

National Forest System Lands. Pursuant to CWA Section 208, the State Water Board approved the document entitled Water Quality Management for Forest System lands in California (dated Sept. 2000), including its BMPs, as the Water Quality Management Plan (WQMP) for National Forest System Lands in California. The BMPs for this Plan were updated in 2000.

The State Water Board designated the U.S. Forest Service (USFS) as the water quality management agency with primary responsibility for those Forest system lands and it executed a management agency agreement with USFS setting forth the latter's commitment to WQMP implementation. In order to com-

ply with water quality standards, the USFS implements this WQMP. Practice 7-5 of the WQMP requires that Special Use Permits include measures to protect water quality, including conformance with other water quality agency permit requirements. See Section 2.1.4 for a discussion of the Forest Service's role during mitigation monitoring.

3.0 Communication

Communication is a critical component of a successful environmental compliance program. In order to avoid project delays and possible shut-downs, environmental and construction representatives will need to interact regularly and maintain professional, responsive communications at all times. Similarly, SDG&E representatives will need to coordinate closely with CPUC EMs to address and resolve issues in a timely manner. Therefore, this section of the MMCRP provides a communication protocol to accurately disseminate information on on-going surveys and mitigation measures, construction activities, contractors, and planned or upcoming work to all levels of the project.

3.1 Pre-Construction Compliance Coordination

SDG&E is required by the terms of the mitigation measures and the permitting requirements of various other regulating agencies to prepare plans and obtain approval of these documents, in addition to performing various surveys and studies prior to construction. During this pre-construction process, SDG&E has been conducting meetings, conference calls, and site visits with technical representatives of the Aspen Team, the CPUC and other agencies, and SDG&E's environmental representatives. The purpose of the pre-construction coordination process has been to discuss document submittal status, document the findings of data reviews and jurisdictional agency approvals, review SDG&E submittals, and document the status of mitigation measures as they apply to the project or phased project segment. The goal of the pre-construction process is to complete all required actions so the CPUC and other agencies, as appropriate, can issue Notice to Proceed authorizations for each segment.

Pre-Construction Activities

A pre-construction meeting was held on March 18, 2009 *w*ith the CPUC, BLM, SDG&E, and CPUC EMs to review the MMCRP and mutually agree upon the project's communication protocol. Based on discussion at the meeting and ongoing input from each party, this MMCRP has been updated. Other pre-construction activities include the following:

- On May 20, 2009, an introductory meeting was held with the BLM, USFS, State Water Board, and the CPUC and Aspen Team representatives.
- The Cultural Resources Survey Plan has been finalized after a series of meetings with tribal representatives and agency input and comment on the plan itself. The cultural resources surveys were completed in September 2009.
- SDG&E has been coordinating with the USFS to prepare required supporting documentation (Biological Evaluations, Management Indicator Species Reports) and to finalize routing details.
- SDG&E has been coordinating with USFS and Aspen Team visual specialist to define tower colors.
- SDG&E's biologists are completing protocol surveys for species of concern.
- Periodic discussions between SDG&E, CPUC, BLM, USFS, and Aspen Team representatives have been held to clarify implementation requirements and a meeting was held on August 31 and September 1, 2009.
- On November 4, 2009, a meeting was held between SDG&E, CPUC, BLM, USFS, State Water Board, CDFG, City and County of San Diego and Aspen Team representatives to discuss final engineering/routing, construction design plans, and agency coordination.

3.2 Agency Compliance Website

An interactive website is being set up to make available current versions of reports, maps, and other documents prepared for mitigation compliance. The purpose of the website is to facilitate sharing of data and status reports, which change on almost a daily basis, especially during the pre-construction period, but also during project construction.

The website will be available to all interested Lead and permitting agencies (see Table 1). Access will be by assigned password and email address.

The website will include the following documents:

- Action Item table, tracking status of submitted items and items to be completed by various parties.
- A status table, tracking status of compliance with each mitigation measure.
- SDG&E's current versions of project design drawings and maps.

3.3 Communication Protocol During Construction

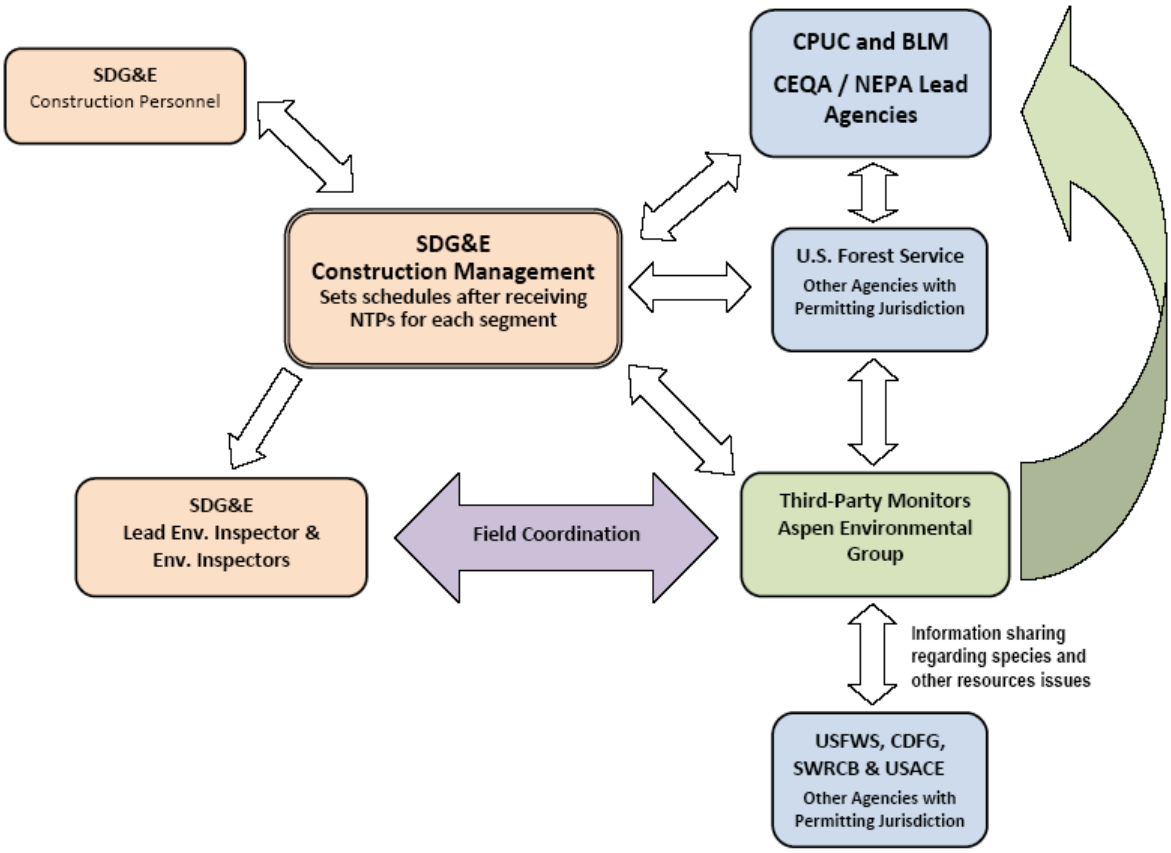
In order to ensure that the CPUC EMs can get accurate information on ongoing surveys, construction work, and schedules, and that SDG&E management is kept in the loop, the following protocols have been formulated:

- The CPUC EM's primary point of contact will be SDG&E's lead environmental monitor. If he/she is not available, the construction segment environmental monitor will be the point of contact. If issues can't be resolved at the EM/SDG&E environmental monitor level they will be initially elevated to CPUC EM Project Manager/SDG&E Mitigation Monitoring Coordinator via e-mail or telephone.
- SDG&E will inform environmental monitors of all survey and construction activity, including status of permits and activity locations in a timely manner. Timely notification of activity is that which allows reasonable response time for agency monitors to be present for that activity. Notification will correspond to organization and roles for each entity as identified in Section 2.1.1.
- The CPUC EM and any other designated agency representatives or staff can talk to anyone on the construction site to ask questions about their activity, but the construction personnel may opt to refer him/her to the construction segment manager for an answer. Construction segment managers are the appropriate contacts for information on construction activity schedules or construction practices.
- SDG&E will provide a list of all construction monitoring personnel and segment managers, identified by segment, title, and contact information for each person. Updated distributions will be utilized to keep all parties informed of monitor and staff additions/changes. This list of personnel, and all subsequent updates, shall be distributed to all persons on the list throughout the construction process.
- CPUC EMs will continue to point out compliance concerns first to SDG&E and SDG&E environmental monitors and give them time to contact resource agencies and resolve compliance before contacting resource agencies directly. Documentation of each of these communication efforts, along with documentation of subsequent actions to achieve compliance, will be reported. However, at any time when the CPUC EMs have an unresolved concern about compliance, the SDG&E environmental monitors and CPUC EMs will call the appropriate resource agency together to discuss the issue.
- The resource agencies will be notified immediately by SDG&E of any issues (*e.g.,* non-compliance events, special status specie sightings, etc.) regarding their respective resources. In addition, the CPUC EM

will also receive immediate notification. Subsequent to immediate agency notification, SDG&E will develop a plan to handle the situation and will follow up with the respective agencies to explain their strategy and receive agency approval.

- If "take" is imminent or there is a danger/hazard, the CPUC EM can request work to be stopped in that area immediately (as long as it can be done safely); this request should be made to the construction segment manager or the segment EM. At any time, anyone can order an activity to be halted temporarily if take or a hazard is imminent.
- Weekly conference calls will include a discussion of construction and compliance activities, with CPUC EMs, SDG&E lead environmental monitor, and agency staff participating.
- The first flowchart below illustrates how information generally flows during construction.

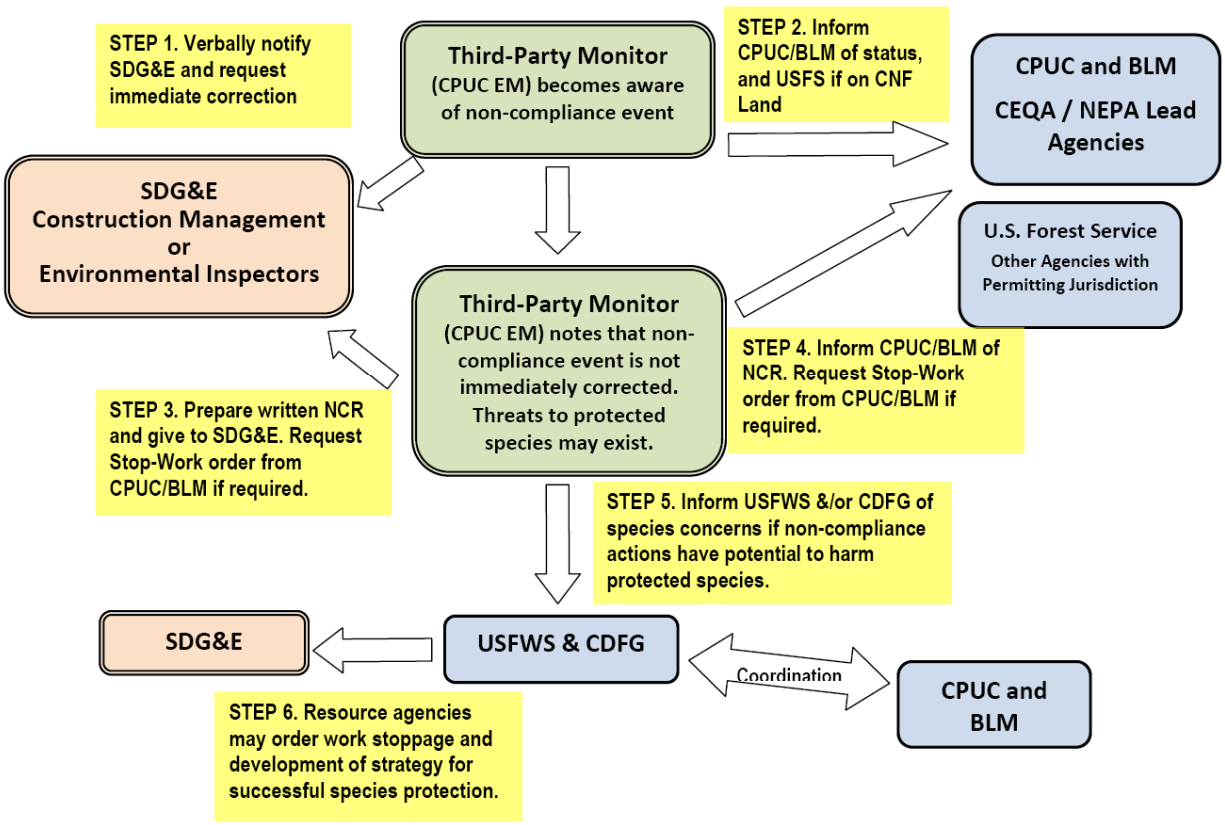
General Communication Protocol During Construction



The following list and flowchart below take the communication protocol laid out in the flowchart above and further illustrates an example of the communication process that would occur when the CPUC EM identifies a non-compliance event regarding biological resources during construction. If no sensitive species or resources are affected by the non-compliance event, Steps 5 and 6 would not be required. A non-compliance event regarding other environmental resources would involve other applicable agencies. Section 4.1 discusses Mitigation Measures Compliance and Reporting and non-compliance events.

- **Step 1**. Verbally notify SDG&E and request immediate correction.
- **Step 2**. Inform CPUC/BLM of status and USFS if on CNF land.
- **Step 3**. Prepare written Non-Compliance Report (NCR) and give it to SDG&E.
- **Step 4**. Inform CPUC/BLM of the NCR. Request a Stop-Work Order from CPUC/BLM if required.
- **Step 5**. Inform applicable resource agency if non-compliance actions have the potential to harm an environmental resource or species.
- **Step 6**. Resource agencies may order work stoppage and development of strategy for successful resource/species protection.

Communication Protocol During Construction Non-Compliance Events



3.4 Weekly Progress Meetings During Construction

SDG&E will conduct weekly field meetings with construction managers, contract administrators, contractor supervisors, and SDG&E's environmental representatives to discuss work completed, work anticipated for the following period, and the status of mitigation measures. The weekly field meetings will also be a forum for discussing environmental compliance issues or concerns with the construction contractors. SDG&E may request CPUC's and any other agency's EM(s) to participate in the meeting to help resolve any issue that may have arisen during the previous period. Alternatively, SDG&E or CPUC's EM(s) may recommend a separate meeting to discuss mitigation, variance requests, or other project related issues. These meetings may be held at the field trailer or on the project ROW to discuss a site-specific issue.

In addition to the weekly progress meetings conducted at the field level, the SDG&E Project Manager, SDG&E Construction Manager, SDG&E IM, CPUC Lead EM, CPUC Project Manager, BLM, USFS, and/or other jurisdictional agencies may participate in a weekly teleconference call. The weekly teleconference calls would be similar to the weekly progress meeting; however, the conference calls would focus on the Mitigation Monitoring Program.

3.5 Daily Communication During Construction

Many of the problems that come up during construction can be resolved in the field through regular communication between CPUC EMs, SDG&E, and construction contractors. Field staff will be equipped with cell phones and will be available to receive phone calls at all times during construction. A project contact list has been included in *Attachment B*. The organization chart depicted in Section 2.0 and Communication Protocol in Section 3.3 illustrate the lines of communication to be used during construction. The following provides additional guidelines to ensure effective communication in the field.

CPUC EM

The CPUC EM's primary point of contact in the field is SDG&E's Lead Environmental Inspector. The CPUC EM will contact SDG&E's Lead Environmental Inspector if an activity is observed that conflicts with one or more of the mitigation measures, so that the situation can be corrected. If the CPUC EM cannot immediately reach SDG&E's Lead Environmental Inspector**,** then the Mitigation Monitoring Coordinator or SDG&E Environmental Manager will be contacted to address the problem. Similarly, the CPUC EM will contact SDG&E's Lead Environmental Inspector for information on where construction crews are working, the status of mitigation measures, and schedule forecasts. The CPUC EM may discuss construction procedures directly with the construction contractors; however, SDG&E may require their contractors to defer questions to an onsite SDG&E representative. In all cases, the CPUC EM will contact the designated SDG&E representative if a problem is noted that requires action from the contractor. The CPUC EM will not direct the contractor, however, the CPUC EM has the authority to stop work, assuming it is safe to do so, if an activity poses an imminent threat or puts a sensitive resource at undue risk (*e.g.,* stopping a clearing crew from unknowingly cutting coastal sage scrub in an exclusion area).

SDG&E

SDG&E will provide the CPUC EM with a list of construction monitoring personnel and construction supervisory staff to contact regarding compliance issues. The contact list will include each person's title, responsibility, contact information, and whether their position is segment-specific. The contact list will be updated as new project personnel are assigned to the project and redistributed as necessary.

SDG&E will prepare and distribute a weekly environmental compliance status report for distribution to key project members, including the CPUC. The CPUC EM will review the weekly report to ensure that the status of mitigation measures is consistent with observations in the field. Any questions regarding the status of mitigation measures will be directed to the SDG&E Mitigation Monitoring Coordinator**.** The weekly environmental compliance status report will also be a tool to keep all parties informed of construction progress and schedule changes.

It should be noted that daily and weekly compliance reports would also be prepared by CPUC environmental monitors, as described in Section 4.1.4.

3.6 Communicating Compliance Issues

Section 4.0 below describes procedures to communicate incidences and non-compliances identified by the CPUC EMs during site inspections.

3.7 Coordination with Other Agencies Before and During Construction

As discussed in Section 2.0, several local, state, and federal agencies have jurisdiction over portions of the project. In addition, many of the mitigation measures were derived from specific permit conditions or agency input. The CPUC EM will be responsible for contacting resource agencies and immediately notifying them of issues regarding their jurisdiction.

During Construction

The CPUC EM may request copies of email correspondences, phone logs, or other documentation between SDG&E and resource agencies to avoid direct involvement from CPUC EMs. However, if there is an unresolved issue regarding compliance with a mitigation measure or permit requirement under the jurisdiction of a resource agency, the CPUC EM may elect to contact the agency to discuss resolution.

Interagency Conference Calls

During the pre-construction process or during construction, the Lead Agencies and/or SDG&E may determine that conference calls may be necessary or appropriate to discuss the status of specific mitigation compliance with responsible and permitting agencies. These calls will be noticed one to two weeks in advance, by email, and an agenda will be provided prior to each call.

3.8 Mitigation Implementation Dispute Resolution

It is expected that the MMCRP will reduce or eliminate many potential disputes. However, even with the best preparation, disputes may occur. In such event, the following procedure will be used:

Step 1 Disputes and complaints (including those of the public) should be directed to the CPUC Project Manager for resolution. The Project Manager will attempt to resolve the dispute with SDG&E's Project Manager.

Step 2 Should this informal process fail, the CPUC Project Manager may initiate enforcement or compliance action to address deviations from the Proposed Project or adopted Mitigation Monitoring Program.

Step 3 If a dispute or complaint regarding the implementation or evaluation of the Program or the mitigation measures cannot be resolved informally or through enforcement or compliance action by the CPUC, any affected participant in the dispute or complaint may file a written "notice of dispute" with the CPUC's Executive Director. This notice should be filed in order to resolve the dispute in a timely manner, with copies concurrently served on other affected participants. Within 10 days of receipt, the Executive Director or designee(s) shall meet or confer with the filer and other affected participants for purposes of resolving the dispute. The Executive Director shall issue an Executive Resolution describing his/her decision, and serve it on the filer and other affected participants.

Step 4 If one or more of the affected parties is not satisfied with the decision as described in the Resolution, such party(ies) may appeal it to the Commission via a procedure to be specified by the Commission.

Involved parties may also seek review by the Commission through existing procedures specified in the Commission's Rules of Practice and Procedure for formal and expedited dispute resolution, although a good faith effort should first be made to use the foregoing procedure.

Separate enforcement steps by the regulatory agencies may not follow these steps. The CPUC Project Manager will coordinate with other permitting agencies for issues outside the CPUC jurisdiction.

3.9 Contact List

A project contact list has been included as *Attachment B*. The contact list includes the names of SDG&E and CPUC monitors, project managers, supervisory staff, and other members of the project team. The list also includes phone numbers, fax numbers, and email addresses where project members can be reached during construction. The contact list will be updated periodically and redistributed to the project team.

4.0 Environmental Compliance and Field Procedures

4.1 Mitigation Measures Compliance and Reporting

4.1.1 Pre-Construction Compliance Verification

SDG&E is required by the terms of the mitigation measures and the permitting requirements of various other regulating agencies to prepare plans and obtain approval of these documents, in addition to performing various surveys and studies prior to construction. Copies of this documentation will be retained by the CPUC third-party monitors, and provided to the CPUC with all files at the completion of the project. The plans, surveys, studies, and other documentation required to be completed by SDG&E before construction are listed in the Mitigation Measure/Applicant Proposed Measure tables in Section 6.3 and as presented in Attachment G.

While these documents are being reviewed by the approving agencies, they are also reviewed by the CPUC. Compliance with all pre-construction mitigation measures and APMs presented will be verified prior to construction, and construction may not start on any segment before SDG&E receives a written Notice to Proceed (NTP) from the CPUC Project Manager.

The CPUC third-party monitors, including Project Management staff and the technical experts, will review all mitigation plans and reports and provide comments. Resource agencies will also be involved in the review of applicable plans and reports, primarily restoration related, and will provide comments. Comments on these documents will be provided to SDG&E to ensure that they adequately accomplish the intended reduction in impacts. For required local and State agency permitting/consultations, the CPUC third-party monitors will track SDG&E's progress as it relates to SDG&E's construction plans and project mitigation and permitting requirements. Based on SDG&E's construction plans, CPUC may authorize construction to begin on a phased basis and the CPUC third-party monitors will handle pre-construction compliance review accordingly. CPUC may issue NTPs for construction of each phase separately, as soon as pre-construction compliance is satisfactorily accomplished for that phase.

IMPORTANT: The CPUC will not authorize construction to begin until all pre-construction requirements have been fulfilled for a given phase. To save time, SDG&E should identify extra work space needs required for each phase of construction prior to the start of active construction, so that the locations and their use can be included in the NTP. Refer to Section 3.2.2.2.

4.1.2 Notice to Proceed Procedures

The CPUC Project Manager and all EIR/EIS team reviewers will ensure that the Notice to Proceed (NTP) process is consistent with the adopted CEQA and NEPA documents. The NTP approval(s) shall document that pre-construction mitigation measure requirements, applicable survey and study, as well as project permit requirements have been met. In consideration of linear or phased projects, more than one NTP can be requested for the Project. Each NTP request would be applicable to a defined aspect or segment of construction. Construction is defined as any mobilization activity which would move construction related equipment and/or materials onto a site. In some instances compliance with every

requirement cannot be met prior to NTP issuance and in such cases the NTP may be conditioned to define actions to be taken and documented prior to construction or prior to energizing the line. Therefore, a NTP may be issued for a particular segment or project component upon compliance with applicable mitigation measures and permits, and this process could occur in advance of mitigation compliance for the entire project as a whole.

In general, an NTP request must include the following information:

- A description of the work.
- Detailed description of the location, including maps, photos, and/or other supporting documents.
- Verification that all mitigation measures and Applicant Proposed Measures, have been met or do not apply to the work covered by the NTP request.
- Verification that all applicable permit conditions or requirements, project parameters, or other project stipulations have been met for the work covered by the NTP request.
- In the case where some outstanding compliance items cannot be met prior to issuance of the NTP, a request shall be submitted which outlines what submittals are outstanding and how they will be met and approved in a timely manner prior to construction.
- Up-to-date biological resource surveys or a commitment to survey and submit results prior to construction.
- Cultural resource surveys or verification that no cultural resources would be significantly impacted.
- All applicable jurisdictional permits or agency approvals (if necessary).
- Date of expected construction and duration of work.

CPUC/Aspen will review the NTP request and pre-construction requirement submittals per the steps outlined below to ensure that all of the information required to process the approval is included.

1. SDG&E submits NTP request and posts the request to the collaboration site. Notification of posting to include CPUC, BLM, USFS, CDFG, USFWS, Corps, and SWRCB.
2. CPUC/Aspen will distribute the NTP request for review as follows:
   i.) To the Team biological resources expert for review for biological resources. Review question/comments will be provided in a letter or e-mail.
   ii.) To the Team cultural resources expert for review for cultural resources. Review question/comment s will be provided in a letter or e-mail which will be forwarded by CPUC/Aspen to BLM with the request. BLM will provide cultural review and will supply any conditions to add to the NTP as well as an approval regarding cultural reporting.
   iii.) The remaining portions of the NTP request will be sent to issue area reviewers where appropriate.
3. CPUC/Aspen will also review and, if needed, will prepare a bullet list of outstanding requirements and where additional information or clarification is needed.
4. All questions and comments as well as required additional information or clarifications shall be sent to SDG&E by CPUC/Aspen in an e-mail.

5. SDG&E will supply clarifications and/or additional information to be added to the NTP request in a memo or letter format along with responses addressing all comments and questions forwarded by CPUC/Aspen.
6. CPUC/Aspen will complete a Compliance Status Table documenting compliance and any outstanding requirements that can be made conditions of the NTP including any conditions supplied by BLM. If comments/conditions are provided by CDFG, USFWS, Corps, and/or SWRCB, they will be considered for incorporation into the NTP approval letter and compliance table. Note: BO conditions are included in the table documenting compliance.
7. Aspen will prepare the draft NTP approval letter which will document the scope of work, compliance with EIR/EIS and BO mitigation requirements, and bullet outstanding conditions.
8. CPUC will review the draft NTP approval letter and send the approval and an updated compliance table to SDG&E.
9. CPUC/Aspen will then post the approved NTP documentation on the public CPUC project website.

Please note that variance requests can be submitted with the NTP request for incorporation into the NTP (please see Section 4.2.2 for variance submittal requirements).

4.1.3 Compliance Reporting During Construction

As described in Section 2, the CPUC EMs will perform compliance inspection throughout the construction period to ensure compliance with all applicable mitigation measures, plans, permits, and conditions of approval of the CPUC. Site visits may be coordinated with SDG&E or conducted unannounced. Supplemental information provided by SDG&E, including pre-construction submittals, survey reports, weekly reports, meeting notes, and agency correspondences, will also be used to verify compliance.

The CPUC EMs will document observations along the ROW through the use of field notes and digital photography. The photos are provided in the weekly reports and correlate to a discussion of specific construction or compliance activity. In addition, field inspection forms will be utilized in the field to document compliance of specific crews, construction activities, or resource protection measures. The forms will provide a standardized checklist to facilitate inspections, as well as list mitigation measures that were verified during the site visit. Information gathered from the inspection forms and field notes will be used to generate weekly status reports and update the status of mitigation measures listed in Section 6.3. A sample site inspection form has been included in Attachment C. Weekly reports will be provided to all permitting agencies via e-mail and/or posted on a collaboration website during construction.

Separate enforcement steps by the regulatory agencies may not follow these steps.

4.1.4 Compliance Levels

The CPUC EM shall document all observations and communications in her logbook and will determine whether the observed construction activities are consistent with mitigation measures, APMs, and project parameters, as identified in the Final EIR/EIS and adopted by the CPUC. All compliance issues regardless of level will be documented in the daily/weekly reports, which will be provided to all agencies. Any regulatory agency has the authority to issue compliance violations regardless of CPUC and BLM actions. The CPUC EM shall not direct the work of a construction contractor or subcontractor. A construction activity that deviates from permit conditions or mitigation measures, particularly when the activity puts a resource at risk, would be considered a non-compliance. A non-compliance may

also be issued if a mitigation measure is not implemented according to the timing restrictions listed in the mitigation table. Examples of non-compliances include, but are not limited to:

- Use of new access roads, staging areas, or extra workspaces not identified on the project drawings or approved for use during construction.
- Encroachment into an exclusion zone or sensitive resource area designated for avoidance.
- Brush clearing outside the approved work limits.
- Activity during seasonal activity restrictions.
- Grading, foundation, or line work without required biological pre-construction surveys or biological monitor onsite.
- Improper installation of erosion or sediment control structures if it puts a sensitive resource at risk.
- Discharge of sediment laden trench or foundation hole water into a waterbody or storm drain.

The CPUC EM will immediately notify the designated SDG&E representative of a non-compliance that requires immediate corrective action. A Non-Compliance Report will be sent to SDG&E from the CPUC Project Manager that outlines the incident, lists actions required to bring the activity back into compliance, and provides a timeline for follow-up. All Non-Compliance Reports and Project Memoranda will be provided to the agencies and applicable jurisdictions.

If a construction activity or observed resource protection measure only slightly deviates from project requirements and does not put a resource at immediate risk, the CPUC EM may elect to issue a Project Memorandum to get the issue corrected. Construction activities that could result in a Project Memorandum include, but are not limited to:

- Failure to properly maintain an erosion or sediment control structure, but the structure remains functional.
- Use of an existing unapproved access road (first offense).
- Project personnel begin work on the ROW without proof of training.
- Work outside the approved work limits where the off-ROW incident is within a previously disturbed area, such as a gravel lot.

Through the issuance of Project Memoranda and Non-Compliance Reports patterns of compliance issues can be discerned, preventative measures can be developed, and remedial work, if needed, can be scheduled. Incident reports (i.e., spills) would also be tracked in the Weekly Reports. Repeated events that individually might not be considered non-compliance may become non-compliance if continued occurrence after initial non-compliance activity is observed and documented. In other words, repeated incidences will result in a non-compliance.

Compliance and Non-Compliance Violation Levels

Project compliance and non-compliance violation levels and the specific corrective actions are defined as follows:

- ***Level 0 Compliance***. This level indicates that all mitigation measures and permit conditions are being complied with and there are no violations. No corrective action is necessary.

- ***Level 1 Non-Compliance.*** One aspect of a mitigation measure has not been complied with resulting in only partial implementation of a mitigation measure, but no significant impact. An oral warning shall be issued to SDG&E's Environmental Coordinator (or assigned designee) and corrective action shall be required within a stated maximum period, to be determined by the CPUC EM. If corrective action is not taken within the stated period, a Project Memorandum will be issued.
- ***Level 2 Non-Compliance.*** One or more aspects of a mitigation measure have not been complied with, making the mitigation ineffective and resulting in minor impacts. If allowed to continue, this non-compliance could result in a significant impact over time. An oral warning followed by a Project Memorandum shall be submitted to SDG&E's Environmental Coordinator (or assigned designee). Corrective action shall begin by the next construction day. If corrective action is not begun by the next construction day, a Non-Compliance Report shall be issued.
- ***Level 3 Non-Compliance.*** One or more of the aspects or a mitigation measure are not complied with and the implementation of a mitigation measure is deficient or non-existent, resulting in significant impact(s), or there is immediate threat of major, irreversible environmental damage or property loss. An oral warning, followed by a Non-Compliance Report, shall be submitted to SDG&E's Environmental Coordinator (or assigned designee). Corrective action shall begin immediately.

All non-compliance activity will be reported by Aspen to the CPUC Project Manager via immediate notification, or daily or weekly reporting based on the severity of the non-compliance. Based on the severity of a given infraction or pattern of non-compliance activity, the CPUC Project Manager has the authority to shut down project construction activities. If a shutdown of construction activity occurs, construction shall not resume until the CPUC Project Manager authorizes it to do so. **No Aspen personnel (PM, CPUC Lead EM, or CPUC EM) has the authority to shut down or restart construction activities on a segment- or project-wide scale.** However, the CPUC EM has the authority to redirect work if an immediate threat to safety or a sensitive resource is imminent.

4.2 Project Changes

4.2.1 Transition from Preliminary Design to Final Engineering

The EIR/EIS analysis of the Sunrise Powerlink Project is based on preliminary design, as described in Section B.1 of the Final EIR/EIS, which states that:

> [The Project Description] section includes maps of the Proposed Project area that illustrate land-ownership and general routing. Appendix 11 of the Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) includes detailed maps that illustrate the approximate proposed locations of each transmission structure and associated facilities based upon the status of SDG&E's preliminary engineering studies to date.

Because the project has now been approved by CPUC, BLM, and other jurisdictional agencies, SDG&E is in the process of completing final project design and engineering. Some project component locations are being modified as engineering is completed and to comply with mitigation measures requiring resource avoidance to minimize or avoid environmental impacts and reduce or eliminate feasibility constraints. In addition, some project components will be moved to accommodate landowner location preferences where possible, in compliance with Mitigation Measure L-2b (Revise project elements to minimize land use conflicts).

SDG&E will submit to the Lead Agencies a construction plan that illustrates the location of project components at the time of the Final EIR/EIS, and any changes that have been made since that time. All changes will be reviewed by the CPUC and BLM, to ensure that there are no changes that require additional CEQA or NEPA compliance review (i.e., that no new or more severe impacts are created by the changes). A memorandum will be prepared to document the changes and the impacts of the final plan. This memorandum will be approved by the CPUC and BLM. Detailed maps will be presented on the project website.

4.2.2 Project Changes After Final Engineering

At various times throughout project construction (following approval of final design plans), the need for extra workspace or additional access roads may be identified. Similarly, changes to the project requirements (*e.g.,* mitigation measures, specifications, etc.) may be needed to facilitate construction or provide more effective protection of resources. SDG&E in consultation the applicable resource agencies should work together to find solutions when variations or adjustments are necessary for specific field situations to avoid conflicts with adopted mitigation measures, conservation measures or specifications.

4.2.2.1 Variance Procedures

The CPUC and BLM Project Managers along with the CPUC EMs will ensure that any variance process or deviation from the procedures identified under the monitoring program is consistent with CEQA and NEPA requirements. No project variance will be approved by the CPUC or BLM if it creates new significant impacts. A variance should be strictly limited to minor project changes that will not trigger other permit requirements, that does not increase the severity of an impact to a level of significance or create a new significant impact, and that clearly and strictly complies with the intent of the mitigation measure.

A proposed project change that has the potential for creating significant environmental effects will be evaluated to determine whether supplemental CEQA and/or NEPA review is required. Any proposed deviation from the approved project, adopted mitigation measures, APMs, and correction of such deviation, will be reported immediately to the CPUC EM for their review. The CPUC EM will review the variance request to ensure that all of the information required to process the variance is included and then forward the request to the CPUC and/or BLM Project Manager for review and approval. The CPUC and/or BLM Project Manager may request a site visit from the CPUC EM or need additional information to process the variance. In some cases, a variance may also require approval by jurisdictional agencies. In general a variance request must include the following information:

- A description of the Variance.
- An explanation of the necessity for the Variance.
- Detailed description of the location, including maps, photos, and/or other supporting documents.
- Which mitigation measure, Applicant Proposed Measure, permit condition or requirement, project parameters, or other project stipulation is the variance being requested for, and a reference to the approved documents.
- How the variance request deviates from a project requirement.
- Biological resource surveys or verification that no biological resources would be significantly impacted.

- Cultural resource surveys or verification that no cultural resources would be significantly impacted.
- Landowner approval if the location is not within SDG&E's ROW or property.
- Water/wetland/stormwater related resource information if the variance would approve any additional land disturbance, road distance or width, changes to jurisdictional delineation of waters, changes to water protection BMPs, etc.
- Agency approval (if necessary)
- Date of expected construction at the variance site.

A sample variance request form is included as *Attachment D*. All variances issued throughout project construction are tracked in tabular format in the weekly reports.

4.2.2.2 Temporary Extra Work Space Procedures

For the purposes of this MMCRP, Temporary Extra Work Space (TEWS) is defined as a work space that would be utilized by SDG&E during construction for a period of up to 60 days, and that was not identified and evaluated during the CEQA process. Anything required to be utilized for a period longer than 60 days will require a variance (see Section 3.2.2.1). SDG&E must demonstrate that: the TEWS is located in a disturbed area with no sensitive resources or land uses onsite or adjacent to the proposed work space, SDG&E has permission of the applicable landowner (*e.g.,* municipality or private) to use the work space, and that use of the TEWS would not result in any significant environmental impacts.

In the event that SDG&E determines a need for a construction TEWS, it must submit such a request to the CPUC EM. The CPUC EM will have the authority to approve or deny use of a TEWS, assuming it meets the criteria defined in the previous paragraph. SDG&E will not be permitted to use a TEWS prior to receiving written authorization from the CPUC EM. The CPUC EM will also send a copy of the TEWS to USFWS.

Following is a list of the specific information that SDG&E would be required to submit with its TEWS request:

- Date of request;
- Location of the TEWS (detailed description, including maps if required);
- Property owner of TEWS;
- An explanation of the necessity for the TEWS;
- An analysis that demonstrates no new significant impacts would result from use of the TEWS including: compaction contributing to runoff rates or other stormwater/watershed effects; observed existing impacts to the site, such as old oil spills or other potentially hazardous or polluting substances; abandoned vehicles, equipment or other materials; or other sensitive resources;
- Biological and botanical survey, especially for invasive plants, and mitigation for invasive plants if present.
- Duration and dates of expected use of the TEWS.
- Details of the expected condition of the site after use.

A sample TEWS form is included as *Attachment E*.

5.0 Records Management

Daily inspection and weekly status reports will be filed and used by the CPUC third-party monitor to prepare a final environmental compliance report following the completion of construction. The final report will provide a discussion on how each mitigation measure was implemented and include copies of submittals required for compliance. In addition, the success criteria will be evaluated and used for future projects.

5.1 Agency Records During Monitoring

As described in Section 3.2, Aspen will develop a password-protected website for use by Lead Agencies and responsible agencies during pre-construction and construction, to facilitate the sharing of project documents, files, reports, and maps.

5.2 Public Access to Records

The public is allowed access to records and reports used to track the monitoring program. Monitoring records and reports will be made available by the CPUC for public inspection on request. In order to facilitate the public's awareness, the CPUC will post this MMCRP document, and also will make weekly reports and other pertinent project documents available on the project, accessible at:

http://www.cpuc.ca.gov/environment/info/aspen/sunrise/sunrise.htm.

6.0 Mitigation Monitoring Program Tables

6.1 Using the Tables

Section 6.3 below lists the mitigation measures and Applicant Proposed Measures included in the Final EIR/EIS and referenced by the CPUC decision (D.08-12-058) dated December 18, 2008. The Mitigation Measure/Applicant Proposed Measure tables (separated by environmental issue area) and inclusive agency/jurisdiction consultation and resulting permit and/or MOU requirements is the core document for environmental requirements on the project and will be the primary guideline for determining compliance with the MMCRP. The CPUC will use an expanded version of the Mitigation Measure/Applicant Proposed Measure tables during the pre-construction planning and construction monitoring phases of the project to accurately track the status of mitigation measures. Attachment F lists the titles of all mitigation measures by the time of implementation of each. The tables have also been sorted and divided into pre-construction measures (Attachment G), measures to be implemented during construction (Attachment H), measures to be implemented post-construction but pre-energizing of the transmission line (Attachment I), and post-construction mitigation measures (Attachment J). Similarly, separate tables listing measures that require CPUC approval may be generated. The pre-construction measure table (Attachment G) includes a status column that will be updated with all pre-construction submittals as they come in, as well as review/approval status. During construction a copy of the Mitigation Measure/Applicant Proposed Measure tables with measures to be implemented during construction (Attachment H) should be kept with each crew working on the ROW, and all supervisory staff working on the project should be familiar with its contents. In addition copies of all applicable plans and permits compiled prior to construction as a result of the pre-construction measures (i.e., SWPPP, Hazardous Substance Treatment Plan, USFWS BO, etc.) shall also be kept with each crew working on the ROW and all supervisory staff working on the project should be familiar with their contents.

6.2 Effectiveness Review

The CPUC may conduct a comprehensive review of conditions which are not effectively mitigating impacts at any time it deems appropriate, including as a result of the Dispute Resolution procedure outlined in Section 3.7. If in review the Commission determines that any conditions are not adequately mitigating significant environmental impacts caused by the project, then the Commission in coordination with the jurisdictional agency(ies) may impose additional reasonable conditions to effectively mitigate these impacts. These reviews will be conducted in a manner consistent with the Commission's rules and practices.

6.3 Mitigation Measures and Applicant Proposed Measures

Note: In Table 4, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.*, **— (A-1a)**. A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task. In addition, a row has been added that includes a further discussion and/or clarification of implementation and approach for each mitigation measure where necessary.

Several of the biological resources APMs have been updated to show changes (in underline/~~strikeout~~) that were originally incorporated into Appendix 8N of the Final EIR/EIS. These changes are included in the following table where applicable, and also reflected in *Attachments G, H, I and J* of this MMCRP.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-1a: Provide restoration/compensation for impacted sensitive vegetation communities. Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible, and disturbance of vegetation and soils shall be minimized. Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist (see Mitigation Measure B-1c). The construction mats shall not be left on the ground for more than three weeks. Use of construction mats shall be considered a temporary impact to vegetation and shall be mitigated in accordance with this mitigation measure. If avoidance of sensitive vegetation communities is not feasible due, for example, to physical or safety constraints, the Applicant shall restore temporarily impacted areas to pre-construction conditions following construction (or emergency repairs) and shall permanently block off all public access to them, and/or shall purchase/dedicate suitable habitat for preservation to off-set permanently impacted areas. Restoration of some vegetation communities in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, the mitigation shall consist of offsite acquisition and preservation of the vegetation community instead. Any area that can be preserved as intact or restored habitat, or if it contains any species (plant or animal) that require project-related compensatory mitigation will qualify as offsite mitigation lands. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (*i.e.,* weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years (or less if the restoration meets all success criteria). Restoration in ABDSP shall be maintained and monitored for a minimum of five years. The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat. Any restoration efforts would be subject to a Habitat Restoration Plan approved by the CPUC, BLM, Wildlife Agencies, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). Mitigation ratios and mitigation acreages for construction within authorized limits are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). The mitigation ratios also apply to impacts from emergency repairs. In cases where the impacts to sensitive vegetation communities occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (B-1a) All limits of construction shall be delineated with orange construction fencing. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local land owner/ administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates. To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.
	— (B-1a) Any impacts associated with unauthorized activity (*e.g.,* exceeding approved construction footprints) shall be mitigated at a 5:1 ratio (5.5:1 in FTHL MA). Restoration of the unauthorized impacts shall be credited at a 1:1 ratio (*i.e.,* mitigated by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-1a) Areas to be restored shall include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Where onsite restoration is planned, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Habitat Restoration Plan, for restoring temporarily impacted sensitive vegetation communities, to be approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. This Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Hydroseeding, drill seeding, or an otherwise proven restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The Habitat Restoration Plan shall incorporate Desert Bioregion Revegetation/Restoration Guidance measures for restoration of temporary impacts to desert scrub and dune habitats. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch. The Habitat Restoration Plan shall also incorporate the measures identified in the May 25, 2006 Memorandum of Understanding among Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the Environmental Protection Agency (Edison Electric Institute, et al., 2006) where applicable. The MOU discusses vegetation management along ROWs for electrical transmission and distribution facilities on federal lands. The major provisions of the MOU include reducing soil erosion and water quality impacts; promoting local ecotypes in revegetation projects; planting native species and protecting rare species; and reducing the introduction of non-native, invasive or noxious plant species to the ROWs. The MOU can be viewed online at http://www.eei.org/industry_issues/environment/land/vegetation_management/EEI_MOU_FINAL_5-25-06.pdf. The following habitat restoration requirements are not included in the MOU described above. The restoration of habitat shall be maintained and monitored for five years after installation by an experienced, licensed Habitat Restoration Contractor, or until established success criteria identified in the Restoration Plan (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance and monitoring for restoration in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Maintenance and monitoring shall be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (*e.g.,* additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For areas where habitat restoration cannot meet mitigation requirements, as determined by the Habitat Restoration Specialist in coordination with CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies, offsite purchase and dedication of habitat shall be provided at the mitigation ratios provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives) or as otherwise required by the Wildlife Agencies, ABDSP, or USDA Forest Service (supersedes the mitigation ratios in BIO-APM-1).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-1a) Tree Mitigation. Mitigation for loss of native trees or native tree trimming shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (*i.e.,* planting) trees on land that would not be subject to vegetation clearing (either in the Applicant's ROW and/or on land acquired and preserved). Any land to be used for this mitigation shall be approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For habitat acquisition and preservation, the mitigation ratios shall follow those in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). For example, removal of coast live oak trees (that occur in coast live oak woodland) shall require mitigation at a 3:1 ratio based on the permanent impact to the summed acreage of all individual coast live oak trees impacted. Therefore, if the total acreage of all individual coast live oak trees in coast live oak woodland impacted is 10 acres, then 30 acres of coast live oak woodland shall be acquired and preserved. For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no mitigation shall be required.
	— (B-1a) For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed. Native trees that are removed shall be replaced in-kind (by species) as follows. • Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1 • Trees between five and 12 inches DBH shall be replaced at 5:1 • Trees between 12 and 36 inches shall be replaced at 10:1 • Trees greater than 36 inches shall be replaced at 20:1 • Native trees that are trimmed shall be replaced in-kind (by species) as follows. • Trees less than 12 inches DBH shall be replaced at 2:1 • Trees greater than 12 inches DBH shall be replaced at 5:1 All restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for National Forest land restoration), and the Wildlife Agencies.
	— (B-1a) Mitigation Parcels/Habitat Management Plans. All offsite mitigation parcels shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for impacts to ABDSP), and USDA Forest Service (for alternatives with impacts to National Forest lands) and must be acquired or their acquisition must be assured before the line is energized. To demonstrate that such parcels shall be acquired, SDG&E shall submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan shall be submitted to the CPUC, BLM, the Wildlife Agencies, State Parks (for impacts in ABDSP) and USDA Forest Service (for impacts on National Forest Lands) for review and approval, and shall include, but shall not be limited to: legal descriptions and maps of all parcels to be acquired; schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (*e.g.,* performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-1a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any vegetation disturbing activities. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) • Baseline biological data for all mitigation parcels • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to National Forest lands) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-6, G-CM-7, G-CM-12, G-CM-14, G-CM-15, G-CM-16, G-CM-17, G-CM-21, G-CM-22, G-CM-26, G-CM-28, G-CM-29, and G-CM-34.
Location	All areas disturbed by construction activities.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. CPUC/BLM biological monitor shall confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

Interpretation & Approach	7/2/09: SDG&E will provide all documentation of correspondence with agencies regarding BHS mitigation as part of the Mitigation Land Plan. The CDFG Section 2081 is not required for Segment 4, Mountain Springs Grade since BHS are not covered under this take permit. Restoration, including tree mitigation, which references ABDSP is not applicable to FESSR. Application is for mitigation parcels in the ABDSP. 8/20/09: Review with Aspen, Helix, and BLM. B-1a-1: It was agreed upon that 'permanently blocking off all public access' was in reference to temporary access/spur/fly yards in order to prevent a situation where the public may access sensitive vegetation communities where prior to the project work, they had not. Vertical mulching was suggested as an acceptable method of restoring temporarily impacted areas in the desert. Vertical mulching is the practice of replanting plants (either dead or live) that are removed during construction. The replanted plants are not irrigated and those that may be alive when replanted are allowed to die. 8/20/09: B-1a-1: It was agreed that recontouring the land for the purposes of restoration need not apply to previously disturbed areas where the topography doesn't match the surrounding topography. Restored areas should blend naturally into the surrounding habitat, both in terms of vegetation and topography. 8/20/09: 'Restoration of "some" vegetation types' as stated in B-1a section 1 was included to acknowledge that in certain areas due to site-specific conditions, only some of the vegetation types will be able to be revegetated while other vegetation types may not be able to be re-vegetated and will need to be mitigated off-site. This will be addressed on a site by site basis. 8/20/09: Flagging is acceptable as a delineation method instead of orange fencing. Orange fencing can be limited to unique situations. 8/20/09: Off-site mitigation parcels need not be acquired prior to construction, however, the assurance that there are willing sellers for mitigation lands is necessary. Mitigation parcels must be secured prior to energization. 8/20/09: The purpose of baseline biological data for off-site mitigation parcels is to prove that proposed mitigation land is appropriate mitigation for impacted areas. Proposed mitigation land need not be exactly representative of areas that are impacted. (USFWS/CDFG will decide this.) 8/31/09: Permanent impact areas will be restored at the end of the construction process in accordance with the approved Storm water Pollution Prevention Plan (SWPPP) documents. 10/22/09: In summary, the EIR/EIS includes the following milestones with regard to meeting biology mitigation parcel preservation requirements: • Habitat Acquisition Plan: 120 days prior to any ground disturbing activities • Habitat Management Plan: prior to initiation of any vegetation disturbing activities • Acquisition or assurance of acquisition of parcels: prior to energizing the transmission line. Following are recommendations for how SDG&E can best proceed and meet these requirements. 1. SDG&E submitted a draft Habitat Acquisition Plan on June 24, 2009, however, this habitat acquisition plan will need to be resubmitted with the parcels proposed for mitigation more narrowly defined. The following information must be included: legal descriptions and maps, schedule that includes phasing relative to impacts, timing of conservation easement recording, initiation of habitat management activities relative to acquisition and assurance mechanisms. The Habitat Acquisition Plan should be in final or close to final form in February 2010, which is 120 days prior to the beginning of most of the construction. It is noted that SDG&E received many comments on the Habitat Acquisition Plan submitted in June 2009, and that the final Habitat Acquisition Plan may be significantly revised to adequately address those comment. 2. A final Habitat Management Plan will be required prior to the June 2010 start date for the majority of the project. It is anticipated that all the mitigation parcels identified in the Habitat Acquisition Plan (expected in February 2010) will have been agreed to and that the required elements of the HMP for all the mitigation sites can be completed prior to the start of construction in June 2010.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-1c: Conduct biological monitoring. Monitoring shall be provided by a qualified biologist approved by the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the APMs and mitigation measures are being met by being present during construction activities including all initial grubbing and clearing of vegetation. Additionally, a qualified biologist employed by SDG&E shall be present during maintenance involving ROW repair requiring ground disturbance (*i.e.,* grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). Biological monitoring of these maintenance activities is to prevent impacts to vegetation communities or wildlife habitat not within the permanent project impact footprint or to record and report unauthorized impacts outside the footprint to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure the unauthorized impacts are mitigated in accordance with Mitigation Measure B-1a. The qualified biologist shall conduct monitoring for any area subject to disturbance from construction and the maintenance activities listed above (or access roads used during maintenance activities in the case of vernal pools/water-holding basins; see Mitigation Measure B1-b). The qualified biologist shall perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies, depending on the sensitivity of the resources. The qualified biologist shall send weekly monitoring reports to the CPUC and BLM and shall record any reduction or increase in construction impacts so that mitigation requirements can be revised accordingly. The final impact/mitigation calculations shall be submitted to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies for review and approval. The qualified biologist shall send annual monitoring reports of maintenance activities to the CPUC, BLM, State Parks (for monitoring of maintenance activities in ABDSP), and USDA Forest Service (for alternatives that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were unauthorized impacts that require mitigation. The Applicant, its contractors and subcontractors, and their respective project personnel, shall refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (*e.g.,* Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations.
	— (B-1c) The qualified biologist shall have the authority to issue stop work orders if any part of the mitigation measures or APMs are being violated. The qualified biologist shall immediately notify the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), the Wildlife Agencies, and SDG&E of any significant events, including impacts outside the construction zone or maintenance impacts outside the authorized permanent impact footprints if they are discovered during construction or monitoring of maintenance activities. Reinitiation of work following a stop work order shall only occur when the CPUC, BLM, State Parks (for impacts in ABDSP), USDA Forest Service (for alternatives with impacts on National Forest lands), and the Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts shall be made, and that any additional protection measures they deem necessary shall be undertaken.
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-1.
Location	Entire project area.
Monitoring/Reporting Action	CPUC/BLM biological monitor shall oversee monitoring and ensure compliance with APMs and mitigation measures. The biological monitor shall submit weekly monitoring reports to SDG&E during construction. The biological monitor shall submit weekly reports to the CPUC and BLM during construction and throughout the maintenance period. Reports shall include a summary of activities and tracking of the APM and mitigation measure requirements. The biological monitor shall submit a final report of impact/mitigation calculations to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies.
Effectiveness Criteria	Successful avoidance of unforeseen impacts and compliance with APMs and mitigation measures.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP land), and USDA Forest Service (for USFS land).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR. Application is for mitigation parcels in the ABDSP.
MITIGATION MEASURE	B-1k: Re-seed disturbed areas after a transmission line–caused fire. Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the Proposed Project or a constructed alternative, the Applicant shall re-seed all natural areas — both public and private — that are burned as a result of the project-caused fire. Re-seeding shall be required for areas that have been burned due to the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan shall be developed with input from Cal Fire, the U.S. Forest Service, BLM, and CPUC, based on a native seed mix. Seeds shall be raked into the soil to avoid seed predation, and re-seeding shall be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. The Applicant shall provide a written report documenting all re-seeding activities to the CPUC. The Applicant shall make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort shall be submitted to the CPUC upon request. Specific re-seeding requirements stipulated in this mitigation measure shall be subject to approval and modification by any public landowning agency.
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-18.
Location	Areas burned as a result of a project-caused fire and that have also been burned at least once in the preceding 10-year period.
Monitoring/Reporting Action	CPUC/BLM shall oversee the development of re-seeding plan and shall collect written documentation of all re-seeding activities from the Applicant.
Effectiveness Criteria	Re-seeding occurs per re-seeding plan requirements.
Responsible Agency	CPUC, BLM, and USDA Forest Service
Timing	During and post construction.
Interpretation & Approach	8/20/09 – The concern for this mitigation measure is to reduce vegetation type conversion from native to non-native. Re-seeding Plan will be developed after a fire and not before energization.
MITIGATION MEASURE	B-1l: SDG&E shall continue to work with the USDA Forest Service to minimize impacts to the RCA between Structures 184 and 187. SDG&E shall continue to work with the USDA Forest Service to adjust the siting of project features to minimize impacts to the RCA located between Structures 184 and 187 of the BCD South Option. SDG&E shall continue to coordinate with the USDA Forest Service until the impacts to this RCA are fully resolved to the satisfaction of the USDA Forest Service.
Location	RCA located between Structures 184 and 187 of the BCD South Option.
Monitoring/Reporting Action	Upon final approval of the USDA Forest Service, SDG&E shall send the engineering changes made to project features between Structures 184 and 187 of the BCD South Option to the CPUC and BLM prior to the start of construction.
Effectiveness Criteria	Minimization of impacts to the RCA to the satisfaction of the USDA Forest Service.
Responsible Agency	CPUC, BLM, and USDA Forest Service
Timing	Pre-construction.
Interpretation & Approach	6/13/08, Submitted to CPUC and USDA Forest Service a revision of these structures. This MM applies to revised Structure numbers P118-1 to P114.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-2a: Provide restoration/compensation for impacted jurisdictional areas. Impacts to areas under the jurisdiction of the ACOE, Regional Water Boards, State Water Board, and CDFG shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible (including for emergency repairs), the Applicant shall provide the necessary mitigation required as part of wetland permitting by creation/restoration/preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation in ABDSP), USDA Forest Service (for alternatives with mitigation on National Forest lands), ACOE, Regional Water Boards, State Water Board, and CDFG as part of the wetland permitting process. It is anticipated that the sites would be in close proximity to the impacts or in the same watershed. A jurisdictional delineation and impact assessment shall be prepared based on the final alignment and final engineering plans when they are complete. Mitigation ratios would range from 1:1 up to 4:1 and would depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. The width of wetland buffers would also depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. Recommended mitigation ratios for vegetation communities that generally occur in jurisdictional areas are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). It is anticipated that at least a 1:1 ratio of the mitigation would include creation of jurisdictional habitat so there would be no net loss of jurisdictional habitat. For example, permanent impacts to emergent wetland would require a 2:1 mitigation ratio. Half (or 1:1) of the mitigation acreage would have to consist of created emergent wetland in an appropriate location to be preserved, and the other half (1:1) would require acquisition and preservation of already-existing emergent wetland (or other wetland community acceptable to the permitting agencies — ACOE, Regional Water Boards, State Water Board, and CDFG). It is also anticipated that a 1:1 ratio would be required for impacts to jurisdictional non-wetland Waters of the U.S. in the form of wetland enhancement, restoration, or creation as determined in consultation with the permitting agencies. Wetland permits shall be obtained from the ACOE, Regional Water Boards, State Water Board, and CDFG prior to initiating construction in jurisdictional areas.
	— (B-2a) All limits of construction shall be delineated with orange construction fencing and/or silt fencing. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete. If silt fencing is used to delineate the limits of construction or as part of implementation of erosion control BMPs, the silt fencing may be left in place longer than 30 days if erosion control is still necessary. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.
	— (B-2a) Any impacts associated with unauthorized activity (*e.g.,* exceeding approved construction footprints) shall be mitigated at a 5:1 ratio, unless otherwise directed by the ACOE, Regional Water Boards, State Water Board, and CDFG: restoration of the unauthorized impacts shall be credited at a 1:1 ratio; the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-2a) The Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). The Habitat Restoration Specialist shall prepare and implement a Wetland Mitigation Plan to be approved in writing by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP mitigation), and USDA Forest Service (for alternatives with mitigation on National Forest lands). The Applicant shall work with the above-listed agencies until a plan is approved by all. The mitigation of habitat shall be maintained and monitored for five years after installation, or until established success criteria (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met, to assess progress and identify potential problems with the mitigation. Maintenance and monitoring in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (*e.g.,* additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the mitigation. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP restoration), and USDA Forest Service (for alternatives with restoration on National Forest lands).
	— (B-2a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact jurisdictional areas. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-41.
Location	All locations with impacts to jurisdictional areas.
Monitoring/Reporting Action	BLM, CPUC, and wetland permitting agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans. BLM/CPUC biological monitor to confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, ACOE, RWQCB, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

Timing	Pre-, during and post construction.
Interpretation & Approach	8/20/09 meeting with BLM, Aspen, and Helix: Land acquisition and/or securing property rights need not occur for the Habitat Management Plan until pre-energization. SDG&E will work with the regulating agencies to identify appropriate mitigation land which will adequately compensate for the approved impacts although the mitigation lands may not be located within each affected watershed area. This approach is consistent with the Federal Register Rules and Regulations as stated in Volume 73, No. 70/Thursday, April 10, 2008/ Rules and Regulations under Mitigation Mechanisms on page 19605, "For linear projects, such as roads and utility lines, district engineers may determine that consolidated compensatory mitigation projects provide appropriate compensation for the authorized impacts, and are environmentally preferable to requiring numerous small permittee-responsible compensatory mitigation projects along the linear project corridor."

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-3a: Prepare and implement a Weed Control Plan. The Applicant shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where the Applicant owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC), or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding governmental agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, the Applicant shall work with the landowners to obtain authorization of the weed control treatment that is required. State Parks shall have review and approval authority over the Weed Control Plan for ROW within or adjacent to the boundaries of ABDSP. Developed land shall be excluded from weed control.
	— (B-3a) The Weed Control Plan shall include the following: • A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured) as well as at all ancillary facilities associated with the project for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner or State Parks (for ROW within or adjacent to ABDSP) as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [Bromus tectorum], Saharan mustard [Brassica tournefortii] and medusa head [Taeniatherum caput-medusae]). These populations shall be mapped and described according to density and area covered. These plant species shall be treated (where access and permission can be secured) prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, or the tribal government, as appropriate. A pre-construction weed inventory shall also be conducted by surveying areas that will be directly impacted by the project for weed populations that are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006) or are weed species of concern to State Parks (for ROW within or adjacent to ABDSP). These plant species shall be treated prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC and State Parks (for treatment in ROW within ABDSP).
	— (B-3a) Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC, or the tribal government, as appropriate, with the goal of controlling populations before they start producing seeds.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-3a) For the lifespan of the project (*i.e.,* as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows. • From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required in the survey areas described above. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC. • During project construction and operation/maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office, or the tribal government, as appropriate. • During project construction and operation/maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) at an offsite washing facility (*e.g.,* a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed at an offsite washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. In addition, vehicles, tools, and equipment shall be washed at an offsite washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). Finally, vehicles, tools, and equipment used for maintenance shall be washed at an offsite washing facility immediately before each maintenance event. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort shall be made to use wash facilities that use recycled water. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies, State Parks (for weeds in ABDSP), tribal governments (for weeds on tribal lands), and biological monitor for inspection at any time and shall be submitted to the CPUC on a monthly basis during construction and submitted annually to the CPUC during operation/maintenance.
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-20.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor to confirm preparation and implementation of a weed control plan.
Effectiveness Criteria	Weed control plan prepared and successfully implemented.
Responsible Agency	BLM, CPUC, and ROW land-holding agencies (BLM, State Parks for ABDSP, USDA Forest Services for USFS lands).
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR. Application is for mitigation parcels in the ABDSP. 8/20/09: Weed Control Plans are to be developed for all areas disturbed during construction activities. Vehicle and equipment washing – The definition of 'a different construction area' for those vehicles and pieces of equipment that have been washed prior to start of project construction and have continuously worked on the project construction shall be as follows: A different construction area shall be delineated by the weed control plan/weed inventory (8/31/09) 8/31/09 - An O&M Plan for vehicle washing showing mapping for where washing will be created and will be based on the weed control plan. Wash water will be allowed to evaporate when possible, and debris will be collected for disposal to land fills. Weed control plan will include vegetation clearing equipment (*e.g.,* shovels) and buckets of water to dip the equipment in for remote areas.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/ compensation strategies. A qualified biologist shall survey for special status plants in the spring of a year with adequate rainfall prior to initiating construction activities in a given area. If a survey cannot be conducted due to inadequate rainfall, then SDG&E shall consult with the Wildlife Agencies, State Parks (for impacts in ABDSP), and the USFS (for impacts on National Forest lands) to determine if construction may begin in the absence of survey data and what mitigation would be required, or whether construction would not be allowed until such data is collected. A report of special status plants observed shall be prepared and submitted for approval by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies prior to activities which may impact the plant resources.
	— (B-5a) All special status plant populations shall be staked or flagged by a qualified biologist approved by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete.
	— (B-5a) Impacts to federal or State listed plant species shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through salvage and relocation (salvage and relocation for plants in ABDSP shall be determined in consultation with, and approval of, State Parks) via a restoration program and/or offsite acquisition and preservation of habitat containing the plant at a 2:1 ratio. Avoidance may not be feasible due to physical or safety constraints. The CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies shall decide whether the Applicant can restore rare plant populations or shall acquire habitat with rare plant populations off site (locations to be approved by the CPUC, BLM, State Parks [for activities in ABDSP], USDA Forest Service [for alternatives with activities on National Forest lands], and the Wildlife Agencies). A qualified biologist shall prepare a Restoration Plan that shall indicate where restoration would take place. The restoration plan shall also identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service (for alternatives with restoration on National Forest lands) until a plan is approved by all. Impacts to moderately sensitive plant species (*i.e.,* BLM Sensitive, USDA Forest Service Sensitive, CNPS List 1 and 2 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock) or relocation to temporarily disturbed areas (reseeding and relocation of plants in ABDSP shall be determined in consultation with, and approval of, State Parks). Avoidance may not be feasible due to physical or safety constraints. Mitigation Measure B-1a would also provide habitat-based mitigation for these impacts.
	— (B-5a) Where reseeding or salvage and relocation is required, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Restoration Plan for reseeding or salvaging and relocating special status plant species to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies in writing prior to impacting the plant resources. The Applicant shall work with the above-listed agencies until a plan is approved by all. The reseeding or relocation of plants shall be maintained and monitored for five years after installation, or until established success criteria are met, to assess progress and identify potential problems with the mitigation. The reseeding or relocation of plants in ABDSP shall be maintained and monitored for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (*e.g.,* additional seeding, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-5a) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact special status plant resources. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) offsite mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-32, G-CM-33, G-CM-35, San Diego Thornmint SS-CM-1 and SS-CM-2.
Location	Entire project area.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures, and confirm that habitat restoration plans are implemented.
Effectiveness Criteria	Successful avoidance or restoration/relocation of sensitive plants, purchase of appropriate mitigation lands, and provision of long-term habitat management for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP), and USDA Forest Service (for USFS land).
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP applicable only for mitigation parcels.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	B-7a: Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (*e.g.,* reptiles and small mammals). BIO-APM-14 shall be modified to ensure that all steep-walled trenches or excavations used during construction shall be covered at all times except when being actively utilized. If the trenches or excavations cannot be covered, exclusion fencing (*i.e.,* silt fencing) shall be installed around the trench or excavation, or it shall be covered to prevent entrapment of wildlife. Open trenches, or other excavations that could entrap wildlife shall be inspected by the qualified biologist (see Mitigation Measure B-1c) a minimum of three times per day and immediately before backfilling. Furthermore, employees and contractors shall look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment would be moved until the animal has left voluntarily or is removed by the qualified biologist. Should a dead or injured listed species be found in a trench or excavation or anywhere in the construction zone or along an access road, the qualified biologist shall contact the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies within 48 hours of the finding. The qualified biologist shall report the species found, the location of the finding, the cause of death (if known), and shall submit a photograph and any other pertinent information.
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-39 and G-CM-40.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and mitigation measures.
Effectiveness Criteria	Steep-walled trenches or excavations are covered at all times except when being actively utilized, or exclusion fencing is installed around the trench or excavation.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP land), and USDA Forest Service (for USFS land).
Timing	During construction.
Interpretation & Approach	Reference to ABDSP applicable only for mitigation parcels. 8/20/09: B-7a supersedes APM-12 and APM-24. See Appendix 8N of the Final EIR/EIS. Implement BIO-APM 14 & BIO-APM 24 with B-7a.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy. Mitigation for impacts to the FTHL shall follow all applicable measures in the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003). This mitigation includes, but is not limited to, locating impacts outside of MAs, delineating work limits, using existing roads, biological monitoring, and worker education.
	— (B-7b) According to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), compensation for FTHL habitat impacts could involve purchase of FTHL habitat and/or monetary compensation as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee. Impacts shall be mitigated at a 1:1 ratio for habitat outside a MA. Furthermore, mitigation inside a MA shall be at a 3.5:1 ratio for temporary impacts (2.5:1 for disturbed habitat, developed land, or agriculture) and a 5.5:1 ratio for permanent impacts (4.5:1 for disturbed habitat, developed land, or agriculture) . For the Proposed Project, the required mitigation for FTHL impacts (if offsite acquisition is the method of compensation) is 403.48 acres. On-site restoration requirements for the Project would be 232.84 acres. Any FTHL habitat acquired shall be approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP)
	— (B-7b) A Habitat Management Plan shall be prepared by a biologist approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) for all acquired FTHL habitat. The Habitat Management Plan must be approved in writing by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the FTHL or its habitat. The Applicant shall work with the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired FTHL habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) FTHL habitat approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); • Baseline biological data for all acquired FTHL habitat; • Designation of a land management entity approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	FTHL MAs and where potential FTHL habitat occurs.
Monitoring/Reporting Action	BLM and CPUC shall ensure that required purchase of mitigation land and provision of long-term management occurs. BLM/CPUC biological monitor shall ensure that applicable measures in the FTHL Rangewide Management Strategy are implemented.
Effectiveness Criteria	Direct impacts to the flat-tailed horned lizard are minimized. Compensatory mitigation for impacts to FTHL is implemented, including purchase of habitat and provision of long-term management for mitigation sites.
Responsible Agency	BLM, CPUC, and Flat-Tailed Horned Lizard Interagency Coordinating Committee.
Timing	Pre-, during and post construction.
Interpretation & Approach	8/20/09 In lieu of purchasing habitat, SDG&E will provide monetary compensation, as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat. With regard to timing of activities, construction and maintenance activities (including the use of helicopters) in bighorn sheep critical habitat shall be limited to outside the lambing season and the period of greatest water need, or a minimum ceiling of 1,500 feet for helicopter flights shall be maintained. The lambing season is January 1 through June 30. The period of greatest water need is May through September. Construction and maintenance activities in PBS critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.
	— (B-7c) To help reconnect PBS subpopulations and at least partially offset impacts to the overall population of PBS caused by the project, the Applicant shall: • fund the design and construction of an overpass (for sheep) or tunnel (for vehicles) to facilitate PBS movement across a highway at a location determined by the USFWS (in coordination with State Parks and CDFG. Tunnel or overpass design must be approved by the Wildlife Agencies. • fund removal of tamarisk and fences for the life of the project, and install and maintain water sources at locations determined by the USFWS (in coordination with State Parks and CDFG) • fund a minimum 10-year-long program to monitor the effects of the project on PBS behavior, movements, and dispersal in the project corridor (ten years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program would be implemented by the Wildlife Agencies and State Parks following construction.
	— (B-7c) Furthermore, the Applicant shall provide compensation for direct loss of critical habitat at a 5:1 ratio for permanent impacts and at a 3:1 ratio (including a combination of onsite restoration and offsite purchase) for temporary impacts with PBS critical habitat or other habitat acceptable to the Wildlife Agencies, BLM, and State Parks (for critical habitat in ABDSP). Impacts to PBS critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. For the Proposed Project, the required mitigation for PBS impacts includes offsite purchase of 525.7 acres and onsite restoration of 111.81 acres. The determination of impact acreage shall be based on the definition of critical habitat in effect as of the time of publication of the Final EIR/EIS.
	— (B-7c) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and State Parks for all acquired PBS habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) PBS or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired PBS habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) PBS habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) • Baseline biological data for all acquired PBS habitat • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
	Also, see U.S. Fish and Wildlife Conservation Measures SS-CM-22, SS-CM-23, SS-CM-24, and SS-CM-25.
Location	Where bighorn sheep or designated bighorn sheep critical habitat occur.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and bighorn sheep impact minimization measures. BLM and CPUC shall ensure that funding is provided for bighorn sheep studies and crossing mitigation; and that habitat acquisition and long-term management of mitigation sites is implemented.
Effectiveness Criteria	Successful avoidance/minimization of bighorn sheep impacts, and implementation of funding for studies and a wildlife crossing, habitat acquisition and long-term management for mitigation parcels.
Responsible Agency	BLM, CPUC, USFWS, CDFG, and State Parks.
Timing	Pre-, during and post construction.
Interpretation & Approach	8/20/09 Discussion with BLM, Aspen, and Helix, helicopter work must occur at a minimum of 1500 feet or an alternative elevation as may be agreed upon with the appropriate agencies from January 1 through September 30. The wildlife agencies will provide direction on the location and type of construction that will meet the requirement to "fund the design and construction of an overpass." The 10-year-long monitoring program will start once construction has been completed. Since the issuance of the Final EIR/EIS and BO, a revised delineation of the critical habitat designation for the Bighorn Sheep was issued. The wildlife agencies will determine which delineation will be utilized for the project going forward.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/compensation strategies. A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. In addition, the burrowing owl shall be looked for opportunistically as part of other surveys and monitoring required during project construction. If the burrowing owl is absent, then no mitigation is required.
	— (B-7d) If the burrowing owl is present, no disturbance shall occur within 50 meters (approximately 160 ft) of occupied burrows from September 1 through January 31 or within 75 meters (approximately 250 ft) of occupied burrows from February 1 through August 31 (CDFG, 1995).
	— (B-7d) During construction, any pipe or similar construction material that is stored on site for one or more nights shall be inspected for burrowing owls by a qualified biologist before the material is moved, buried, or capped
	— (B-7d) Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG and only if the above-described occupied burrow disturbance absolutely cannot be avoided (*e.g.,* due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters from the impact zone and that are within or contiguous to a minimum of 6.5 acres of preserved (or acquired and preserved if not already preserved) foraging habitat for each relocated owl (single owl or owl pair). Passive relocation is accomplished by first creating two artificial burrows in contiguous, preserved foraging habitat (if no natural burrows exist) for each occupied burrow that would be impacted; and second, installing one-way doors on occupied burrow entrances so owls can leave the burrow but not re-enter it. Following passive relocation, the area of impact and the preserved foraging habitat with alternate burrows are surveyed daily for one week to confirm owl use of alternate burrows before excavation of burrows in the impact zone. All passive relocation shall be conducted by a biologist approved by the CDFG. If the alternate burrows are not used by the relocated owls, then the Applicant shall work with the CDFG to provide alternate mitigation for burrowing owls. If the alternate burrows are used, no other mitigation shall be required. If it is not possible to preserve contiguous habitat on which to provide alternate burrows (*e.g.,* on private land), and occupied owl burrows would be directly impacted, then the owls shall be passively relocated without the creation of alternate burrows prior to construction (relocation should only be implemented during the non-breeding season [September 1 through January 31]). The loss of occupied owl habitat shall be mitigated by acquiring and preserving other occupied habitat elsewhere (as explained below) per the Staff Report on Burrowing Owl Mitigation (CDFG, 1995) and the Burrowing Owl Survey Protocol and Mitigation Guidelines (The Burrowing Owl Consortium, 1993), or as otherwise determined in consultation with the CDFG.
	— (B-7d) Impacted occupied habitat shall be mitigated by 1) acquiring and preserving occupied habitat at a rate of 1.5 times 6.5 acres (or 9.75 acres) per pair or single bird impacted, or 2) acquiring and preserving unoccupied habitat contiguous with currently occupied habitat at a rate of two times 6.5 acres (or 13 acres) per pair or single bird impacted, or 3) acquiring and preserving suitable unoccupied habitat at a rate of three times 6.5 acres (or 19.5 acres) per pair or single bird impacted. All acquired habitat shall be acceptable to the CDFG and shall be protected and managed for the burrowing owl in perpetuity.
	— (B-7d) The survey required within 30 days prior to the initiation of construction will determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond and whether or not the mitigation needs to be revised.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-7d) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, CDFG, and State Parks (for land in ABDSP) for all acquired burrowing owl habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the burrowing owl or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired burrowing owl habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) burrowing owl habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); • Baseline biological data for all acquired burrowing owl habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where occupied burrowing owl habitat occurs.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures. If necessary, BLM and CPUC shall approve habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Avoidance of occupied burrows and surrounding foraging area, successful passive relocation, and/or replacement of occupied habitat that is managed in perpetuity.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All grading or brushing taking place within riparian habitats of the least Bell's vireo or southwestern willow flycatcher during construction shall be conducted from September 16 (October 1 in ABDSP) through March 14, which is outside the least Bell's vireo and southwestern willow flycatcher breeding seasons.
	— (B-7e) When conducting all other construction activities during the breeding season of March 15 through September 15 (September 30 in ABDSP) within 500 feet (USFWS, 2007b) of habitat in which least Bell's vireos and/or southwestern willow flycatchers are known to occur or have potential to occur, a biologist permitted by the USFWS shall survey for least Bell's vireos and southwestern willow flycatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-7e) If least Bell's vireos or southwestern willow flycatchers are present, a permitted biologist shall survey for nesting vireos and flycatchers approximately once per week within 500 feet of the construction area (USFWS, 2007b), for the duration of the activity in that area during the breeding season.
	— (B-7e) If/when an active nest is located, a 300-foot no-construction buffer zone (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. No construction shall take place within this buffer until the nest is no longer active unless there are physical or safety constraints. If construction must take place within the buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied vireo/flycatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies, State Parks (for activities in ABDSP), and USDA Forest Service (for activities on National Forest lands) to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The permitted biologist shall monitor the nest daily until either activities are no longer within 300 feet of the nest, or the fledglings become independent of their nest.
	— (B-7e) Mitigation for the loss of least Bell's vireo- or southwestern willow flycatcher-occupied habitat (or designated critical habitat for the flycatcher) shall be implemented as follows. Permanent impacts to occupied habitat and/or designated critical habitat shall include offsite acquisition and preservation of occupied habitat or designated critical habitat at a 3:1 ratio. Temporary impacts to occupied habitat or designated critical habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied habitat and/or designated critical habitat. Impacts to least Bell's vireo or southwestern willow flycatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If a USFWS protocol, pre-construction survey, conducted in an area where presence of the vireo or flycatcher was assumed in this analysis (see Appendix 8B) determines that the species is absent, then the mitigation shall be reduced accordingly. Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-7e) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the least Bell's vireo or southwestern willow flycatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired vireo or flycatcher habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) least Bell's vireo or southwestern willow flycatcher habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all least Bell's vireo or southwestern willow flycatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-32, SS-CM-16, SS-CM-17, and SS-CM-18.
Location	Areas where the vireo or flycatcher occur or have potential to occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to nesting vireos and flycatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP is only applicable for mitigation parcels.
MITIGATION MEASURE	B-7h: Implement appropriate avoidance/minimization strategies for eagle nests. No construction or maintenance activities shall occur within 4,000 feet of an eagle nest during the eagle breeding season (December through June).
Location	Within 4,000 feet of eagle nests
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with restrictions before and during construction. A qualified biologist shall ensure compliance during maintenance.
Effectiveness Criteria	Successful avoidance of indirect impacts to eagle nests.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/compensation strategies. A biologist permitted by the USFWS shall determine suitable habitat areas (*i.e.,* non-excluded areas per the 2002 USFWS protocol; USFWS, 2002b) within any designated USFWS QCB survey area (*e.g.,* Survey Area 2) that would be impacted by project construction.
	— (B-7i)A pre-construction, USFWS protocol presence/absence survey for the adult QCB shall be conducted within all suitable habitat for this species in the construction zone within any designated USFWS QCB survey area. The survey shall be conducted in a year where the QCB is readily observed at USFWS QCB-monitored reference sites to determine what areas are occupied by the QCB (*i.e.,* any suitable habitat within 1 km of a current QCB sighting is considered occupied) and what areas are not occupied. The USFWS permitted biologist shall record the precise locations of QCB larval host plants within the construction zone (and 10 meters beyond) using GPS technology. If the protocol pre-construction survey is conclusive for determining absence of the QCB, then areas without the butterfly would not require mitigation.
	— (B-7i) If the protocol pre-construction survey is not conclusive for determining QCB absence (due to limited detectability per the 2002 protocol, for example), or if a survey is not conducted, then all suitable habitat areas would be considered potentially occupied and would require mitigation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15) and stays at least 10 meters away from all host plant locations, then no mitigation is required (USFWS, 2007d). If construction occurs between October 16 and May 31 or within 10 meters of host plant locations, or within designated critical habitat, then (1) temporary impacts to the habitat shall be mitigated through onsite restoration of temporarily disturbed areas and offsite acquisition and preservation of an equal sized area of QCB-occupied habitat (a 2:1 mitigation ratio) and (2) permanent impacts shall be mitigated through offsite acquisition and preservation of QCB-occupied habitat (or QCB-designated critical habitat for impacts to designated critical habitat) at a 2:1 ratio (i.e., two acres acquired for each acre lost). Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation land to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). A USFWS permitted biologist shall be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same mitigation shall apply where the protocol pre-construction survey was conclusive for determining that the QCB is present and where construction would occur in designated critical habitat. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If host plant mapping is not possible during the pre-construction survey (e.g., drought prevents plant germination), then all suitable habitat (i.e., non-excluded habitat per the 2002 protocol) shall be considered occupied by the QCB and mitigated under the assumption that the QCB is present.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	— (B-7i) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the QCB or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired QCB habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) QCB habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all QCB habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-32, SS-CM-3, SS-CM-4, SS-CM-5, SS-CM-6, SS-CM-7, SS-CM-26, and SS-CM-27.
Location	Where suitable Quino checkerspot butterfly habitat occurs.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and Quino checkerspot avoidance/minimization/mitigation measures. If required, BLM and CPUC shall approve habitat acquisition plans and long-term management plans.
Effectiveness Criteria	Successful avoidance of impacts to the Quino checkerspot or impacts as allowed by the USFWS, and if necessary, implementation of mitigation land acquisition.
Responsible Agency	BLM, CPUC, and USFWS.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP applicable only for mitigation parcels. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. Furthermore, should the Proposed Rule issued on January 17, 2008 by the USFWS to revise the area of designated critical habitat for the Quino be adopted by USFWS prior to construction, the impacts to critical habitat shall be recalculated by a qualified biologist (see Mitigation Measure B-1c), and the required number of acres of compensation/restoration land required by this mitigation measure shall be revised based on the ratios set forth in Mitigation Measure B-7i. The recalculations and revisions to the required mitigation shall be submitted to the CPUC, BLM, and the Wildlife Agencies for review and approval prior to the commencement of construction in critical habitat.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/ compensation strategies. A pre-construction, USFWS protocol survey shall be conducted for the toad in the construction zone (by a biologist permitted by the USFWS to handle the toad) where absence of the species has not been proven to conclusively define the impacts to occupied habitat. In the absence of this survey data, the mitigation acreages required below shall stand. Where the pre-construction survey determines the species is absent, the mitigation shall be reduced accordingly.
	(— B-7j) The removal of toad riparian breeding habitat shall occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.
	(— B-7j) Where the toad is present (or assumed to be present if no pre-construction survey is conducted), the construction zone shall be fenced with exclusion fencing to prevent toad access to it. The fencing shall be a silt-screen type barrier comprised of a minimum 24-inch high fence with the remainder (minimum 12 inches) anchored firmly against the ground. The fence may be buried if necessary to exclude toad access. The fence locations shall be identified by a USFWS permitted biologist and adjusted as necessary. Exclusion fencing shall be monitored daily by a qualified biologist (see Mitigation Measure B-1c) and maintained in its original condition by construction personnel for the entire length of the construction period in toad habitat. Pre- and post-exclusion fencing surveys within the construction zone shall be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. Prior to construction commencement, a minimum of three surveys shall be conducted by this biologist following installation of the fencing and prior to construction activities. One of these clearance surveys must take place no more than 24 hours prior to activity commencement. These surveys shall be conducted during appropriate climatic conditions and during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If conditions are not appropriate for arroyo toad movement during surveys, the biologist may attempt to elicit a response from the toads during nights (*i.e.,* at least one hour after sunset), provided that temperatures are above 50°F, by spraying the project area with water to simulate a rain event. After the three clearance surveys outlined above have been completed, daily surveys shall be conducted each morning prior to the continuation of construction or maintenance activity. Any toads found shall be relocated to appropriate similar habitat outside project impact areas.
	(— B-7j) Mitigation for the loss of arroyo toad-occupied habitat shall be implemented as follows. Permanent impacts to occupied, arroyo toad breeding habitat shall include offsite acquisition and preservation of occupied arroyo toad breeding habitat at a 3:1 ratio. Permanent impacts to occupied, upland burrowing habitat shall include offsite acquisition and preservation of occupied, upland burrowing habitat at a 2:1 ratio. Temporary impacts to occupied breeding habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied, upland burrowing habitat shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied, upland burrowing habitat. Any acquired arroyo toad habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	(— B-7j) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the arroyo toad or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired arroyo toad habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) arroyo toad habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all arroyo toad habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-32, SS-CM-8, SS-CM-9, SS-CM-10, SS-CM-11, SS-CM-12, SS-CM-13, SS-CM-14, and SS-CM-15.
Location	Areas where the arroyo toad occurs or has potential to occur.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to arroyo toads are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP applicable only for mitigation parcels.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All brushing or grading taking place within occupied habitat of the coastal California gnatcatcher (defined as within 500 feet of any gnatcatcher sightings [USFWS, 2007b]) during construction shall be conducted from September 1 through February 14, which is outside the coastal California gnatcatcher breeding season.
	(— B-7l) When conducting all other construction activities during the coastal California gnatcatcher breeding season of February 15 through August 31, within habitat in which coastal California gnatcatchers are known to occur or have potential to occur, the following avoidance measures shall apply. A USFWS permitted biologist shall survey for coastal California gnatcatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If coastal California gnatcatchers are present, but not nesting, a USFWS permitted biologist shall survey for nesting coastal California gnatcatchers approximately once per week within 500 feet of the construction area for the duration of the activity in that area during the breeding season.
	(— B-7l) If/when an active nest is located, a 300-foot no-construction buffer (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction shall take place within this buffer until the nest is no longer active. However, if construction must take place within the 300-foot buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting coastal California gnatcatchers and the activities, and working in other areas until the young have fledged.
	(— B-7l) Mitigation for the loss of coastal California gnatcatcher-occupied habitat shall be implemented as follows. Permanent impacts to occupied habitat shall include offsite acquisition and preservation of occupied habitat at a 2:1 ratio. Temporary impacts to occupied habitat shall be mitigated at a 2:1 ratio and shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied habitat. Mitigation for the loss of unoccupied designated critical habitat for the gnatcatcher shall be implemented as follows. Permanent impacts to unoccupied designated critical habitat shall include offsite acquisition and preservation of designated critical habitat at a 2:1 ratio. Temporary impacts to unoccupied designated critical habitat shall include 1:1 onsite restoration. Impacts to coastal California gnatcatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. Any acquired coastal California gnatcatcher habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

	(— B-7l) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the coastal California gnatcatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired coastal California gnatcatcher. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) coastal California gnatcatcher habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all coastal California gnatcatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (*e.g.,* provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-32, SS-CM-19, SS-CM-20, and SS-CM-21.
Location	Occupied gnatcatcher habitat.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to coastal California gnatcatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP applicable only for mitigation parcels.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-8a: Conduct pre-construction surveys and monitoring for breeding birds. All vegetation clearing, except tree trimming or removal, shall take place between August 16 and January 14 (*i.e.,* outside of the general avian breeding season of January 15 through August 15). Tree removal or trimming shall take place between September 16 and December 31 (*i.e.,* outside the raptor breeding season of January 1 through September 15).
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) cannot occur completely outside the general avian breeding season, then pre-construction surveys for non-listed bird species' nests shall be conducted by a qualified biologist within 100 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 15 and August 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) including the use of helicopters cannot occur completely outside the raptor breeding season, then pre-construction surveys for active raptor nests shall be conducted by a qualified biologist within 500 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 1 and September 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-8a) If no active nests are observed, construction may proceed. If active nests are found, work may proceed provided that construction activity is 1) located at least 500 feet from raptor nests (USFWS, 2007b), 2) located at least 160 to 250 feet from occupied burrowing owl burrows (CDFG, 1995; see Mitigation Measure B-7d), 3) located at least 300 feet from listed bird species nests (see Mitigation Measure B-7e and B-7l), 4) located at least 100 feet from non-listed bird species nests, and 5) noise levels do not exceed 60 dB(A)hourly Leq at the edge of nesting territories (American Institute of Physics, 2005) as determined by a qualified biologist in coordination with a qualified acoustician. There may be a reduction of these buffer zones depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. In the case of raptors (except the burrowing owl), the noise level restriction stated above does not apply (USFWS, 2007b). Otherwise, if the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for construction in ABDSP), and USDA Forest Service (for alternatives with construction on National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring to ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	B-9a: Survey for bat nursery colonies. A CDFG-approved biologist shall conduct a habitat assessment for bat nursery colonies prior to any construction activity. Then, the approved biologist shall conduct a survey for bat nursery colonies or signs of such colonies prior to construction. Direct impacts to a nursery colony site shall not be allowed, and approach of, or entrance to, an active nursery colony site shall be prohibited. Before any blasting or drilling in the vicinity of a nursery colony site, the CDFG-approved biologist shall work with the construction crew to devise and implement methods to minimize potential indirect impacts to the nursery colony site from falling rock or substantial vibration (while a nursery colony is active). The methods shall include an option to halt any construction activity that would cause falling rock, substantial vibration impacts, or any other construction-related impact (including lighting used for night work) to a nursery colony as determined by the approved biologist, until the colony is inactive. Should falling rock block the entrance to a nursery colony site, the contractor shall work with the approved biologist to re-open an entrance to the site.
Location	Areas with potential to support bat nursery colonies (typically caves or rock crevices in the desert).
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure avoidance of impacts to bat nursery colonies.
Effectiveness Criteria	Successful avoidance of impacts to bat nursery colonies.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-10a: Utilize collision-reducing techniques in installation of transmission lines. The Applicant shall install the transmission lines utilizing Avian Power Line Interaction Committee standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994" (APLIC, 1994) as follows. • Placement of towers and lines shall not be located above existing towers and lines, topographic features, or tree lines to the maximum extent practicable. Power lines should be clustered in the vertical and horizontal planes aligned with existing geographic features or tree lines, and located parallel (rather than perpendicular) to prevailing wind patterns to the maximum degree feasible. • Additionally, overhead lines that are located in highly utilized avian flight paths shall be marked utilizing fixed mount Firefly Flapper/Diverters, swan flight diverter coils, or other diversion devices, if proven more effective, as to be visible to birds and to reduce avian collision with power lines.
	— (B-10a) Where such markers are installed, the Applicant shall fund a study to determine the effectiveness of the markers as a collision prevention measure since there are few, if any, studies that show if such markers work, especially on transmission lines (CEC, 2007). The Applicant shall develop a draft study protocol and submit it to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review. The Applicant shall continue to work with these agencies until approval of a final study protocol is obtained. If the study shows the markers to be ineffective, the Applicant shall coordinate with the Wildlife Agencies and State Parks (for markers in ABDSP) to develop alternate collision protection measures.
	— (B-10a) The Applicant shall implement an avian reporting system for documenting bird mortalities to help identify problem areas. The reporting system shall follow the format in Appendix C of "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006" (APLIC, 2006) or a similar format. The Applicant shall submit a draft reporting protocol and reporting system to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review and approval. The Applicant shall continue to work with these agencies until approval of a final reporting protocol and reporting system is obtained. The Applicant shall develop and implement methods to reduce mortalities in identified problem areas. The methods shall be approved by the Wildlife Agencies, State Parks (for problem areas in ABDSP), CPUC, and BLM prior to implementation. Bird mortality shall continue to be documented in the problem areas per the avian reporting system to determine the effectiveness of the mortality reduction methods and to determine if new methods need to be developed.
Location	Highly utilized avian flight paths
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure installation of markers. BLM and CPUC shall ensure that the Applicant funds and implements a study to document bird mortalities.
Effectiveness Criteria	Markers installed, bird mortality study implemented, and corrective measures taken.
Responsible Agency	CPUC, BLM, State Parks (for ABDSP), USFWS and CDFG
Timing	During and post construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	B-11a: Prepare and implement a Raven Control Plan. The Applicant shall prepare and implement a Raven Control Plan where it occurs in FTHL habitat inside and outside FTHL MAs. The raven control plan shall include the use of raven perching/nesting deterrents (such as those manufactured by Prommel Enterprises, Inc. [www.ZENAdesign.com], Mission Environmental [www.missionenviro.co.za], or Kaddas Enterprises, Inc. [www.kaddas.com] and/or shall describe the procedure for obtaining a permit from the USFWS Law Enforcement Division to legally remove ravens. The plan shall identify the purpose of conducting raven control; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; and describe procedures for documenting the activities on an annual basis. The Applicant shall obtain approval of this plan from the USFWS prior to the start of construction. The Applicant shall work with the USFWS until approval of a plan is obtained.
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-19.
Location	FTHL habitat inside and outside FTHL MAs, and where desert tortoise has potential to occur?, outside ABDSP.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall verify that SDG&E submitted a raven control plan and received approval from USFWS prior to construction, and that the plan is implemented after construction.
Effectiveness Criteria	A raven control plan is submitted by SDG&E, approved by USFWS, and implemented.
Responsible Agency	BLM, CPUC, and USFWS Law Enforcement Division.
Timing	Pre- and post construction.
Interpretation & Approach	8/20/09: The Raven Control Plan does not have to be in place prior to construction for Segment 4, Mt. Springs Grade. Reference to ABDSP is not applicable to FESSR.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	— B-12a: Conduct maintenance activities outside the general avian breeding season. The Applicant shall educate all maintenance workers about the sensitivity of biological resources associated with the project and the necessity to avoid unauthorized impacts to them.
	— (B-12a)In areas not cleared of vegetation in the prior two years, all vegetation clearing, except tree trimming or removal, shall take place between September 16 and February 14 (*i.e.,* outside of the general avian breeding season of February 15 through September 15). Tree trimming or removal shall only take place between September 16 and December 31 (*i.e.,* outside the raptor breeding season of January 1 through September 15). Other maintenance activities shall occur outside the general avian breeding season where feasible. For other maintenance activities that cannot occur outside the above-listed breeding seasons, a qualified biologist shall work with a qualified acoustician to determine if a maintenance activity would meet or exceed the 60 dB(A) Leq hourly noise threshold where nesting territories of the coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing owl occur. If the noise threshold would not be met or exceeded at the edge of their nesting territories, then maintenance may proceed. If the noise threshold would be met or exceeded at the edge of their nesting territories, pre-maintenance surveys for nests of these species shall be conducted by a qualified biologist (USFWS permitted biologist for gnatcatcher, vireo, and flycatcher) within 300 feet of the maintenance area no more than seven days prior to initiation of maintenance that would occur between February 15 and August 30 for the gnatcatcher, March 15 and September 15 for the vireo, April 15 and September 15 for the flycatcher, and February 1 and August 31 for the burrowing owl. If active nests are found, work may proceed provided that methods, determined by the qualified acoustician to be effective, are implemented to reduce noise below the threshold. These methods include, but are not limited to, turning off vehicle engines and other equipment whenever possible and/or installing a protective noise barrier between a nesting territory and maintenance activities. If the qualified acoustician determines that no methods would reduce noise to below the threshold, maintenance shall be deferred until the nestlings have fledged as determined the qualified biologist. Where noise-reducing methods are employed, active nests shall be monitored by the qualified biologist on a weekly basis until maintenance is complete or until the nestlings fledge, whichever comes first. The qualified biologist shall be responsible for documenting the results of the pre-maintenance nest surveys and the nest monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for maintenance in ABDSP), and USDA Forest Service (for alternatives with maintenance on National Forest lands).
	— (B-12a) Animal Burrows/Dens. If any animal burrows or dens are identified during the pre-maintenance surveys for active bird nests, soil in a brush-clearing area shall be sufficiently dry before brush clearing to prevent damage to burrows or dens. At any time of year where maintenance would occur in occupied SKR habitat, all equipment and vehicles shall remain on existing access roads/staging areas (*e.g.,* they shall not pull off the shoulder) to prevent the crushing of SKR burrows.
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-43, G-CM-44, G-CM-45, G-CM-46, G-CM-47, G-CM-48, G-CM-49, G-CM-50, and G-CM-51.
Location	Entire project area.
Monitoring/Reporting Action	A qualified biologist shall conduct surveys and monitoring, and ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds and prevention of damage to burrows or dens.
Responsible Agency	BLM, CPUC, USFWS, CDFG, state parks (for ABDSP) and USDA Forest Service (for USFS land).
Timing	Post construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR. Reference to ABDSP applicable only for mitigation parcels.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

MITIGATION MEASURE	B-12b: Conduct maintenance when arroyo toads are least active. To avoid impacts to arroyo toads during project maintenance (specifically the use and maintenance of access roads within 2 kilometers of occupied toad habitat), use and maintenance of these access roads shall only occur between two hours after sunrise until two hours before sunset.
Location	Access roads where occupied habitat (or potential habitat where absence has not been established) occurs.
Monitoring/Reporting Action	A qualified biologist shall ensure compliance with construction time restrictions.
Effectiveness Criteria	Avoidance of impacts to arroyo toads on access roads
Responsible Agency	BLM, CPUC
Timing	Post construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	B-12c: Maintain access roads and clear vegetation in Quino checkerspot butterfly habitat. If access roads in QCB-occupied or potentially occupied habitat (see Impact B-7J and Mitigation Measure B-7i) are maintained (*i.e.,* regraded) and vegetation around structures is cleared at least once every two years, then no additional mitigation shall be required for this ongoing maintenance. If more than two years pass without regrading or clearing, then the maintenance shall be considered a new impact to QCB habitat and shall be mitigated as prescribed in Mitigation Measure B-7i (*i.e.,* protocol pre-maintenance survey, biological monitoring, and avoidance or mitigation).
Location	Access roads in occupied or potential occupied habitat.
Monitoring/Reporting Action	A qualified biologist shall provide monitoring to ensure compliance.
Effectiveness Criteria	Avoidance or mitigation of impacts to QCB
Responsible Agency	BLM, CPUC
Timing	Post construction.
Interpretation & Approach	None required.
BIO-APM-1	SDG&E would perform any detailed on-the-ground protocol surveys with regard to specific sensitive plant or wildlife species whose habitat would be impacted by the project based on final design in accordance with federal or State regulations or statutes. SDG&E would submit results of these surveys to the USFWS and CDFG ~~and consult on reasonable and feasible mitigation measures for potential impacts, prior to any ground disturbing activities in a particular area. Mitigation would prioritize avoidance as the primary means to address impacts. If avoidance is not feasible, then relocation/restoration would be implemented. Where relocation/restoration is not feasible or deemed not to fully address impacts, then mitigation though SDG&E's NCCP mitigation creditsor if necessary compensation via another on- or offsite purchase or dedication of habitat at a ratio of 2:1 for impacts inside preserves and 1:1 for impacts outside of preserves would be identified and implemented~~. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-2	Prior to construction, all SDG&E's contractors, subcontractors and project personnel would receive training regarding the appropriate work practices necessary to effectively implement the biological APMs and to comply with the applicable environmental laws and regulations including appropriate wildlife avoidance, and impact minimization procedures, the importance of these resources and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-4.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

Location	Entire project area.
Timing	Pre-construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-3	Except when not feasible due to physical or safety constraints, all Project vehicle movement would be restricted to existing and constructed roads as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads. New access road construction for the project would be allowed year-round. However, when feasible, every effort would be made to avoid constructing roads during the nesting season. When it is not feasible to keep vehicles on existing access roads or to avoid constructing new access roads during the nesting, breeding, or flight season, SDG&E would perform a site survey, or more as appropriate, in the area where the work is to occur. This survey would be performed to determine presence or absence of endangered nesting birds, or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable mitigation measures to avoid or minimize for potential impacts, prior to vehicle use off existing access roads or the construction of new access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys otherwise required by BIO-APM-1. Parking or driving underneath oak trees is not allowed in order to protect root structures. In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities which could interfere with plant photosynthesis, a 15-mile-per-hour speed limit shall be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-5 and G-CM-25.
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS. Note: (10/20/09) All Project vehicle movement will be restricted to existing roads and roads constructed as part of the project. These roads will be determined and marked by SDG&E in advance.
BIO-APM-4	The area limits of Project construction and survey activities would be predetermined based on temporary and permanent disturbance areas noted on final design engineering drawings with activity restricted to and confined within those limits. Survey personnel shall keep survey vehicles on existing roads. During Project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat would require prior approval from the project biological resource monitor in conformance with the APMs. Hiking off roads or paths for survey data collection is allowed year-round as long as other APMs are met. ~~Stringing of new wire and reconductoring for the project would be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on Project access roads. Where stringing requires that conductor drag on the brush or ground or vehicles leave Project access roads, SDG&E would perform a site survey (or more as appropriate) to determine presence/absence of endangered nesting birds or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable and feasible mitigation measures for potential impacts prior to dragging wire on the ground or through brush or taking vehicles off Project access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats are encountered in the field. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-8.
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-5	To the extent feasible, access roads would be built at right angles to the streambeds and washes; where not feasible for access roads to cross at right angles, SDG&E would limit roads constructed parallel to streambeds or washes to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or waters of the State. Streambed crossings and roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. Culverts would be installed where needed for right angle crossings, but rock crossings would be utilized across most right angle drainage crossings. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels and stream banks (*e.g.,* structures would not be located within a stream channel, construction activities would avoid sensitive features). ~~Prior to construction in streambeds and washes, SDG&E would perform a pre-activity survey, or more as appropriate, to determine the presence/absence of endangered riparian species. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by the BIO-APM-1.~~ (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-27.
Location	Entire project area.
Timing	During and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-6	In the construction, operation, and maintenance of the project, SDG&E would comply with all applicable environmental laws and regulations, including, without limitation, those regulating and protecting wildlife and its habitat. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-7	Littering is not allowed. Project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris would remain in the right-of-way following completion of construction. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-9.
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-8	Prior to construction, plant population boundaries designated as sensitive ~~by USFWS or CDFG and other resources designated sensitive by SDG&E and resource agencies~~ would be clearly delineated. ~~with clearly visible flagging or fencing, which shall remain in place for the duration of construction.~~ Flagged areas would be avoided to the extent practicable during construction activities in that area. ~~Where these areas cannot be avoided, focused surveys for covered plant species shall be performed in conformance with BIO-APM-1, and the responsible resource agency(s) would be consulted for appropriate mitigation and/or revegetation measures prior to disturbance. Notification of presence of any covered plant species to be removed in the work area would occur within ten (10) working days prior to Project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS nor CDFG has removed such plant(s) within ten (10) working days following written notice, SDG&E may proceed with work and cause a take of such plant(s), if minimization measures are not implemented.~~ (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-33.
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-9	Brush clearing around any Project facilities (*e.g.,* structures, substations) for fire protection, visual inspection or Project surveying, in areas which have been previously cleared or maintained within a two-year or shorter period shall not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing shall not be conducted during the breeding season (~~March through August~~) without a pre-activity survey for vegetation containing active nests, burrows, or dens. ~~The pre-activity survey performed by the onsite biological resource monitor would make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work would be avoided until after the nesting season, or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance-level survey, soil in the brush clearing area would be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.~~ (SDG&E)
Location	Entire project area.
Timing	Post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-10	No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms shall be prohibited in all project areas except for those used by security personnel. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-36.
Location	Entire project area.
Timing	Pre-, during and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-11	Feeding of wildlife is not allowed. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-37.
Location	Entire project area.
Timing	Pre-, during and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-12	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-38.
Location	Entire project area.
Timing	Pre-, during and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-13	Plant or wildlife species may not be collected for pets or any other reason. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-14	~~All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife is located in the trench or excavation, the onsite biological resource monitor shall be called immediately to remove them if they cannot escape unimpeded. The onsite biological resource monitor would make required contacts with the USFWS and CDFG resource personnel and obtain verbal approval prior to removing any entrapped wildlife.~~ If the biological resource monitor is not qualified to remove the entrapped wildlife, a recognized wildlife rescue agency (such as Project Wildlife) may be employed to remove the wildlife and transport them safely to other suitable habitats. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS. Note (10/20/09): If wildlife becomes entrapped in a trench or excavation, the onsite biological resource monitor shall be called immediately.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-15	Emergency repairs may be required during the construction and maintenance of the project to address situations (*e.g.,* downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs the APMs shall be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage would be reported to the project biological construction monitor, who would promptly submit a written report of such impacts to the USFWS and CDFG and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological construction monitor would develop a reasonable and feasible mitigation plan consistent with the APMs and any permits previously issued for the project by the governmental agencies. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-10.
Location	Entire project area.
Timing	During and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-16	Environmentally sensitive tree trimming locations for the project would be identified in SDG&E's existing vegetation management ~~tree trim~~ database utilized by ~~tree~~ trim contractors. ~~The biological field construction monitor shall be contacted prior to~~ Trimming ~~in environmentally sensitive areas Whenever feasible, trees in environmentally sensitive areas, such as areas of riparian or native scrub vegetation,~~ would be scheduled ~~for~~ trimming during non-sensitive (*i.e.,* outside breeding or nesting) times. ~~Where trees cannot be trimmed during non-sensitive times, SDG&E would perform a site survey, or more as appropriate, to determine presence or absence of endangered nesting bird species in riparian or native scrub vegetation. SDG&E would submit results of this survey to the USFWS and CDFG and consult on mitigation measures for potential impacts, prior to tree trimming in environmentally sensitive areas. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ Where riparian areas with overstory vegetation are crossed, tree removal (*i.e.,* clear-cut) widths would be varied where feasible to minimize visual landscape contrast and to maintain habitat diversity at established wildlife corridor edges. Where tree removal widths cannot be varied, SDG&E would consult with the USFWS and CDFG to develop alternative tree removal options that could reasonably maintain edge diversity. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS. Note (10/20/09): Where trees cannot be trimmed outside of the breeding or nesting seasons, a biological monitor would perform a pre-activity survey to determine the presence or absence of nesting birds.
BIO-APM-17	All new access roads or spur roads constructed as part of the project that are not required as permanent access for future Project maintenance and operation would be permanently closed. ~~Where required, roads would be permanently closed using the most effective feasible and least environmentally damaging methods appropriate to that area with the concurrence of the underlying landowner and the governmental agency having jurisdiction (*e.g.,* stockpiling and replacing topsoil or rock replacement). This would limit new or improved accessibility into the area.~~ Mowing of vegetation can be an effective method for protecting the vegetative understory while at the same time creating access to the work area. Mowing should be used when permanent access is not required since, with time, total revegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing would be necessary to maintain permanent access. The project biological construction monitor shall conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 14-foot-wide area on straight portions of the road and a 16- to 20-foot-wide area at turns, and that the mowing height is no less than 4 inches from finished grade. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-30 and G-CM-31.
Location	Entire project area.
Timing	During and post construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-18	In areas designated as sensitive by SDG&E or the resource agencies, to the extent feasible structures and access roads would be designed to minimize impacts to sensitive features. These areas of sensitive features include but are not limited to high-value wildlife habitats, sensitive vegetation communities, and high value plant habitats, and/or to allow conductors to clearly span the features, within limits of standard structure design. If the sensitive features cannot be completely avoided, structures and access roads would be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in high value wildlife habitats, SDG&E would perform a site survey to determine presence or absence of endangered species in sensitive habitats. SDG&E would submit results of this survey to the USFWS and consult on mitigation measures for potential impacts, prior to constructing structures or access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. Where it is not feasible for access roads to avoid sensitive water resource features, such as streambed crossings, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, roads constructed parallel to streambeds would be limited to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-11, G-CM-27, and G-CM-42.
Location	Entire project area where sensitive features are present.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-19	Restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM under Section 7 of the Endangered Species Act (ESA) would be implemented and complied with as specified in the Biological Opinion (BO) of the USFWS. The Section 7 process would be used to obtain an incidental take authorization through a compensation-based mitigation program for permanent impacts to occupied sensitive plant and animal habitat at a ratio of 1:1 or 2:1 based on site-specific studies, as outlined in BIO-APM-1. The Section 7 process may include consideration of SDG&E's existing NCCP mitigation credits as compensation for project impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-20	In construction areas where re-contouring is not required, vegetation shall be left in place wherever possible to avoid excessive root damage and allow for re-sprouting. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-21	Structures shall be constructed to conform to "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc. 1981), to minimize impacts to raptors. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-22	~~Species identified as sensitive by the land managing agency shall be salvaged where avoidance is not feasible in accordance with State law. Generally,~~ Salvage may include removal and stockpiling for replanting. ~~on site, removal and transplanting out of surface disturbance area, removal and salvage by private individuals, and removal and salvage by commercial dealers, or any combination.~~ (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-23	Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil located in areas containing sensitive habitat shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation. Topsoil located in developed or disturbed areas is excluded from this APM. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-24	~~Construction holes left open overnight shall be covered.~~ Covers shall be secured in place ~~nightly prior to workers leaving the site~~ and shall be strong enough to prevent livestock or wildlife from falling through ~~and into a hole~~. ~~Holes and/or trenches shall be inspected prior to filling to ensure absence of mammals and reptiles.~~ (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-25	Disturbed soils shall be revegetated ~~with an appropriate seed mix that does not contain invasive non-native plant species~~. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-26	Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-27	1. Prior to construction, SDG&E shall remove all existing raptor nests from structures that would be affected by project construction. 2. Removal of nests shall occur outside the raptor breeding season (January to July). 3. If it is necessary to remove an existing raptor nest during the breeding season, a qualified biologist shall survey the nest prior to removal to determine if the nest is active. A nest would be considered active if it contains eggs or fledglings. If the nest does not contain eggs or nestlings and is inactive, it shall be removed promptly. If a nest is determined to be active, the nest shall not be removed and the biologist shall monitor the nest to ensure nesting activities/breeding activities are not disrupted. If the biological monitor determines that project activities are disturbing or disrupting nesting activities, the monitor shall make feasible recommendations to reduce the noise and/or disturbance in the vicinity of the nest. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Table 4. Mitigation Measures and Applicant Proposed Measures – Biological Resources

BIO-APM-28	Potential roost trees that must be removed will be surveyed and identified in the field for application of the following procedures: *Before felling the tree:* 1. Trees should be removed under the warmest possible conditions. 2. Peel any sections of the exfoliating bark off the tree gently and search for any roosting bats underneath. 3. Create noise and vibrations on the tree itself. Noise and vibrations include: a. Running chain saw and making shallow cuts in the trunk (where bark has been peeled off). b. Striking the tree base with fallen limbs or tools such as hammers. *Felling the tree:* 4. Disturbance should be near-continuous for ten minutes, and then another ten minutes should pass, before the tree is felled. 5. When cutting sections of the bole, if any hollows or cavities (such as woodpecker holes) are discovered, be especially careful to check for the presence of bats in those areas. Cut slowly and carefully at all times. If possible, section bole near cavities to focus noise and vibrations, and open hollows by sectioning off a side. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.
BIO-APM-29	Reduce construction night lighting on sensitive habitats. Exterior lighting within the project area adjacent to preserved habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable. Vehicle traffic associated with project activities would be kept to a minimum volume and speed to prevent mortality of nocturnal wildlife species that may be moving about. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-13.
Location	Entire project area where sensitive habitats are present.
Timing	During construction.
Interpretation & Approach	For implementation, see Appendix 8N in Final EIR/EIS.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	— V-1a: Reduce visibility of construction activities and equipment. Substation construction sites and all staging and material and equipment storage areas including storage sites for excavated materials, and helicopter fly yards shall be appropriately located away from areas of high public visibility. If visible from nearby roads, residences, public gathering areas, or recreational areas, facilities, or trails, construction sites and staging areas and fly yards shall be visually screened using temporary screening fencing. Fencing will be of an appropriate design and color for each specific location. Additionally, construction in areas visible from recreation facilities and areas during holidays and periods of heavy recreational use shall be avoided.
	— (V-1a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the BLM and CPUC for review and approval at least 60 days prior to the start of construction. Where the project crosses lands administered by other public agencies (*e.g.,* Forest Service, Anza-Borrego Desert State Park), construction plans shall also be submitted to those agencies for review and approval within the same 60-day timeframe.
Location	Mitigation Measure V-1a applies to all sites and all routes.
Monitoring/Reporting Action	CPUC and BLM to verify in the field during construction and following construction
Effectiveness Criteria	Project construction sites (static), construction yards, and staging areas will be screened during construction and all construction areas will appear in their original or improved condition following construction.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Interpretation & Approach	7/2/09, Existing substations already have fences or screening in place, therefore no additional screening or changes to existing fences are required for construction within these fences. Reference to ABDSP is not applicable to FESSR.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	— V-1b: Reduce construction night lighting impacts. SDG&E shall design and install all lighting at construction and storage yards and staging areas and fly yards such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-1b) SDG&E shall submit a Construction Lighting Mitigation Plan to the BLM (only if on BLM lands), Forest Service (only if on National Forest lands), Anza-Borrego Desert State Park (for Park lands) and CPUC (for all areas) for review and approval at least 90 days prior to the start of construction or the ordering of any exterior lighting fixtures or components, whichever comes first. SDG&E shall not order any exterior lighting fixtures or components until the Construction Lighting Mitigation Plan is approved by the reviewing agency. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied
Location	Mitigation Measure V-1b applies to all static sites.
Monitoring/Reporting Action	CPUC and BLM to review and approve the Construction Lighting Mitigation Plan prior to construction and to monitor implementation in the field during construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	— V-2a: Reduce in-line views of land scars. Construct access or spur roads at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. Contour grading should be used where possible to better blend graded surfaces with existing terrain.
	— (V-2a) All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following: • Definition of access roads with sensitive viewing areas from which visibility of access roads is a concern. • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design. • "Drive and crush" access is a feasible measure for avoiding access road scars (*i.e.,* no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover. • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each access road (*i.e.,* retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route).
	— (V-2a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC and BLM, as well as the Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring/Reporting Action	CPUC and BLM to review construction plans prior to start of construction and verify compliance during construction.
Effectiveness Criteria	In-line views of land scars from grading will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	— V-2b: Reduce visual contrast from unnatural vegetation lines. In those areas where views of land scars are unavoidable, the boundaries of disturbed areas shall be aggressively revegetated to create a less distinct and more natural-appearing line to reduce visual contrast. Furthermore, all graded roads and areas not required for on-going operation, maintenance, or access shall be returned to pre-construction conditions. In those cases where potential public access is opened by construction routes, SDG&E shall create barriers or fences to prevent public access and patrol construction routes to prevent vandalized access and litter clean-up until all vegetation removed returns to its pre-project state. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
	— (V-2b) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring/Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of unnatural vegetation lines will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	— V-2c: Reduce color contrast of land scars on non-Forest lands. For non-USFS-administered land areas where views of land scars from sensitive public viewing locations are unavoidable, disturbed soils shall be treated with Eonite or similar treatments to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings (Eonite and Permeon are commercially available chemical treatments that "age" or oxidize rock and are used specifically for coloring concrete or rock surfaces to tone down glare and contrast and simulate naturally occurring desert varnish). SDG&E will consult with the Authorized Officer (as determined by the CPUC and BLM as appropriate) on a site-by-site basis for the use of Eonite.
	— (V-2c) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public.
Monitoring/Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-2d: Construction by helicopter. In those areas where long-term land-scarring and vegetation clearance impacts would be visible to sensitive public viewing locations, or where construction would occur on slopes over 15 percent, SDG&E will consult with the Authorized Officer and appropriate land management agency, on a site-by-site basis regarding the use of helicopter construction techniques and the prohibition of access and spur roads. Agency consultations must be conducted and approvals received at least 120 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public or where construction would occur on slopes over 15 percent.
Monitoring/Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands, USFS on USFS-administered lands
Timing	Pre- and during construction.
Interpretation & Approach	Mitigation Measure V-2d would apply to areas where the slope is >15% or the road would be visible from a sensitive public viewing location. However, there could be a particular circumstance where implementation of Mitigation Measure V-2d would be triggered, but given lack of public visibility, it may not be applied (at the discretion of the CPUC, BLM, or USFS). The Lead and Responsible Agencies are considered to be the "Authorized Officer and appropriate land management agency" referenced in the measure, which include BLM on BLM-administered lands, USFS on USFS-administered lands and the City and County of San Diego for City- and County-owned and administered lands, respectively. The CPUC is considered to be an Authorized Officer on all other non-federal private lands. It is the decision of the appropriate land management agency and/or Authorized Officer whether to bring in other agencies to provide review and/or input regarding the measure's applicability.
MITIGATION MEASURE	V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line (USFS Scenery Conservation Plan). CPUC and USFS to review Scenery Conservation Plan at least 120 days prior to start of construction and verify implementation following construction.
Location	Locations of all land scars and vegetation clearance on USFS – administered lands.
Monitoring/Reporting Action	CPUC and USFS to review Scenery Conservation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, USFS
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-3a: Reduce visual contrast of towers and conductors. The following design measures shall be applied to all new structure locations, conductors, and re-conductored spans, in order to reduce the degree of visual contrast caused by the new towers and conductors: • All new conductors and re-conductored spans are to be non-specular in design in order to reduce conductor visibility and visual contrast. • All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Sensitive viewing locations have been defined by Cleveland National Forest as campgrounds, trailheads, trails, wilderness areas, backcountry roads, heavily traveled roads, and overlooks. Access roads of concern are those that would be visible as they directly approach existing or proposed towers in a straight line from locations immediately downhill of the structures. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following: – Definition of towers with sensitive viewing areas from which visibility of access roads is a concern. – Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design. – "Drive and crush" access is a feasible measure for avoiding access road scars (*i.e.,* no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover. – A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each tower (*i.e.,* retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route.
Location	Applies to all tower locations and route segments.
Monitoring/Reporting Action	CPUC and BLM to review Project Design Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	— V-7a: Reduce visual contrast associated with ancillary facilities. SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The Surface Treatment Plan shall include: • Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture • A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation) • Two sets of brochures and/or color chips for each proposed color • A detailed schedule for completion of the treatment • A procedure to ensure proper treatment maintenance for the life of the project.
	— (V-7a) SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC. Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring/Reporting Action	CPUC and BLM to review Surface Treatment Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	7/2/09 – SDG&E will match existing color schemes within existing substations. 8/31/09 – Visual contrast of transmission towers are addressed in measure V-3a in general; however, towers and ancillary facilities within substations are covered here.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-7b: Screen ancillary facilities. SDG&E shall provide a Screening Plan for screening vegetation, walls, and fences that reduces visibility of ancillary facilities (except Imperial Valley Substation) and helps the facility blend in with the landscape. The use of berms to facilitate project screening may also be incorporated into the Plan. SDG&E shall submit the Plan to the BLM and CPUC for review and approval at least 90 days prior to installing the landscape screening. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The plan shall include but not necessarily be limited to: • An 11" x 17" color simulation of the proposed landscaping at 5 years • A plan view to scale depicting the project and the location of screening elements • A detailed list of any plants to be used; their size and age at planting; the expected time to maturity, and the expected height at five years and at maturity
	— (V-7b) SDG&E shall complete installation of the screening prior to the start of project operation. SDG&E shall notify the BLM and CPUC within seven days after completing installation of the screening, that the screening components are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring/Reporting Action	CPUC and BLM to review Screening Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	7/2/09: SDG&E will match existing screening within existing substations.
MITIGATION MEASURE	— V-21a: Reduce night lighting impacts. SDG&E shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-21) SDG&E shall submit a Lighting Mitigation Plan to the CPUC for review and approval at least 90 days prior to ordering any permanent exterior lighting fixtures or components. SDG&E shall not order any exterior lighting fixtures or components until the Lighting Mitigation Plan is approved by the CPUC. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.
Location	Applies to all permanent ancillary facilities including substations, switchyards, series capacitor banks, and optical repeater stations.
Monitoring/Reporting Action	CPUC and BLM to review Lighting Mitigation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-45a Prepare and implement Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify specific actions that will minimize the project's visible disturbance to the naturally established scenery and to establish final direction to best achieve the spirit and intent of the Scenic Integrity Objectives of the Cleveland National Forest Land and Resource Management Plan. To achieve the greatest consistency with the Scenic Integrity Objectives, the project shall detail and integrate the following design recommendations into the Scenery Conservation Plan: • Power Line and Support Towers. Transmission lines shall be nonspecular (nonreflective) and neutral in coloration. Support towers shall be custom-colored with a flat, non-reflective finish, to visually blend with native vegetation colors to appear as visually transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape. • Distance Zones. The Applicant shall consult with the Forest Service on tower design for any approved route on Forest lands and implement tower styles in accordance with agency direction. In general, the USFS requires that support towers within approximately one mile of sensitive primary viewpoints and without a backdrop be a monopole design with a simple, clean and less industrial appearance and support towers viewed beyond one mile from sensitive viewpoints or only at distance be lattice towers. • Vegetation Clearing. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line. • Roads. No new access or spur roads, or improvements (reconstruction/expansion) to existing roads are to be constructed in the following areas: (1) where ground slopes exceed 15%, or (2) on Forest lands subject to a HIGH Scenic Integrity Objective (SIO) where the new access or spur road would be visible from primary travel (paved) roads or the Pacific Crest National Scenic Trail, regardless of ground slope. Existing roads needing reconstruction/expansion on other areas of the forest shall be configured to minimize the creation of cut/fill slopes. Where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species. • Structures. All structures and structural elements, that may be constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character. • Evaluation of Effects. The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives as viewed from sensitive viewsheds. • Off-Site Mitigation. Where project features create unavoidable and permanent negative scenery effects that are inconsistent with CNF Plan Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas in new viewsheds agreeable to the Forest shall be purchased and assigned to the Forest for its stewardship.
Location	Applies to all tower locations, facilities, and route segments within Cleveland National Forest Lands.
Monitoring/Reporting Action	CNF to review Scenery Conservation Plan within one year after license issuance, or prior to any ground disturbing activities.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CNF
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/ Chocolate Canyon transition structures. In order to reduce the structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures, SDG&E shall reconsider the location of the transition structures and attempt to lower their height by either relocating the next tower to shorten the span, or by moving the transition structures further downslope. This measure shall be implemented by SDG&E's submittal of a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the transition structures, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Chocolate Canyon Option.
Monitoring/Reporting Action	CPUC to review and approve SDG&E's fine-tuning of the location of the transition structures and final construction plants 120 days prior to start of construction.
Effectiveness Criteria	The visibility of the Chocolate Canyon Option transition structures will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 5. Mitigation Measures and Applicant Proposed Measures – Visual Resources

MITIGATION MEASURE	V-68a: Eliminate skylining of ridgeline towers and conductors. In order to eliminate the skylining of ridgeline towers and conductors, the ridgeline towers shall be relocated to elevations sufficiently low on the ridge to eliminate structure skylining when viewed from Moreno Boulevard, SR67, and residences on the slopes west of SR67. SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Interstate 8 Alternative.
Monitoring/Reporting Action	CPUC to review and approve SDG&E final construction plans at least 120 days prior to the start of construction.
Effectiveness Criteria	Structure skylining when viewed from Moreno Boulevard, SR67, will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Interpretation & Approach	None required.
VR-APM-1	At highway, canyon, and trail crossings, structures shall be placed at the maximum feasible distance from the crossing to reduce visual impacts as long as other significant resources are not negatively affected. (SDG&E)
Location	Entire project area along highway, canyon, and trail crossing.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
VR-APM-2	SDG&E will use dulled metal finish transmission structures and non-specular conductors in visually sensitive areas including the ABDSP, new ROW in the Central Link and Peñasquitos Junction to Peñasquitos Substation in the Coastal Link. (SDG&E)
Location	Entire project area in visually sensitive areas.
Timing	During construction.
Interpretation & Approach	For the FESSR, this MM is not applicable to the Anza Borrego Desert State Park (ABDSP), the Central Link nor the Peñasquitos Junction to Peñasquitos Substation.
VR-APM-3	Where the line parallels existing transmission lines, the spacing of structures shall match the existing transmission structures, where feasible, to minimize visual effects. (SDG&E)
Location	Entire project area where the line parallels existing transmission lines (*e.g.,* MP I8-0 to MP I8-35)
Timing	Pre- and during construction.
Interpretation & Approach	None required.
VR-APM-4	No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
VR-APM-5	Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence where possible. SDG&E will consult with affected property owners on structure siting to reduce land use and visual impacts. (SDG&E)
Location	Entire project area near residences.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
VR-APM-6	In scenic view areas as designated by land management agencies, structures would be placed to avoid sensitive features and/or allow conductor to clearly span the features, within limits of standard design where possible. (SDG&E)
Location	Entire project area in scenic view areas.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 6. Mitigation Measures and Applicant Proposed Measures – Land Use

MITIGATION MEASURE	— L-1a: Prepare Construction Notification Plan. Forty-five days prior to construction, SDG&E shall prepare and submit a Construction Notification Plan to the CPUC and the BLM for approval. The Plan shall identify the procedures SDG&E will use to inform property and business owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. The plan shall address at a minimum the following components: • Public notice mailer. A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, or require a detour to access existing residential properties, retail and commercial businesses, wilderness and recreation facilities, and public facilities (*e.g.,* schools and memorial parks). The notice shall state the type of construction activities that will be conducted, and the location and duration of construction, including all helicopter activities. SDG&E shall mail the notice to all residents or property owners within 1,000 feet of the right-of-way, any property owners or tenants that could be impacted by construction activities and specific public agencies with facilities that could be impacted by construction. If construction delays of more than seven days occur, an additional notice shall be prepared and distributed.
	— (L-1a) • Newspaper advertisements. Fifteen days prior to construction, within a route segment, notices shall be placed in local newspapers and bulletins, including Spanish language newspapers and bulletins. The notice shall state when and where construction will occur and provide information on the public liaison person and hotline identified below. If construction is delayed for more than seven days, an additional round of newspaper notices shall be placed to discuss the status and schedule of construction.
	— (L-1a) • Public venue notices. Thirty days prior to construction, notice of construction shall be posted at public venues such as trail crossings, rest stops, desert centers, resource management offices (*e.g.,* Bureau of Land Management field offices, Anza-Borrego Desert State Park offices and campgrounds, Cleveland National Forest Ranger Stations), and other public venues to inform residents and visitors to the purpose and schedule of construction activities. For public trail closures, SDG&E shall post information on the trail detour at applicable resource management offices and post the notice on the trail within two miles of the detour. For recreation facilities, the notice shall be posted along the access routes to known recreational destinations that would be restricted, blocked, or detoured and shall provide information on alternative recreation areas that may be used during the closure of these facilities.
	— (L-1a) • Public liaison person and toll-free information hotline. SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring property owners about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and shall develop procedures for responding to callers. Procedures for handling and responding to calls shall be addressed in the Construction Notification Plan.
Location	Construction activity in all segments.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E submits Construction Notification Plan, which identifies complete notification and public inquiry process.
Effectiveness Criteria	Residents, landowners and others potentially impacted are informed of construction activities; procedures are established and documented for taking and responding to construction comments and concerns.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.

Table 6. Mitigation Measures and Applicant Proposed Measures – Land Use

Interpretation & Approach	Reference to ABDSP is not applicable to FESSR. The measure states that the Plan shall "identify approvals that are needed prior to posting or publication of construction notices." Approvals from the CPUC, BLM (on BLM-administered land) and USFS (on USFS-administered land) have been identified as the only approvals that are needed prior to posting construction notification.
MITIGATION MEASURE	L-1c: Coordinate with MCAS Miramar. At least 90 days before construction, SDG&E shall provide all required project engineering details to MCAS Miramar for review and approval. Information provided shall include access roads to be used, expanded, or added. Information shall also include completed and authorized FAR Part 77 evaluations (Form 7460-1) for all objects exceeding the Outer Horizontal Surface (978 Ft AMSL) at MCAS Miramar. SDG&E shall provide the CPUC and BLM with evidence of its coordination with MCAS Miramar at least 60 days prior to the start of construction. When any towers are to be removed on MCAS Miramar, all portions of the towers/poles shall be removed. Cutting poles and leaving buried portions is not acceptable on MCAS Miramar lands.
Location	Construction activity within MCAS Miramar.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E coordinates with MCAS Miramar.
Effectiveness Criteria	SDG&E submits documentation of its coordination with MCAS Miramar.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	— L-2b: Revise project elements to minimize land use conflicts. At least 90 days prior to completing final transmission line design for the approved route, SDG&E shall notify landowners of parcels through which the alignment would pass regarding the specific location of the ROW, individual towers, staging areas, pull sites, access roads, or other facilities associated with the project that would occur on the subject property or within 1,000 feet of the property. The notified parties shall be provided at least 30 days in which to identify conflicts with any existing structures or planned development on the subject property and to work with SDG&E to identify potential reroutes of the alignment that would be mutually acceptable to SDG&E and the landowner. Property owners whose land may be divided into potentially uneconomic parcels shall be afforded this same opportunity, even if development plans have not been established. SDG&E shall endeavor to accommodate these reroutes only to the extent that they are reasonable and feasible, do not create a substantial increase in cost, and do not create adverse impacts to resources or to other properties that would be greater in magnitude than impacts that would occur from construction and operation of the alignment as originally planned.
	— (L-2b) At or before the time property owners are notified and based on SDG&E's own review of the alignment and facilities, SDG&E shall provide CPUC and BLM a written report identifying properties that are suspected of having a land use conflict as described above. This report shall identify and characterize existing buildings within the ROW and residences or occupied structures within or adjacent to the ROW, with which the alignment or other permanent facilities may conflict.
	— (L-2b) SDG&E shall provide a written report to the CPUC and BLM providing evidence of the notice provided to landowners and copies of any responses to the notice within 30 days of the notice closing date for responses. SDG&E shall also identify in the documentation submitted to CPUC and BLM whether reroutes recommended by the landowner or SDG&E can be accommodated. Where they cannot be accommodated, the reasons shall be provided. SDG&E shall provide information sufficient for the CPUC and BLM to determine that the reroute creates no more adverse impact than the originally planned alignment location. SDG&E shall include environmental information consistent with that required for a Variance (as defined in Section I, Mitigation Monitoring). Where a reroute is proposed, the CPUC and BLM will review and agree to accept or reject individual reroutes. CPUC and BLM also may recommend compromise reroutes for any of the parcels for which responses were provided to SDG&E in a timely fashion.

Table 6. Mitigation Measures and Applicant Proposed Measures – Land Use

	— (L-2b) The following specific modifications shall be developed by SDG&E, following the procedures defined above: Interstate 8 Alternative: MP I8-87 through I8-89.5, High Meadow Ranch. The initial alignment shall be shifted approximately 200 feet to the west, downslope, in order to minimize visual effects of the towers on the development. See Figure Ap.11C-56 for map of this area. Interstate 8 Alternative: MP I8-92 to I8-92.7, Private home. The alignment shall be shifted to the east side of Highway 67, to a point just south of the Preserve parking lot, where the alignment would cross Highway 67 to join the Proposed Project route. See Figure Ap.11C-57 for map of this area. Star Valley Option Revision: SDG&E shall work with affected landowners to refine the route in order to minimize effects on private properties along Star Valley Road.
Location	Along Interstate 8 Alternative and other Alternatives along the SWPL corridor
Monitoring/Reporting Action	Confirm receipt of notice and results prior to final design
Effectiveness Criteria	Provision of a report indicating contents of notice, distribution of notice, and any responses and their resolution.
Responsible Agency	CPUC and BLM
Timing	Pre- and during construction.
Interpretation & Approach	8/31/09 – The 1000 foot measurement referenced for affected properties will be measured from the center line of the structure alignment
LU-APM-1	SDG&E will provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and will appoint a public affairs officer to address public concerns or questions. (SDG&E)
Location	Entire project area where residences are within 300 feet.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-2	Place new transmission structures more than 330 feet from an existing residence to the extent feasible. (SDG&E)
Location	Entire project area near existing residences.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-4	To facilitate access to properties obstructed by construction activities, SDG&E will notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-5	To remedy encroachment and safety conflicts with irrigation canals and flood management structures during construction, SDG&E will coordinate construction activities with appropriate water management representatives. (SDG&E)
Location	Entire project area along irrigation canals and flood management structures.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-6	The limits of construction activities within and outside the ROW will typically be predetermined, with activity restricted to and confined within those limits. The ROW boundary and limits of construction activity inside and outside the ROW will be flagged in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 6. Mitigation Measures and Applicant Proposed Measures – Land Use

LU-APM-7	To the extent feasible, project facilities would be installed along the edges or borders of private property, open space parks, and recreation areas. When it is not feasible to locate project facilities along property borders, SDG&E would consult with affected property owners to identify facility locations that create the least potential impact to property and are mutually acceptable to property owners to the extent feasible. SDG&E would pay just compensation to affected property owners based upon the impact to the property caused by the facility locations identified by SDG&E. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-8	SDG&E will continue its current coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans. (SDG&E)
Location	San Diego and Imperial Counties and the City of San Diego
Timing	Pre- and during construction.
Interpretation & Approach	None required.
LU-APM-9	SDG&E would obtain all necessary and/or appropriate ministerial land use permits. (SDG&E)
Location	Entire project area.
Timing	Pre-construction.
Interpretation & Approach	None required.
LU-APM-10	SDG&E will match structure locations with existing transmission facilities where feasible and appropriate. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 7. Mitigation Measures and Applicant Proposed Measures – Wilderness and Recreation

MITIGATION MEASURE	WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area. No less than 60 days prior to construction, SDG&E shall coordinate construction activities and the project construction schedule with the authorized officer for the recreation areas listed below. SDG&E shall schedule construction activities to avoid heavy recreational use periods in coordination with and at the discretion of the authorized officer. SDG&E shall locate construction equipment to avoid temporary preclusion of recreation areas in accordance with the recommendation of the authorized officer. SDG&E shall document its coordination efforts with the authorized officer and provide this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • Trans-County Trail (County of San Diego Regional Trail) • Pacific Crest National Scenic Trail (County of San Diego Regional Trail) • California Riding and Hiking Trail (County of San Diego Regional Trail) • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in or adjacent to the recreation areas listed above.
Monitoring/Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers for the listed recreation areas.
Effectiveness Criteria	Construction activities are scheduled to avoid heavy recreational use periods; construction equipment is located to avoid temporary preclusion of recreation areas.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Interpretation & Approach	Juan Bautista de Anza National Historic Trail nor for BLM Dunaway Camp not applicable to FESSR.
MITIGATION MEASURE	WR-1b: Provide temporary detours for trail users. No less than 60 days prior to construction, SDG&E shall coordinate with the authorized officer of the trails listed below to establish temporary detours of the trails to avoid construction area hazards, if the trail is deemed unsafe to use during construction. Should new trail segments be constructed as detours during construction, the temporary new trail segments would be sited to avoid sensitive resources, in coordination with the authorized officer of the trail or recreation area, and would be restored to pre-construction condition by SDG&E when SRPL construction is complete, if required by the authorized officer of the trail or recreation area. SDG&E shall post a public notice of the temporary trail closure and information on the trail detour. SDG&E shall document its coordination efforts with the authorized officer and submit this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Mission Trails Regional Park (Fortuna, Rim, and Quarry Loop Trails)
Location	Construction activity in or adjacent to the trails listed above.
Monitoring/Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed trails.
Effectiveness Criteria	Temporary detours of the trails are established to avoid construction area hazards; temporary new trail segments are sited to avoid sensitive resources and restored to pre-construction condition when construction is complete; public is notified of trail closures and detours.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Interpretation & Approach	Juan Bautista de Anza National Historic Trail not applicable to FESSR.

Table 7. Mitigation Measures and Applicant Proposed Measures – Wilderness and Recreation

MITIGATION MEASURE	WR-1c: Coordinate with local agencies to identify alternative recreation areas. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local parks and recreational facilities listed below at least 60 days before construction in order to identify alternative recreation facilities that may be used by the public during construction. SDG&E shall post a public notice at recreation facilities that are to be closed or where access would be limited during project construction. SDG&E shall document its coordination efforts with the parks and recreation departments and provide this documentation to the CPUC, BLM, and all affected park jurisdictions 30 days prior to construction. • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in all segments.
Monitoring/Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed parks and recreational facilities.
Effectiveness Criteria	Alternative recreation facilities are identified for use by public during construction; public notice is posted at recreation facilities that are closed or have limited access during construction.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Interpretation & Approach	Juan Bautista de Anza National Historic Trail nor for BLM Dunaway Camp not applicable to FESSR.
MITIGATION MEASURE	WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation. SDG&E shall relocate the overhead 500 kV transmission line along the southern boundary of JAM properties as shown in Figure E.2.1-b to shorten the route and minimize effects on BLM land, Forest land, and private property. This reroute and its ground-disturbing components shall avoid Back Country Non-Motorized land use zones of the Cleveland National Forest, while also minimizing towers and disturbance on private property. SDG&E shall submit a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the BCD Alternative Revision, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	BCD Alternative Revision
Monitoring/Reporting Action	Memo and final construction plans to CPUC
Effectiveness Criteria	A reroute is developed that minimizes impacts to Back Country Non-Motorized zones and towers/disturbance on private lands
Responsible Agency	CPUC; BLM; USFS
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	WR-2b: Evaluate and Implement PCT Route Revision. SDG&E shall consult and coordinate with the U.S. Forest Service, BLM, and the Pacific Crest Trail Association to develop route options for revising the PCT so it would cross the Modified Route D Alternative only once, rather than three times. SDG&E shall prepare and submit a report to the BLM and U.S. Forest Service prior to energizing the new transmission line. The report shall identify feasible PCT relocation options, and, under the direction of the federal agencies, shall evaluate whether its construction and restoration of the old trail segment would create overall greater impacts than those created by three crossings of the PCT that would occur with the Modified Route D Alternative.
	— (WR-2b) If directed by the BLM, SDG&E shall be responsible for constructing the new trail segment and restoring the old trail segment in manner acceptable to the BLM and U.S. Forest Service. Trail construction and restoration shall be completed within one year of energizing the transmission line.
Location	Modified Route D Alternative at PCT Crossing

Table 7. Mitigation Measures and Applicant Proposed Measures – Wilderness and Recreation

Monitoring/Reporting Action	Consult and coordinate with USFS, BLM, and Pacific Crest Trail Association
Effectiveness Criteria	PCT relocation options are identified and implemented at the direction of the agencies
Responsible Agency	USFS; BLM
Timing	Post construction, pre-energizing the line.
Interpretation & Approach	None required.
MITIGATION MEASURE	— WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area. Where the Proposed Project crosses the recreation areas listed below, SDG&E shall coordinate with the authorized officer for the recreation area to determine specific tower site and spur road locations in order to minimize impacts to recreational resources. If it is not feasible to site structures outside of a park/preserve, compensation shall be required for permanent impacts (*i.e.,* structure footings, access roads not dually used as trails) to park/preserve land at a 1:1 ratio. However, this mitigation measure is superseded by biological resource Mitigation Measure B-1a, which specifies restoration and compensation ratios for affected vegetation. In cases where the impacts to recreational resources occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (WR-3a) In consultation with the authorized officer of the trail or recreation area, access roads shall not be located on trails (*e.g.,* PCT, Trans-County Trail) unless the authorized officer determines that the construction of new access roads would result in greater impacts than modifying the trail for use as an access road. If it is not feasible to site transmission structures off of a trail, SDG&E shall provide full funding for relocation of trail segments, including planning and trail construction, at location(s) identified by the authorized officer of the trail or recreation area. Trail segment relocation shall maintain the connectivity of regional and community trails.
	— (WR-3a) This coordination shall occur no less than 60 days prior to the start of construction. SDG&E shall document its coordination with the authorized officer and shall submit this documentation to the CPUC, BLM, and ABDSP, at least 30 days prior to project construction. • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • San Vicente Highlands Open Space Preserve
Location	Central Link; Anza-Borrego Link; Inland Valley Link
Monitoring/Reporting Action	CPUC, BLM, and ABDSP verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed recreation areas.
Effectiveness Criteria	Tower sites and spur road locations minimize impacts to recreation resources; roads are not located on trails unless there would be greater impacts from doing otherwise.
Responsible Agency	CPUC, BLM, and ABDSP.
Timing	Pre- and during construction.
Interpretation & Approach	Juan Bautista de Anza National Historic Trail nor for Cleveland National Forest not applicable to FESSR. Reference to ABDSP is not applicable to FESSR.
R-APM-2a	Advance notice of restriction of conflicts with access routes to recreational use areas will be provided. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
R-APM-2b	No construction that affects trail use will be conducted in that area on federal holidays. (SDG&E)
Location	Entire project area near trails (recreational use areas).
Timing	During construction.
Interpretation & Approach	None required.

Table 7. Mitigation Measures and Applicant Proposed Measures – Wilderness and Recreation

R-APM-2c	SDG&E will coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department and the California State Parks Department (for ABDSP), respectively, before construction begins in these areas. (SDG&E)
Location	Entire project area near parklands and trail systems.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
R-APM-2d	Signs directing vehicles to alternative park access and parking will be posted in the event construction temporarily obstructs parking areas near trailheads. (SDG&E)
Location	Entire project area in areas near trailheads.
Timing	During construction.
Interpretation & Approach	None required.
R-APM-2e	Signs advising recreation users of construction activities and directing them to alternative trails or bikeways will be posted on both sides of all trail intersections or as determined through SDG&E's coordination with the respective jurisdictional agencies. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
R-APM-2f	Where helicopters are used for construction, signage advising equestrians of construction timeframes with helicopter use will be posted at all equestrian trail-access points within the vicinity of the flight paths. These signs will be checked and maintained regularly. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 8. Mitigation Measures and Applicant Proposed Measures – Agricultural Resources

MITIGATION MEASURE	AG-1a: Avoid interference with agricultural operations. The Applicant shall coordinate with property owners and tenants to ensure that project construction will be conducted so as to avoid or minimize interference with agricultural operations. Agricultural operations include, but are not limited to, the use of farm vehicles and equipment, access to property; water delivery, drainage, and irrigation. This shall occur sixty (60) days prior to the start of project construction.
Location	Locations where the project could interfere with agricultural operations
Monitoring/Reporting Action	CPUC/BLM monitors verify that signed agreements between SDG&E and affected landowners have been submitted, and ensure that construction schedules occur during time periods agreed upon in the agreement and that agreed upon restoration occurs.
Effectiveness Criteria	Affected landowners are in agreement with construction activities
Responsible Agency	CPUC, BLM Offices
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	AG-1b: Restore compacted soil. The Applicant shall restore soils compacted or disturbed such as by excavation during construction by conferring with the property owner or tenant to identify and then implement a mutually agreed means to restore such soils. Restoration actions may include, but are not be limited to, disking, plowing, removal of excavated soil, or other suitable restoration methods. This shall occur thirty (30) days after completion of construction clean-up and site restoration at each property.
Location	Locations where changes to the existing environment due to construction activities could result in compacted soil.
Monitoring/Reporting Action	After construction is completed, land is restored per agreement with landowner. Monitors will verify that restoration activity has been completed and landowner has concurred that restoration effort is consistent with original agreement. SDG&E shall provide copies of the original agreements and the restoration concurrence acknowledgement from the landowner.
Effectiveness Criteria	Affected landowners are in agreement with restoration
Responsible Agency	CPUC, BLM Offices
Timing	Post construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	AG-1c: Coordinate with grazing operators. SDG&E shall coordinate with grazing operators to ensure that agricultural productivity and animal welfare are maintained both during and after construction to the maximum extent feasible. Coordination efforts will address issues including, but not necessarily limited to: • Interference with access to water (*e.g.,* provide alternate methods for livestock access to water) • Impairment of cattle movements (*e.g.,* provide alternate routes; reconfigure fencing/gates) • Removal and replacement of fencing (*e.g.,* during construction install temporary fencing/barriers, as appropriate, and following construction restore equal or better fencing to that which was removed or damaged) • Impacts to facilities such as corrals and watering structures, as well as related effects such as ingress/egress, and management activities (*e.g.,* replacement of damaged/removed facilities in kind; provide alternate access) This shall occur Sixty (60) days prior to the start of project construction and Thirty (30) days after construction on each property.
Location	Locations where the project could interfere with grazing operations

Table 8. Mitigation Measures and Applicant Proposed Measures – Agricultural Resources

Monitoring/Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Coordination has been conducted with appropriate landowners or tenants and reasonable procedures to implement the mitigation measure have been agreed to by all parties.
Responsible Agency	CPUC, BLM Offices
Timing	Pre-, during and post construction.
Interpretation & Approach	8/31/09: There are no grazing operators directly affected by this route.
MITIGATION MEASURE	AG-3b: Consult with and inform aerial applicators. The Applicant shall consult with landowners and the County Farm Bureaus to determine which aerial applicators operate in the county. The Applicant shall provide written notification to all aerial applicators working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected. The Applicant shall also provide all aerial applicators, the County Farm Bureaus, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to agricultural lands. This shall occur Sixty (60) days prior to erection of any structure that could affect aerial applicator operations.
Location	Locations where changes to the existing environment could result in interference with dairy operations.
Monitoring/Reporting Action	Verify coordination has taken place and actions called for in Mitigation Measure AG-3b have been implemented.
Effectiveness Criteria	Communications have been provided to all aerial applicators operating in affected areas.
Responsible Agency	CPUC, BLM
Timing	Pre-construction.
Interpretation & Approach	None required.
LU-APM-3	1. Farmers will be compensated for losses of crops along ROW based upon a professional appraisal. 2. Construction activities in croplands will be scheduled to minimize or avoid planting, growing, and harvesting seasons to the extent feasible. (SDG&E)
Location	Entire project area near agriculture lands.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	— C-1a: Inventory and evaluate cultural resources in Final Area of Potential Effect (APE). Prior to construction and all other surface disturbing activities, the Applicant shall have conducted and submitted for approval by the BLM and CPUC an inventory of cultural resources within the project's final Areas of Potential Effect.* This survey shall supplement inventories conducted for the EIS/EIR and shall satisfy Section 106 requirements for inventory of historic properties within all Areas of Potential Effect. The nature and extent of this inventory shall be determined by the BLM and CPUC in consultation with the appropriate State Historic Preservation Officer (SHPO) and other land-managing agencies (*e.g.,* Anza-Borrego Desert State Park, U.S. Forest Service, Bureau of Indian Affairs, etc.) and shall be based upon project engineering specifications and in accordance with the Secretary of the Interior's Standards and Guidelines (Secretary's Standards) (36 CFR 61). (* Area of Potential Effect is the horizontal and vertical extent of anticipated impacts that could affect historic properties. This includes direct impacts (physical disturbance from any project activity during or after construction) and indirect impacts, such as noise, vibration, visual intrusion, or erosion.)
	— (C-1a) A report documenting results of this inventory shall be filed with appropriate State repositories and local governments. As part of the inventory report, the Applicant shall evaluate the significance of all potentially affected cultural resources on the basis of surface observations Evaluations shall be conducted by professionals meeting the Secretary's Standards and in accordance with those Standards to provide recommendations with regard to their eligibility for the NRHP, CRHR, or local registers. Preliminary determinations of NRHP eligibility will be made by the BLM, in consultation with the CPUC and other appropriate agencies and local governments, and the SHPO.
	— (C-1a) As part of the inventory, the Applicant shall conduct field surveys of sufficient nature and extent to identify cultural resources that would be affected by tower pad construction, reconductoring activities, trenching for underground transmission lines, access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, new tower sites, and any other projected areas of potential ground disturbance outside of the previously surveyed potential impact areas. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded resource locations. The selected right-of-way and tower locations shall be staked prior to the cultural resource field surveys.
Location	All locations within potential ground-disturbing activities.
Monitoring/Reporting Action	BLM, CPUC, ABDSP, and USFS, where applicable, to review inventory findings and eligibility evaluation.
Effectiveness Criteria	Identification and preliminary evaluation of all resources within areas of potential ground disturbance.
Responsible Agency	BLM and CPUC; ABDSP and USFS where applicable.
Timing	Pre-construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	— C-1b: Avoid and protect potentially significant resources. Where feasible, potentially register-eligible resources and register-eligible resources shall be protected from direct project impacts by project redesign; complete avoidance of impacts to such resources shall be the preferred protection strategy. On the basis of preliminary National Register of Historic Places (NRHP) eligibility assessments (Mitigation Measure C-1a) or previous determinations of resource eligibility, the BLM and CPUC, in consultation with the SHPO, may request the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.
	— (C-1b) Where the BLM and CPUC, in consultation with the Applicant, decide that potentially NRHP- and/or CRHR-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies to evaluate the resources' NRHP- and/or CRHR-eligibility and to recommend further mitigative treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the CPUC and the SHPO and shall be based upon final project engineering specifications. Evaluations shall be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
	— (C-1b) All potentially NRHP- and/or CRHR-eligible resources (as determined by the BLM and CPUC, in consultation with the SHPO) that will not be affected by direct impacts, but are within 50 feet of direct impact areas shall be designated as Environmentally Sensitive Areas (ESAs) to ensure that construction activities do not encroach on site peripheries. Protective fencing, or other markers (after approval by CPUC/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of a Historic Properties Treatment Plan and implemented by the Applicant to ensure the effectiveness of ESA protection (as detailed in Mitigation Measure C-1e).
Location	All locations within ground-disturbing activities with potentially NRHP-eligible resources.
Monitoring/Reporting Action	• BLM and CPUC review final construction drawings and rationale for necessity of impacting potentially NRHP-eligible resources. • BLM and CPUC review NRHP-eligibility recommendations. BLM forwards NRHP-eligibility determinations to appropriate SHPO. • BLM and CPUC verify location and protective measures of all ESAs.
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	— C-1c: Develop and implement Historic Properties Treatment Plan. Upon approval of the inventory report and the National Register of Historic Places (NRHP)-eligibility and CRHR-eligibility evaluations consistent with Mitigation Measures C-1a (Inventory and evaluate cultural resources in Final APE) and C-1b (Avoid and protect potentially significant resources), the Applicant shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) for register-eligible cultural resources to avoid or mitigate identified potential impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations, as explicated in Section D.7.8. Avoidance, recordation, and data recovery will be used as mitigation alternatives; avoidance and protection shall be the preferred strategy. The HPTP shall be submitted to the BLM and CPUC for review and approval.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

	— (C-1c) As part of the HPTP, the Applicant shall prepare a research design and a scope of work for evaluation of cultural resources and for data recovery or additional treatment of NRHP- and/or CRHR-eligible sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where burials, cremations, or sacred features are discovered that cannot be avoided (see Mitigation Measure C-2).
	— (C-1c) The HPTP shall define and map all known NRHP- and/or CRHR-eligible properties in or within 50 feet of all project APEs and shall identify the cultural values that contribute to their NRHP- and/or CRHR-eligibility. The HPTP shall also detail how NRHP- and/or CRHR-eligible properties shall be marked and protected as ESAs (in accordance with Mitigation Measure C-1b) during construction.
	— (C-1c) The HPTP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried register-eligible cultural resources, including burials, cremations, or sacred features. This sensitivity evaluation shall be conducted by an archaeologist who meets the Secretary's Standards and who takes into account geomorphic setting and surrounding distributions of archaeological deposits. The HPTP shall detail provisions for monitoring construction in these high-sensitivity areas for proper implementation of Mitigation Measures C-1e and C-3a. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing register-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the HPTP shall detail the methods, the consultation procedures, and the timelines for assessing register-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM and CPUC, other appropriate agencies and local governments, appropriate Native Americans, and the SHPO prior to implementation.
	— (C-1c) The HPTP shall also identify all historic built environment resources (structures, roads, dams, etc.) that would be affected indirectly by visual intrusion of the Proposed Project on qualities that contribute to their register eligibility. Although the current analysis has assessed the potential for indirect visual impacts to previously recorded historic built environment resources within 0.5 miles of the Proposed Project and Alternatives, the HPTP shall include an identification effort focused on identifying any such resources that may not have been previously recorded. The scope of this identification effort shall be in accordance with 36 CFR 800, which requires a reasonable effort to identify potentially NRHP-eligible resources that would be adversely affected by indirect project impacts. The HPTP shall also detail the treatment for each affected resource that will minimize those long-term visual impacts (as detailed in Mitigation Measure C-6a).
	— (C-1c) The HPTP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary's Standards (per 36 CFR 61).
Location	All locations within ground-disturbing activities with potentially NRHP-eligible resources.
Monitoring/Reporting Action	• BLM and CPUC review and approve HPTP. • BLM conduct required Native American consultation. • BLM draft and negotiate appropriate agreement document for appropriate signatures (BLM, SHPOs, Advisory Council on Historic Preservation, Native American Tribes).
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	— C-1d: Conduct data recovery to reduce adverse effects. If NRHP- and/or CRHR-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP- and/or CRHR-eligibility. For sites eligible under Criterion (d), significant data would be recovered through excavation and analysis.
	— (C-1d) For properties eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC.
	— (C-1d) Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories, local governments, and other appropriate agencies. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate, to ensure that impacts to known significant archaeological deposits are adequately mitigated. Field closure report prior to construction within 100 ft of affected resource. Final report of data-recovery investigations within one year of completion of fieldwork.
Location	Within 100 ft of resources identified in HPTP that require data-recovery mitigation.
Monitoring/Reporting Action	• BLM and CPUC review and approve field closure report of data-recovery fieldwork. • BLM and CPUC review and approve final report of data recovery, curation of artifacts and data, and dissemination of final report.
Effectiveness Criteria	Data-recovery investigations, curation, and reporting fulfill all requirements of the agreement document promulgated with the Advisory Council.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	— C-1e: Monitor construction at known ESAs. The Applicant shall implement full-time archaeological monitoring by a professional archaeologist during ground-disturbing activities at all cultural resource Environmentally Sensitive Areas (ESAs). These locations and their protection boundaries shall be defined and mapped in the HPTP. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM and CPUC. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. The monitoring plan in the HPTP shall indicate the locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The Applicant shall retain and schedule any required Native American monitors.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

	— (C-1e) Compliance with and effectiveness of any cultural resources monitoring required by an HPTP shall be documented by the Applicant in a monthly report to be submitted to the BLM and CPUC for the duration of project construction. In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted to a buffer distance determined by the archaeological monitor until authorization to resume work has been granted by the BLM and CPUC.
	— (C-1e) The Applicant shall notify the BLM of any damage to cultural resource ESAs. If such damage occurs, the Applicant shall consult with the BLM and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the BLM and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection within or outside the license area, at the discretion of the BLM.
Location	All locations identified in the HPTP.
Monitoring/Reporting Action	• BLM, and CPUC, as well as ABDSP and USFS, as appropriate, review and approve monthly monitoring reports. • BLM and CPUC receive and act on reports of failure of ESAs to protect cultural resources.
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activities.
Responsible Agency	BLM and CPUC.
Timing	During construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	— C-1f: Train construction personnel. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.
	— (C-1f) The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources. • The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.
Location	Entire project.
Monitoring/Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	• Cultural resources are not adversely affected by construction activities. • All infractions are corrected.
Responsible Agency	BLM and CPUC.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

Timing	Pre- and during construction.
Interpretation & Approach	Will implemented with PAL-1e; fulfills MM CR-APM-1
MITIGATION MEASURE	— C-1g Avoid and protect Old Highway 80 (P-37-024023). A portion of the Interstate 8 Alternative would be constructed underground within Alpine Boulevard; from approximately MP 74.3 to MP 80 of this underground segment, Alpine Boulevard is also Old Highway 80. Construction impacts to contributing elements of this resource shall be minimized by avoidance of highway segments that retain integrity, as well as associated historic road signs and monuments located on the shoulder. If avoidance is not possible, affected segments shall be formally evaluated to assess their contribution to the NRHP eligibility of the resource as a whole. Additional protective measures are required to reduce adverse effects include formal documentation (*i.e.,* HABS/HAER), and interpretive signage.
Location	From approximately MP I8-74.3 to MP I8-80 of the Interstate 8 Alternative.
Monitoring/Reporting Action	• CPUC and BLM review assessment of NRHP eligibility. • CPUC and BLM verify implementation of protective measures and/or interpretive signage
Effectiveness Criteria	Cultural resources are not adversely affected by construction activities.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	— C-2a: Properly treat human remains. All locations of known Native American human remains shall be avoided through project design and shall be protected by designation as ESAs. If the approved project route will affect sites known to contain human remains that cannot be avoided in their entirety during construction, the Applicant shall contact the California Native American Heritage Commission (NAHC). The NAHC will identify the Most Likely Descendant (MLD), within 48 hours, who will specify the preferred course of treatment in the event that additional human remains are discovered. The Applicant shall also contact the BLM (lead federal agency for the Proposed Project) and any additional land management agencies if the site is located on public lands administered by a State or federal agency other than the BLM. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains (see Section D.7.7). The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations.
	— (C-2a) If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.
	— (C-2a) Although subject to the recommendations of the MLD, it is likely that the human remains would be respectfully removed by the MLD and/or qualified archaeologists and reinterred in an area not subject to impacts from the Proposed Project. The reinterment location may be identified as a nearby locale within SDG&E ROW, or an off-site location may be selected. The Applicant shall assist and support the MLD in identifying, acquiring, and protecting the reinterment location.
Location	Entire project.
Monitoring/Reporting Action	• Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC conduct and document consultation with appropriate Native American tribes and agencies. • BLM and CPUC document final disposition or treatment of Native American human remains.
Effectiveness Criteria	Adverse effects to human remains are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

Timing	Pre- or during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	— C-3a: Monitor construction in areas of high sensitivity for buried resources. The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the Historic Properties Treatment Plan (HPTP) as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains. These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CPUC. Monitoring shall be conducted in accordance with procedures detailed in Mitigation Measure C-1e
	— (C-3a) Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist shall consult with the BLM or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.
Location	Areas of high sensitivity for buried resources per HPTP.
Monitoring/Reporting Action	• BLM, and CPUC, as well as ABDSP and USFS, as appropriate, review and approve monthly monitoring reports. • Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC receive and act on reports of failure of ESAs to protect cultural resources.
Effectiveness Criteria	Adverse effects to buried archaeological resources are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	C-4a: Complete consultation with Native American and other Traditional Groups. The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the approved project on Traditional Cultural Properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
Location	Entire Project.
Monitoring/Reporting Action	• Signature of agreement documents for treatment of TCPs. • Written documentation and approval by BLM and CPUC of completion of required treatment.
Effectiveness Criteria	TCPs and other resources of Native American concern are treated in accordance with agreements that are made during consultation.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	— C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties. The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP- and/or CRHR)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for NRHP- and/or CRHR-eligible properties within the transmission line corridor that will experience operational and access impacts as a result of the Proposed Project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting NRHP- and/or CRHR-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to NRHP- and/or CRHR-eligible properties. The plan shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies for review and approval at least 30 days prior to project operation.
	— (C-5a) Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies within one month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM, CPUC, or other land-managing agency, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.
	— (C-5a) If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP- and/or CRHR)-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM, CPUC, or other appropriate land-managing agency become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement additional protective measures, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such measures may include, but not be limited to refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection. 30 days prior to and during project operation. During operation, annually for 5 years. Thereafter, on a schedule determined by BLM and CPUC and/or immediately upon discovery of adverse changes to NRHP or CRHR-eligible property.
Location	All locations identified in long-term protection plan.
Monitoring/Reporting Action	BLM and CPUC review and approval of long-term protection plan; compliance with reporting and monitoring provisions in the approved protection plan. Following construction, annual site monitoring; immediate notification to BLM and CPUC of adverse changes.
Effectiveness Criteria	Known cultural resources are not affected by long-term project operation and adverse changes to NRHP and CRHR-eligible properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	C-6a: Reduce adverse visual intrusions to historic built environment properties. All known historic built environment resources located within 0.5 miles of the Proposed Project shall be inventoried and subjected to a visual analysis to assess which resources would be subject to potential indirect visual intrusions resulting from the project. This inventory will supplement the analysis of built environment resources conducted for the EIS/EIR, and shall meet the requirements of Section 106 to inventory historic properties that could be adversely affected by the Proposed Project. The Applicant shall inventory potentially register-eligible built environment resources within an Area of Potential Indirect Effect established by the BLM and CPUC. A qualified (Secretary of the Interior Standards) professional shall assess the potential for visual intrusions on the qualities that qualify any historic properties within the APE for register eligibility. The results of this inventory shall be included in the HPTP. If any historic properties are identified that would be adversely affected by visual intrusions from the Proposed Project, the HPTP shall also specify mitigation measures that would be implemented to reduce adverse effects, such as screening the visual intrusion with vegetation, moving project towers to less conspicuous locations, if technically feasible, or altering towers to reduce any identified adverse effects. Selection of appropriate and effective treatments shall consider technical feasibility of the measures and potential impacts on other sensitive resources or land uses.
Location	All locations identified in HPTP. Mitigation Measures C-6b and V-3a in Anza-Borrego Link.
Monitoring/Reporting Action	BLM and CPUC review and approval of HPTP; compliance with reporting and monitoring provisions in the approved protection plan.
Effectiveness Criteria	Known historic built environment properties are not affected by construction and long-term project operation and adverse changes to NRHP and CRHR-eligible historic built environment properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	C-6e: Reduce adverse visual intrusions to portions of Old Highway 80. Visual intrusion by the aboveground portion of this alternative, on portions of Old Highway 80 that retain integrity of setting shall be minimized by a combination of minimizing tower height and screening. . In addition, since segments of Old Highway 80 would be crossed by the overhead portion of the alternative, compensatory mitigation including new signage shall be employed. If this alternative is constructed, as part of the Historic Properties Treatment Plan (Mitigation Measure C-1c) SDG&E shall include a protection plan for Old Highway 80 that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options.
Location	On portions of Old Highway 80 along the Interstate 8 Alternative.
Monitoring/Reporting Action	CPUC and BLM to review and comment on protection plan for Old Highway 80 submitted as part of the Historic Properties Treatment Plan (see Mitigation Measure C-1c).
Effectiveness Criteria	Adverse changes to visual qualities along Old Highway 80 are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	C-6f: Reduce adverse visual intrusions to the Desert View Tower viewshed. Visual intrusion to the Desert View Tower viewshed, caused by the aboveground portion of this alternative shall be minimized by a combination of minimizing tower height, screening, and painting towers to match the surroundings. Specific measures to minimize visual effects to the Desert View Tower shall be developed in consultation with the owner of this resource. If this alternative is constructed, SDG&E shall develop a protection plan for the Desert View Tower viewshed that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options. The report shall be provided to the CPUC and BLM for review and approval at least 60 days before the start of construction.
Location	Desert View Tower viewshed

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

Monitoring/Reporting Action	BLM and CPUC review and approve protection plan for Desert View Tower viewshed.
Effectiveness Criteria	Adverse changes to visual qualities of the Desert View Tower viewshed are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Interpretation & Approach	8/31/09 Documentation shall be submitted in the form of certified mail attempt or other traceable format if it is found that the property owner will not cooperate.
CR-APM-1	Prior to construction, construction personnel shall be instructed on the protection and avoidance of cultural resources. To assist in this effort, the construction contract will address state and federal laws regarding antiquities, fossils, and plants and wildlife, including the collection and removal, as well as the importance of these resources and the purpose and necessity of protecting them. (SDG&E)
Location	Entire project area.
Timing	Pre-construction.
Interpretation & Approach	This requirement will be fulfilled under MM C-1f, training on protection of all types of cultural resources.
CR-APM-2	Archeological sites that are eligible or potentially eligible for the National Register will be flagged in the field and spanned or otherwise avoided through routing during construction activities to the extent feasible. Impact avoidance and APMs for cultural resources developed in consultation with appropriate land managing and regulatory (*e.g.,* park personnel and State Historic Preservation Office) and other interested parties will be implemented prior to and during construction. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-3	Any previously unidentified cultural resource (historic or prehistoric site or object) discovered by SDG&E or any person working on its behalf during construction on public or park land shall be immediately reported to the appropriate land manager or authorized park officer within 24 hours of discovery. Operations in the immediate area of the discovery shall be suspended until authorization to proceed is issued by the appropriate land manager or authorized park officer. An evaluation of the discovery will be made by the appropriate land manager, authorized park officer or SDG&E in consultation with the former to determine appropriate actions to prevent the loss of significant cultural or scientific values. SDG&E shall be responsible for the cost of evaluation. SDG&E will develop a treatment plan to mitigate the impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-4	SDG&E will conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995 – Weeks and Grimmer). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

CR-APM-5	SDG&E will use the following as guidance in the implementation of the project: 1. Preservation in-place is the preferred manner of mitigating impacts to archaeological sites. Preservation in-place maintains the relationship between the artifacts and the archaeological context to the extent feasible. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. 2. Preservation in-place may be accomplished by, but is not limited to, the following: a. planning construction to avoid archaeological sites; or b. incorporation of sites within parks, green space, or other open space; or c. deeding the site into a permanent conservation easement. 3. When data recovery through excavation is the only feasible mitigation, a data recovery plan which makes provisions for adequately recovering the scientifically consequential information from and about the historical resources shall be prepared and adopted prior to any excavation being undertaken. Such study shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5, Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be appropriate. 4. Data recovery shall not be required for an historical resource if the lead agency through discussion and consultation with Indian Tribes, professional archaeologists and SHPO determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-6	1. Historic property will be avoided and fenced or barricaded for protection. 2. Contributing portions and sensitive features of the historic property will be avoided and fenced or barricaded for protection. 3. If historic property cannot be avoided, an approved plan for recordation, relocation, or data recovery will be implemented. Recordation of buildings or structures may include Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) documentation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-7	1. Erosion, sedimentation, or indirect displacement that could indirectly deteriorate historic property will be controlled by limitation of activities near property, stabilization of sediments or structures, and erosion control. 2. Protective measures will be implemented to minimize erosion and prevent invasion by aggressive weeds near historic property. 3. Control measures will be implemented to minimize vibration, dust, or fumes affecting property. 4. Protective barriers or materials will be used to minimize the effects of vibration, dust, fumes, or changes in vegetation. 5. Buildings or structures will be stabilized or rehabilitated to minimize deterioration that might be accelerated by construction or operations. 6. If deterioration cannot be avoided, SDG&E will implement an approved plan for recordation, relocation, or data recovery. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

CR-APM-8	1. In addition to the historic property itself, those elements of the landscape that are essential to the historic setting of the property will be avoided and protected to the extent feasible. 2. The location, appearance, or operational procedures of the undertaking will be modified to minimize intrusion on the historic setting (*e.g.,* qualifications on height, color, emissions, or operational noise levels). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-9	1. Permanent fencing or barriers will be installed, or access to the historic property will be controlled as deemed appropriate by the relevant agencies. 2. Use of access for construction or operation will be restricted. 3. Construction and maintenance personnel will be instructed in protection of sensitive properties. (SDG&E)
Location	Entire project area.
Timing	Pre, during and post construction.
Interpretation & Approach	None required.
CR-APM-10	1. Project structures will be located so that conductors span linear historic property to the extent feasible. 2. Pipelines or conductors, placed underground, will bore under linear property to avoid disturbance or intrusion. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-11	SDG&E would implement its standard practices for cultural and paleontological resources on private lands (see Appendix D). (SDG&E)
Location	Entire project area on private lands.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
CR-APM-12	SDG&E will conduct cultural surveys for staging areas that have not yet been identified. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	PAL-1a: Inventory and evaluate paleontological resources in Final APE. Prior to construction, the Applicant shall conduct and submit to CPUC, BLM, and other involved land-managing agencies for approval an inventory of significant paleontological resources within the affected area based on field surveys of areas identified as marginal through high or undetermined paleontological sensitivity potential.
Location	All locations of marginal, moderate, and high paleontological sensitivity within the Final APE where ground-disturbing activities are anticipated.
Monitoring/Reporting Action	BLM and CPUC to review inventory and sensitivity findings.
Effectiveness Criteria	Identification and preliminary evaluation of all resources within potentially ground-disturbing activities.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Interpretation & Approach	None required.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

MITIGATION MEASURE	PAL-1b: Develop Paleontological Monitoring and Treatment Plan. Following completion and approval of the paleontological resources inventory and prior to construction, the Applicant shall prepare and submit to CPUC, BLM, and other involved land-managing agencies for approval a Paleontological Monitoring Treatment Plan (Plan). The plan shall be designed by a Qualified Paleontologist and shall be based on Society of Vertebrate Paleontology (SVP) guidelines and meet all regulatory requirements. The qualified paleontologist shall have a Master's Degree or Ph.D. in paleontology, and shall have knowledge of the local paleontology and is familiar with paleontological procedures and techniques. The Plan shall identify construction impact areas of moderate to high sensitivity for encountering significant resources and the depths at which those resources are likely to be encountered. The Plan shall outline a coordination strategy to ensure that a qualified paleontological monitor will conduct full-time monitoring of all ground disturbance in sediments determined to have a moderate to high sensitivity. Sediments of low, marginal, and undetermined sensitivity shall be monitored on a part-time basis (as determined by the Qualified Paleontologist) Sediments with zero sensitivity will not require paleontological monitoring. The Qualified Monitor shall have a BA in Geology or Paleontology and a minimum of one year of monitoring experience in local sediments. The Plan shall detail the significance criteria to be used to determine which resources will be avoided or recovered for their data potential. The Plan shall also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting. The Plan shall specify that all paleontological work undertaken by the Applicant on public land shall be carried out by qualified paleontologists with the appropriate current permits, including, but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and a Paleontological Collecting Permit (for work on lands administered by California Department of Parks and Recreation). Notices to proceed will be issued by the BLM, CPUC, and other agencies with jurisdiction, following approval of the Paleontological Monitoring and Treatment Plan.
Location	Entire project.
Monitoring/Reporting Action	BLM and CPUC review and approve treatment plan.
Effectiveness Criteria	BLM and CPUC approval of treatment plan.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	PAL-1c: Monitor construction for paleontology. Based on the paleontological sensitivity assessment and Paleontological Monitoring and Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan), the Applicant shall conduct full-time construction monitoring by the qualified paleontological monitor in areas determined to have moderate to high paleontological sensitivity. Sediments of low, marginal undetermined sensitivity shall be monitored by a qualified paleontological monitor on a part-time basis (as determined by the Qualified Paleontologist). Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Qualified Paleontologist
Location	Locations identified in paleontological treatment plan.
Monitoring/Reporting Action	Progress reporting to BLM and CPUC as identified in treatment plan.
Effectiveness Criteria	Discovery of significant fossil resources from all localities affected by construction.
Responsible Agency	BLM and CPUC.
Timing	During construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	PAL-1d: Conduct paleontological data recovery. If avoidance of significant paleontological resources is not feasible or appropriate based on project design, treatment (including recovery, specimen preparation, data analysis, curation, and reporting) shall be carried out by the Applicant, in accordance to the approved Treatment Plan per Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

Location	Locations identified in paleontological treatment plan.
Monitoring/Reporting Action	BLM and CPUC review and approve treatment plan. BLM and PCUC review and approval of final data-recovery report and disposition of fossils.
Effectiveness Criteria	Recovery of adequate samples of significant fossil resources from all localities affected by construction.
Responsible Agency	BLM and CPUC.
Timing	During construction; report within one year of data-recovery fieldwork.
Interpretation & Approach	None required.
MITIGATION MEASURE	PAL-1e: Train construction personnel. Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained regarding the recognition of possible subsurface paleontological resources and protection of all paleontological resources during construction. The Applicant shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) ESAs include areas determined to be paleontologically sensitive as defined on the paleontological sensitivity maps for the project, and must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of protected fossils on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing subsurface paleontological resources, their responsibility to avoid and protect all such resources, and the penalties for collection, vandalism, or inadvertent destruction of paleontological resources. • The Applicant shall provide a background briefing for supervisory personnel describing the potential for exposing paleontological resources, the location of any potential ESAs, and procedures and notifications required in the event of discoveries by project personnel or paleontological monitors. Supervisory personnel shall enforce restrictions on collection or disturbance of fossils. • Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be diverted and the Applicant's paleontologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's paleontologist will notify the BLM, CPUC, and other appropriate land managers and proceed with data recovery in accordance with the approved Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).
Location	Entire project.
Monitoring/Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	Paleontological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Interpretation & Approach	This MM will be fulfilled in conjunction with MM C-1f, training.

Table 9. Mitigation Measures and Applicant Proposed Measures – Cultural and Paleontological Resources

GEO-APM-9	If paleontological resources are encountered, appropriate field mitigation efforts would be implemented to protect the resources. For example, if significant resources are discovered, such as vertebrate fossils, construction would be stopped in the immediate area of the find while SDG&E and its designated paleontologist determine the appropriate method and schedule to recover or protect the resource. However, work may continue in areas outside the immediate area of the find with the approval of the paleontologist. When it is not feasible to avoid paleontological sites, SDG&E would consult with the appropriate federal, state, and resource agencies and specialists to either develop alternative construction techniques to avoid paleontological resources or develop appropriate APMs. Appropriate mitigation field measures may include actions such as protection-in-place by covering with earthen fill, removal and cataloguing, and/or removal and relocation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 10. Mitigation Measures and Applicant Proposed Measures – Noise

MITIGATION MEASURE	— N-1a: Implement Best Management Practices for construction noise. SDG&E shall comply with local noise rules, standards, and/or ordinances by implementing the following noise-suppression techniques and variance standards set by local authorities. SDG&E shall apply for and obtain a variance for construction activities that must occur outside of the daytime hours allowed by local ordinances or within 200 feet of noise-sensitive receptors forty-five days prior to construction.
	— (N-1a)At a minimum, SDG&E shall employ the following noise-suppression techniques to avoid possible violations of local rules, standards, and ordinances: • Confine construction noise to daytime, weekday hours (*e.g.,* 7:00 a.m. to 7:00 p.m.) or an alternative schedule established by the local jurisdiction or land use manager • On construction equipment, use noise reduction features (*e.g.,* mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer • Install temporary sound walls or acoustic blankets to shield adjacent residences. These sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts • Route construction traffic away from residences and schools, where feasible • Minimize unnecessary construction vehicle use and idling time. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: certain equipment, such as large diesel-powered vehicles, require extended idling for warm-up and repetitive construction tasks.)
Location	Construction activity in all segments.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E applies for and obtains local variance and implements Best Management Practices.
Effectiveness Criteria	Best Management Practices implemented.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	N-2a: Avoid blasting where damage to structures could occur. Blasting shall be managed with a plan for each site. The plan shall include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. Blasting shall not be allowed where damage to vulnerable structures could occur, and a rock anchoring or mini-pile system shall be used if adjacent structures could be damaged as a result of blasting or any construction method used as an alternative to blasting. If any structure is inadvertently adversely affected by construction vibration, the structure shall be restored to conditions equivalent to those prior to blasting. SDG&E shall then fairly compensate the owner of any damaged structure for lost use. Forty-five days prior to construction for blasting plan.
Location	Construction activity in all segments.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E submits blasting plan, which identifies complete inspection and restoration process.
Effectiveness Criteria	Structures inspected and restored.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 10. Mitigation Measures and Applicant Proposed Measures – Noise

MITIGATION MEASURE	N-3a: Respond to complaints of corona noise. SDG&E shall respond to third-party complaints of corona noise generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures (such as repair damaged conductors, insulators, or other hardware). As part of SDG&E's repair inspection and maintenance program, the transmission line shall be patrolled, and damaged insulators or other transmission line materials, which could cause excessive noise, shall be repaired or replaced.
Location	All overhead transmission line segments.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E investigates noise complaints, implements feasible repairs, and maintains a repair inspection and maintenance program to manage corona noise.
Effectiveness Criteria	Corona noise is managed.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Post construction.
Interpretation & Approach	None required.
NOI-APM-1	Provide notice prior to construction by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. SDG&E would identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents, about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person would be included in the above notices. SDG&E would also establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 11. Mitigation Measures and Applicant Proposed Measures – Transportation and Traffic

MITIGATION MEASURE	T-1a: Restrict lane closures. SDG&E shall restrict all necessary lane closures or obstructions on major roadways associated with overhead or underground construction activities to off-peak periods in congested areas to reduce traffic delays. Lane closures must not occur between 6:00 and 9:30 a.m. and between 3:30 and 6:30 p.m., unless otherwise directed in writing by the responsible public agency issuing the encroachment permit.
Location	All areas requiring road or lane closure.
Monitoring/Reporting Action	Review plan for road or lane closure to make sure that it is outside periods of peak traffic volume
Effectiveness Criteria	Road or lane closures shall not be executed during periods of peak traffic volume. Only reasonable interference with traffic flow.
Responsible Agency	CPUC, BLM and affected agencies responsible for streets/highways and traffic
Timing	Pre-construction
Interpretation & Approach	None required.
MITIGATION MEASURE	T-4a: Ensure pedestrian and bicycle circulation and safety. Where construction will result in temporary closures of sidewalks and other pedestrian facilities, SDG&E shall provide temporary pedestrian access, through detours or safe areas along the construction zone. Where construction activity will result in bike route or bike path closures, appropriate detours and signs shall be provided.
Location	All locations where closures of sidewalks and other pedestrian facilities are expected during construction of the project
Monitoring/Reporting Action	Review and approve Construction Transportation Management Plan prepared by SDG&E for identified affected pedestrian facilities and the alternative facilities or detours that will be provided
Effectiveness Criteria	No interference with pedestrian/bicycle circulation or provision of detours
Responsible Agency	CPUC, BLM and the local jurisdictions
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	T-5a: Repair roadways damaged by construction activities. If damage to roads, occurs, SDG&E shall coordinate repairs with the affected public agencies to ensure that any impacts to area roads are adequately repaired at SDG&E's cost. Roads disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Care shall be taken to prevent damage to roadside drainage structures. Roadside drainage structures and road drainage features (*e.g.,* rolling dips) shall be protected by regarding and reconstructing roads to drain properly. Said measures shall be incorporated into an access agreement/easement with the applicable governing agency prior to construction.
Location	All roads used to access the construction sites
Monitoring/Reporting Action	Review documentation to ensure that SDG&E obtained permits for construction within each road ROW prior to construction. Verify that each affected roadway has been satisfactorily restored and/or reconstructed within 30 days of the end of the construction.
Effectiveness Criteria	Restoration/maintenance or roads to pre-construction conditions as determined by the affected public agency.
Responsible Agency	CPUC, BLM and affected jurisdictions
Timing	Post construction
Interpretation & Approach	None required.

Table 11. Mitigation Measures and Applicant Proposed Measures – Transportation and Traffic

MITIGATION MEASURE	T-7a: Notify public of potential short-term elimination of parking spaces. As required in Mitigation Measure L-1a, prior to any construction activity on major roadways, SDG&E shall notify the public of the potential for parking spaces to be temporarily eliminated and where temporary parking spaces will be relocated through multiple media such as local newspapers and on-site postings. The elimination and relocation of parking spaces must be in conformance with the requirements of agencies responsible for parking management.
Location	All locations where construction could significantly impact parking spaces.
Monitoring/Reporting Action	Copies of public notices; evidence of coordination with affected jurisdiction
Effectiveness Criteria	Alternative parking spaces are provided, if required
Responsible Agency	Imperial and San Diego Counties and local municipalities
Timing	Pre-construction in affected jurisdiction
Interpretation & Approach	None required.
MITIGATION MEASURE	T-9a: Prepare Construction Transportation Management Plan. SDG&E shall prepare a Construction Transportation Management Plan (CTMP) to address traffic and transportation issues related to project construction. The CTMP shall describe alternate traffic routes, timing of worker commutes and material deliveries, the need for lane and road closures, the use of helicopters, plans for construction worker parking and transportation to work sites, methods for keeping roadways clean, and other methods for reducing adverse construction-related traffic impacts on regional and local roadways. The plan must comply with the requirements of the respective county and must be submitted to the respective counties and Caltrans for approval prior to commencing construction activities.
Location	All locations where construction could significantly impact regional and local roadways.
Monitoring/Reporting Action	Review Construction Transportation Management Plan
Effectiveness Criteria	Traffic flows are generally maintained without severe congestion
Responsible Agency	CPUC, BLM, and the applicable local jurisdictions
Timing	Pre- and during construction
Interpretation & Approach	None required. Construction Transportation Management Plan will be known as the Traffic Control Plan.
MITIGATION MEASURE	T-11b: Consult with and inform U.S. Customs and Border Patrol. The Applicant shall consult with U.S. Customs and Border Patrol to determine where border patrol aircraft operate in the county. Prior to construction, the Applicant shall provide written notification to all border patrol aircraft working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected. The Applicant shall also provide all border patrol aircraft, the U.S. Customs and Border Patrol, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to the U.S./Mexico border within the San Diego and Imperial Counties.
Location	Within the area of border patrol aircraft operations along the Interstate 8 Alternative and Modified Route D Alternative
Monitoring/Reporting Action	Evidence of notification and submittal of aerial photos and/or topographic maps to U.S. Customs and Border Patrol
Effectiveness Criteria	Evidence of notification and sharing of information about the location of the new lines and towers.
Responsible Agency	CPUC, U.S. Customs and Border Patrol
Timing	Pre-construction
Interpretation & Approach	8/31/09 – When considering aerial marking requests, the consideration for safety should be considered as overriding visual concerns
T-APM-2a	Required permits for temporary lane closures will be obtained from the County of Imperial, County of San Diego, CALTRANS, and California State Parks (if applicable). (SDG&E)
Location	Entire project area.

Table 11. Mitigation Measures and Applicant Proposed Measures – Transportation and Traffic

Timing	Pre- and during construction.
Interpretation & Approach	None required.
T-APM-2b	Detour plans will be submitted to the counties, CALTRANS, and/or California State Parks as part of the permit requirements. Within the ABDSP, a Right-of-Entry permit is required for any construction and maintenance activities that would occur outside of existing easements, including access roads (would not need ROE for access road maintenance if practical rights of ingress and egress are granted in easements). SDG&E will provide California State Parks a request in writing for maintenance or other earth-disturbing activities. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
T-APM-4a	SDG&E shall coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles. The counties and cities will then notify respective police, fire, ambulance and paramedic services. SDG&E shall notify counties and cities of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
T-APM-5a	SDG&E will consult with the Imperial County Office of Education, Borrego Springs Unified School District, Warner Unified School District, Julian Union School District, and the Julian Union High School District at least one month prior to construction to coordinate construction activities adjacent to school bus stops. If necessary, school bus stops will be temporarily relocated or buses will be rerouted until construction in the vicinity is complete. SDG&E will also consult with Imperial Valley Transit and the Metropolitan Transit System at least one month prior to construction to reduce potential interruption of transit services.
Location	Entire project area within school districts.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
T-APM-6a	Parking is permissible on Imperial County-maintained roadways when vehicles are within 18 inches of the curb; or if no curb is present, vehicles must not be more than 18 inches away from the right-hand edge of the roadway's boundary. Vehicles must also be parallel to the roadway when parked, unless otherwise indicated. Parking is prohibited where signage indicates no parking. Parking shall comply within the County of Imperial ordinances whenever possible or as indicated in an approved traffic control plan. (SDG&E)
Location	Entire project area within Imperial County.
Timing	During construction.
Interpretation & Approach	None required.
T-APM-6b	Parking on San Diego County-maintained roads and highways is not permissible by law unless otherwise noted at specific locations. Parking is prohibited where signage and painted curbs indicates no parking. Where the project crosses major roadways, parking shall be prohibited in the project work area. Parking shall comply within the County of San Diego Department of Public Works Traffic Guidelines, 2001 whenever possible or as indicated in an approved traffic control plan. (SDG&E)
Location	Entire project area within San Diego County.
Timing	During construction.
Interpretation & Approach	None required.
T-APM-8a	Required permits for entering railroad right-of-way will be obtained from Union Pacific Railroad, San Diego & Arizona Eastern Railroad and the U.S. Gypsum Mine. (SDG&E)
Location	Along railroad right-of-way.
Timing	Pre- and during construction.
Interpretation & Approach	None required.

Table 11. Mitigation Measures and Applicant Proposed Measures – Transportation and Traffic

T-APM-9a	Eligible and Officially Designated Scenic Highways are located within Imperial and San Diego Counties. The California Public Utilities Code Section 320 requires that all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway be undergrounded where feasible. SDG&E will bury all new or relocated utilities where feasible to avoid possible revocation of SR78 as an Officially Designated Scenic Highway within the ABDSP. (SDG&E)
Location	Entire project area along eligible and designated Scenic Highways.
Timing	Pre- and during construction.
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
T-APM-10a	SDG&E or its construction contractor shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request in order to ensure driveway access to businesses and residences, and shall provide continuous access to properties when not actively constructing the underground cable alignment. (SDG&E)
Location	Entire project area.
Timing	During construction.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

MITIGATION MEASURE	P-1a: Implement Environmental Monitoring Program. An environmental monitoring program will be implemented by SDG&E or its contractors to ensure that the plans defined in HS-APM-1 (personnel trained in proper use and safety procedures for the chemicals used), HS-APM-2 (personnel trained in refueling of vehicles), HS-APM-3 (preparation of environmental safety plans including spill prevention and response plan), HS-APM-8 (SDG&E's and/or General Contractor environmental/health and safety personnel), and HS-APM-10 (storage and disposal of hazardous and solid waste) are followed throughout the period of construction. SDG&E will designate an Environmental Field Representative who will be on site to observe and document adherence to the plan for all construction spreads.
Location	All locations along the proposed and alternative routes.
Monitoring/Reporting Action	Review documentation of training
Effectiveness Criteria	Training and monitoring programs educate project staff and workers regarding all regulatory plan requirements.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	P-1b: Maintain emergency spill supplies and equipment. Hazardous material spill kits will be maintained onsite by SDG&E or its contractors for response to small spills. This shall include materials such as oil-absorbent material, tarps, and storage drums to be used to contain and control any minor releases. Emergency spill supplies and equipment will be kept adjacent to all areas of work and in staging areas, and will be clearly marked. Detailed information for responding to accidental spills and for handling any resulting hazardous materials will be provided in the project's Spill Response Plan defined in HS-APM-3.
Location	All locations along the proposed and alternative routes.
Monitoring/Reporting Action	Observe construction sites and activities for compliance
Effectiveness Criteria	Emergency spill supplies are available at the construction sites
Responsible Agency	CPUC, BLM
Timing	During construction
Interpretation & Approach	None required.
MITIGATION MEASURE	— P-2a: Test for residual pesticides/herbicides on currently or historically farmed land. In areas where the land has been or is currently being farmed, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any contamination. The sampling and testing plan shall be prepared in consultation with the County Agricultural Commission, and conducted by an appropriate California licensed professional and sent to a California Certified laboratory. Samples shall be tested at a California Certified Laboratory. A report documenting the areas proposed for sampling, and the process used for sampling, testing shall be submitted to the CPUC and BLM for review and approval at least 60 days before construction. Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPUC and BLM (if on BLM land) 30 days prior to construction.
	— (P-2a) Excavated materials containing elevated levels of pesticide or herbicide will require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures will be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California (DTSC or RWQCB) and the appropriate county (San Diego or Imperial) shall be contacted by SDG&E or its contractor to plan handling, treatment, and/or disposal options.
Location	All proposed and alternative route segments that are within or immediately adjacent to agricultural uses.
Monitoring/Reporting Action	Observe construction sites and activities for compliance

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

Effectiveness Criteria	Excavated soils containing pesticides and herbicides are properly handled and disposed of.
Responsible Agency	CPUC, BLM, appropriate local and State regulatory agencies.
Timing	Pre-construction
Interpretation & Approach	Soils will be disposed of at locations approved by SDG&E appropriate local/state authorities and manifested as required by local, state and federal laws and ordinances. SDG&E requirements for waste disposal will meet or exceed State requirements for waste disposal facilities. Due to property rights, soil sampling may not be completed prior to start of construction. A plan for meeting this mitigation measure by conducting the sampling and testing just prior to start of construction will be submitted for review and approval by the appropriate agencies prior to starting construction.
MITIGATION MEASURE	P-3a: Appoint individuals with correct training for sampling, data review, and regulatory coordination. In the event that potential contaminated soil or groundwater is encountered, samples shall be collected by an OSHA-trained individual with a minimum of 40-hour hazardous material site worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SDG&E's Field Environmental Representative and they shall coordinate with the appropriate regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.
Location	All proposed and alternative route segments that have potential for discovery of unknown contamination.
Monitoring/Reporting Action	Observe construction sites and activities for compliance and review weekly reports.
Effectiveness Criteria	Excavated soils containing industrial contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM, and RWQCB or local CUPA.
Timing	During construction
Interpretation & Approach	None required.
MITIGATION MEASURE	P-3b: Documentation of compliance with measures for encountering unknown contamination. If during grading or excavation work, the contractor observes visual or olfactory evidence of contamination in the exposed soil a report of the location and the potential contamination, results of laboratory testing, recommended mitigation (if contamination is verified), and actions taken shall be submitted to the CPUC and BLM for each event. This report shall be submitted within 30 days of receipt of laboratory data.
Location	All proposed and alternative route segments that have potential for discovery of unknown contamination.
Monitoring/Reporting Action	Observe construction sites and activities for compliance and review incident reports.
Effectiveness Criteria	Excavated soils containing industrial contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM.
Timing	During construction
Interpretation & Approach	None required.

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

MITIGATION MEASURE	P-7a: Evaluate contaminated sites. SDG&E shall implement the following steps, at locations where excavation or significant ground disturbance will occur; all steps be completed at least 60 days prior to project construction, to prevent mobilization of contaminants and exposure of workers and the public: • Step 1. Investigate the site to determine whether it has a record of hazardous material contamination which would affect construction activities. This investigation should be performed as a Phase I–Environmental Site Assessment (Phase I ESA). If contamination is found that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2. • Step 2. Perform a characterization study of the site to determine the nature and extent of the contamination present at the location before construction activities proceed within the project ROW near the suspect site. • Step 3. Determine the need for further investigation and/or remediation of the soil or groundwater conditions at or near the contaminated site, *i.e.,* within areas of ground disturbance for the Proposed Project. (For example, if there would be little or no contact with contaminated materials, industrial cleanup levels would likely be applicable. If site activities would involve human contact with the contaminated materials, such as would be the case with excavation of contaminated materials during project construction, then Step 4 shall be completed. If no human contact is anticipated, then no further mitigation would be required for the location.) • Step 4. If it is determined that disturbance or excavation of soils or groundwater with contamination would accompany construction at the site, undertake a Phase II Environmental Site Investigation (Phase II ESI) involving sampling and further characterization of potentially contaminated areas with the project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, mitigate health and safety risk according San Diego County CUPA or RWQCB regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.
Location	All proposed and alternative route segments that have identified contaminated sites with 0.25 miles of the alignment.
Monitoring/Reporting Action	Review Phase I and Phase II reports, and any other site characterization reports generated.
Effectiveness Criteria	Sites with environmental contaminants are avoided or if crossed, excavated soils containing contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM, and RWQCB or local CUPA.
Timing	Pre-construction
Interpretation & Approach	None required.
HS-APM-1	All personnel involved in using hazardous materials shall be trained in the proper use and safety procedures for the chemical and provided with the necessary Personal Protection Equipment (PPE). A Hazardous Communication (HAZCOM) Plan with Material Safety Data Sheets on all hazardous materials used for the project shall be developed. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-2	Only personnel trained in refueling vehicles would be allowed to perform this operation. All refueling operation shall be in designated areas or preformed by assigned vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-3	All applicable environmental safety plans associated with hazardous materials shall be developed for the project. These plans include but are not necessary limited to Hazardous Material Business (HMB) Plan; HAZCOM Plan; Spill Response Plan; 90-days temporary storage and disposal (TSD) facility permit; and Spill Prevention Control and Countermeasure (SPCC) Plan (only if storage is over 1,350 gallons at one location). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

Interpretation & Approach	Hazardous Material Business Plan — Will be developed for any area within a Segment that meets the criteria requiring this Plan. Hazardous Communication Plan — Will be developed by the Contractor and SDG&E Safety Representatives, assurance of implementation by SDG&E, for hazards within a Segment. Spill Response Plan — Spill Response information will be included in either a HMBP or a SPCC within a Segment that meets the criteria requiring these Plans. 90-days temporary storage and disposal (TSD) — this is not applicable as SDG&E and its contractor will not create a TSDF. Any hazardous waste will be removed and disposed of per local, State and Federal Regulations. Spill Prevention Control and Countermeasure (SPCC) Plan — will be developed for any area within a Segment that meets the criteria (1,320 gallons of petroleum products) requiring this Plan.
HS-APM-4	SDG&E will develop a site specific blasting plan blasting of tower footing is required. A California licensed Blasting Contractor shall be used for all blasting operation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-5	All Government Code §65962.5 sites or other known contamination sites along the transmission line ROW or such sites that would affect construction work shall be investigated to determine potential impacts to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-6	An Unexploded Ordnance (UXO) investigation of known and potential areas used by the military along the ROW shall be undertaken by a trained contractor. If UXO are found, they shall be removed by trained personnel. (SDG&E)
Location	Entire project area in areas of known or potential UXO use areas.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-7	All personnel involved in excavation and grading or for ROW clearing shall be trained to recognize UXO and/or potential soil, surface water, and groundwater potential contamination sites. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-8	SDG&E will assign Environmental Field Representative and/or General Contractor assigned Health & Safety Officer to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-9	SDG&E will contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport. (SDG&E)
Location	Entire project area within 2 miles of an airport.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-10	All hazardous waste and solid waste shall be stored and disposed of in accordance with federal, State, and local regulations. Whenever feasible, hazardous material minimization methods shall be employed and all hazardous materials recycled. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

Interpretation & Approach	None required.
HS-APM-11	SDG&E will develop project-specific Fire Prevention and Response Plan (FPRP), which will be developed and reviewed by pertinent regulatory authorities. A project Fire Marshal shall be assigned to enforce all provisions of the FPRP as well as performing all other duties related to fire prevention activities for the Proposed Project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	Plan is Fire Plan for Construction, Operations and Maintenance
HS-APM-12	A Traffic Control Plan (TCP) shall be developed that addresses all roadway crossings that would be used by the project and could interfere with emergency vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-14	All construction workers shall undergo environmental training regarding potential exposure in accordance with federal, State, or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-15	If during excavation soil or groundwater contamination is suspected (*e.g.,* unusual soil discoloration or strong odor), the contractor or subcontractor shall immediately stop work and notify the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-16	If soil or groundwater contamination is suspected, work near the immediate excavation site shall be terminated, the work area cordoned off, and appropriate health and safety procedures implemented for the location by the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. Preliminary samples of the soil, groundwater, or material shall be taken by an OSHA trained individual. These samples shall be sent to a California Certified Laboratory for characterization. Work outside the immediate excavation site may continue as determined by the General Contractor's assigned Health and Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
HS-APM-17	If the sample testing determines that contamination is not present, work would be allowed to proceed at the immediate excavation site. However, if contamination is found above regulatory limits, the regulatory agency (*e.g.,* RWQCB or CUPA) responsible for responding to and for providing environmental oversight of the region shall be notified in accordance with State or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	PS-1a: Limit the conductor surface electric gradient. As part of the design and construction process for the Proposed Project, the Applicant shall limit the conductor surface electric gradient in accordance with the IEEE Radio Noise Design Guide.
Location	Along the overhead route segment
Monitoring/Reporting Action	Review construction design plans to ensure consistency with IEEE Radio Noise Design Guide.
Effectiveness Criteria	The potential for magnetic field interference of electronic equipment is reduced.

Table 12. Mitigation Measures and Applicant Proposed Measures – Public Health and Safety

Responsible Agency	CPUC
Timing	Pre-construction.
Interpretation & Approach	None required.
MITIGATION MEASURE	PS-1b: Document and resolve electronic interference complaints. After energizing the transmission line, SDG&E shall respond to and document all radio/television/equipment interference complaints received and the responsive action taken. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SDG&E to the CPUC for resolution.
Location	Along the overhead route segment
Monitoring/Reporting Action	Review documentation provided.
Effectiveness Criteria	All radio/television/equipment interference disputes are resolved.
Responsible Agency	CPUC
Timing	Post construction
Interpretation & Approach	None required.
MITIGATION MEASURE	PS-2a: Implement grounding measures. As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.
Location	Along the entire transmission line route
Monitoring/Reporting Action	Review documentation provided; verify that necessary grounding measures are installed.
Effectiveness Criteria	The potential for impacts associated with induced currents and voltages on objects near the energized transmission line are reduced.
Responsible Agency	CPUC
Timing	During construction and post construction pre-energizing the line.
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 13. Mitigation Measures and Applicant Proposed Measures – Air Quality

MITIGATION MEASURE	AQ-1a: Suppress dust at all work or staging areas and on public roads. SDG&E shall: (a) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; (b) pre-water sites for 48 hours in advance of clearing; (c) reduce the amount of disturbed area where possible; (d) all dirt stock-pole areas should be sprayed daily as needed; (e) cover loads in haul trucks or maintain at least six inches of free-board when traveling on public roads; (f) pre-moisten, prior to transport, import and export dirt, sand, or loose materials; (g) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets; (h) plant vegetative ground cover in disturbed areas as soon as possible following construction; (i) apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days); and (j) prepare and file 30 days in advance of construction with the ICAPCD, SDAPCD, BLM, and CPUC a Dust Control Plan that describes how these measures would be implemented and monitored at all locations of the project. The Dust Control Plan shall identify nearby sensitive receptors, such as land uses that include children, the elderly, the acutely ill and the chronically ill, and specify the means of minimizing impacts to these populations (for example, by locating equipment and staging areas away from sensitive receptors).
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-24.
Location	All areas including work areas and staging areas.
Monitoring/Reporting Action	Review Dust Control Plan. Verify local air district concurrence with the Plan. Inspect activities for dust control.
Effectiveness Criteria	Dust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measures.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	AQ-1b: Use low-emission construction equipment. SDG&E shall maintain construction equipment per manufacturing specifications and use low-emission equipment described here. All off-road and portable construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, Sec. 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. If any engine larger than 100 hp does not meet Tier 1 standards, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless the engine manufacturer indicates that the use of such devices is not practical for that particular engine type. SDG&E shall substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible.
Location	All areas.
Monitoring/Reporting Action	Inspect construction equipment, Portable Equipment Registration Program records, and manufacturer certifications.
Effectiveness Criteria	Engine exhaust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measure.
Responsible Agency	CPUC and BLM
Timing	During construction
Interpretation & Approach	None required.

Table 13. Mitigation Measures and Applicant Proposed Measures – Air Quality

MITIGATION MEASURE	AQ-1h: Obtain NOx and particulate matter emission offsets. SDG&E shall obtain and hold for the duration of construction NOx emission reduction credits or fund incentive programs approved by ICAPCD and SDAPCD at sufficient levels to offset the construction emissions of NOx that exceed the ozone nonattainment area federal General Conformity Rule applicability threshold. SDG&E shall secure 99 tons per year of NOx reductions and 276 tons per year of particulate matter reductions in Imperial County, and SDG&E shall secure 212 tons per year of NOx reductions in San Diego County to satisfy this requirement. The emission reduction credits or incentive program shall comply with ICAPCD and SDAPCD rules and regulations, and the credits or reductions shall be obtained by SDG&E prior to commencing construction.
Location	All areas.
Monitoring/Reporting Action	As required in General Conformity Final Analysis as Approved by BLM.
Effectiveness Criteria	NOx and particulate matter emissions fully offset.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Interpretation & Approach	These air emission calculations are based on the Projects original Proposed Route. They will be updated and submitted to the CPUC for review and approval. Once approved by the CPUC, the updated calculations will be utilized for meeting this measure.
MITIGATION MEASURE	AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the duration of project construction sufficient carbon credits to fully offset construction-phase greenhouse gas emissions. During construction SDG&E shall report to the CPUC quarterly the status of efforts to create reductions or obtain banked credits and the quantity of construction-phase greenhouse gas emissions offset by credits. At a minimum, SDG&E shall create or obtain and hold carbon credits to offset 55,000 tons of carbon dioxide emissions for each of the two years of construction. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.
Location	All areas.
Monitoring/Reporting Action	Review SDG&E holdings of carbon credits.
Effectiveness Criteria	Greenhouse gas emissions fully offset.
Responsible Agency	CPUC and BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	AQ-4b: Offset operation-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the life of the project sufficient carbon credits to fully offset greenhouse gas emissions caused by activity to support transmission line operation, maintenance, and inspection activities. To determine the quantity of carbon credits that must be created or obtained and held each year, SDG&E must develop a complete GHG inventory annually for project-related operational emissions. SDG&E shall follow established methodologies to report and inventory indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project. SDG&E shall report to the CPUC annually the status of efforts to obtain banked credits and the quantity of greenhouse gas emissions offset by credits. Established methodologies for determining project-related emissions include the current California Climate Action Registry (CCAR) General Reporting Protocol, and the Power/Utility Reporting Protocol appendix to the General Reporting Protocol. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.
Location	All areas.
Monitoring/Reporting Action	Review SDG&E holdings of carbon credits.
Effectiveness Criteria	Greenhouse gas emissions fully offset.
Responsible Agency	CPUC and BLM

Table 13. Mitigation Measures and Applicant Proposed Measures – Air Quality

Timing	Post construction
Interpretation & Approach	None required.
MITIGATION MEASURE	AQ-4c: Avoid sulfur hexafluoride emissions. SDG&E shall identify sulfur hexafluoride (SF_6) leaks and establish a strategy for replacing leaking equipment to reduce SF_6 leaks. To accomplish this, SDG&E shall develop and maintain a record of SF_6 purchases, an SF_6 leak detection and repair program using laser imaging leak detection and monitoring no less frequently than quarterly, an SF_6 recycling program, and an employee education and training program for avoiding or eliminating SF_6 emissions caused by the Proposed Project. The SF_6 leak detection and repair program shall be provided to the CPUC and BLM 90 days prior to project construction. Prior to construction, SDG&E shall also become a Partner in the U.S. EPA's SF_6 Emissions Reduction Partnership for Electric Power Systems. SDG&E shall also report SF_6 emissions from the Proposed Project to the California Climate Action Registry according to CCAR methodologies or alternate methodology approved by the California Air Resources Board. To develop a complete GHG inventory, SDG&E shall follow established methodologies to report indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project.
Location	All areas.
Monitoring/Reporting Action	Review strategies for replacing leaking equipment, leak detection and repair, recycling, and education.
Effectiveness Criteria	SF_6 emissions are avoided.
Responsible Agency	CPUC and BLM
Timing	Pre- and post construction
Interpretation & Approach	7/2/09: This MM only applies to areas where SF-6 would occur — substations. At this time SDG&E is a member of the California Climate Action Registry and will continue this participation. The U.S. EPA's SF_6 Emissions Reduction Partnership for Electric Power Systems and the California Climate Action Registry serve different purposes; SDG&E would need to join the former even though they are a member of the latter.
AQ-APM-1	For activities in Imperial County, the project will comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). A Dust Control Plan for construction activities would be filed with the ICAPCD. (SDG&E)
Location	Entire project area in Imperial County.
Timing	Pre- and during construction
Interpretation & Approach	None required.
AQ-APM-2	1. Prohibit construction grading on days when the wind gusts exceed 25 mph to the extent feasible to control fugitive dust. 2. All trucks hauling soil and other loose material will be covered or maintain at least two feet of freeboard. 3. Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E. 4. Vehicle speeds will be limited to 15 mph on unpaved (no gravel or similar surfacing material) roads. 5. Unpaved roads will be treated by watering as necessary. 6. Soil stabilizers will be applied to inactive construction areas on an as-needed basis. 7. Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered or treated with soil binders, as necessary. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	Item 2 of this measure applies to transportation of hazardous waste materials.
AQ-APM-3	To minimize mud and dust from being transported onto paved roadway surfaces, pave, gravel, use rattle plates or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface. SDG&E will implement this measure where applicable and not conflicting with other requirements. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction

Table 13. Mitigation Measures and Applicant Proposed Measures – Air Quality

Interpretation & Approach	None required.
AQ-APM-4	If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the project's construction schedule. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
AQ-APM-5	To the extent feasible, unnecessary construction vehicle and idling time will be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as a part of pre-construction conferences. Those briefings will include discussion of a "common sense" to vehicle use. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

MITIGATION MEASURE	H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season. Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.
Location	All new substations
Monitoring/Reporting Action	Subdivision grading and drainage plan prepared by Applicant and approved by CPUC and RWQCB prior to construction. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the project is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction
Interpretation & Approach	Because the approved project traverses through two watersheds and is governed by multiple RWQCBs, the State Water Resources Control Board (SWRCB) has taken jurisdiction with the understanding that it will engage the RWQCBs as it sees appropriate. Therefore, the grading and drainage plan described in Mitigation Measure H-1a above will be submitted to the CPUC and the SWRCB and/or the RWQCB for review and approval.
MITIGATION MEASURE	H-1a (CC): Construct during the dry season. All construction of the Chocolate Canyon Option shall occur during the dry season months. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains. Implement the City of San Diego Source Water Protection Guidelines for New Development (2004) that describes procedures for minimizing the adverse water quality effect of new development near water supply reservoirs such as El Capitan. These guidelines specify best management practice procedures to be used by the development, which would include the Chocolate Canyon Option.
Location	Chocolate Canyon Option
Monitoring/Reporting Action	Construction of Chocolate Canyon Option occurs only during dry season months. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the Chocolate Canyon Option is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction
Interpretation & Approach	The wet season for this area is defined as November through March. This measure applies to ground disturbing activities within Chocolate Canyon. The installation of the transmission structures and wire stringing may occur throughout the year without restriction from the wet season provided proper BMPs are installed as required by the SWPPP.
MITIGATION MEASURE	— H-1k: Comply with Forest Service conditions. Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with: • The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this project by the State Water Resources Control Board or Army Corps of Engineers.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

	— (H-1k) • Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed. • At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.
	— (H-1k) • The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.
	— (H-1k) • During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project. The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: 1. A description of the actual site conditions 2. Detailed descriptions, design drawings, and specific topographic locations of all control measures 3. Measures to divert runoff away from disturbed land surfaces 4. Measures to collect and filter runoff over disturbed land surfaces 5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources 6. Measures to dissipate energy and prevent erosion 7. A monitoring and maintenance schedule. Upon Commission approval, the Licensee shall implement the plan.
	— (H-1k) • Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

	— (H-1k) The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources.
	— (H-1k) Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.
Location	Forest Service Land
Monitoring/Reporting Action	Applicant to prepare and execute an agreement with the U.S. Forest Service prior to construction. Compliance with the agreement to be verified through monitoring by the Forest service and CPUC during construction.
Effectiveness Criteria	Compliance with the executed agreement.
Responsible Agency	CPUC and U.S. Forest Service
Timing	Pre- and during construction
Interpretation & Approach	"Within one year of license issuance . . ." 8/6/09, USFS defined that this phrase is in reference to their Record of Decision and issuance of a Special Use Permit for the LEAPS project and will be updated in the USFS Record of Decision for this project when issued. Erosion Control Measures Plan — 8/6/09, USFS agreed that it is acceptable to include the Erosion Control Measures Plan in the SWPPP as long as all requirements defined in the MM are included in the SWPPP. In addition, a separate SWPPP document does not have to be prepared for USFS lands only. The SWPPP can cover USFS lands as well as other agency and private lands.
MITIGATION MEASURE	H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan. A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.
Location	Forest Service Land
Monitoring/Reporting Action	Applicant to prepare a site-specific SWPPP and sediment-control plan to be reviewed and approved by the Forest Service and CPUC prior to construction. CPUC and Forest Service to verify compliance through construction monitoring.
Effectiveness Criteria	Compliance with approved SWPPP and sediment-control plan.
Responsible Agency	CPUC and U.S. Forest Service.
Timing	Pre- and during construction
Interpretation & Approach	7/2/09, it was agreed with USFS and CPUC that the specific SWPPPs will include an Erosion Control Plan and can cover both USFS and other agency and private lands within one document.
MITIGATION MEASURE	H-2d: Maintain vehicles and equipment. All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided to CPUC and BLM once monthly during project construction.
Location	Entire project area
Monitoring/Reporting Action	Vehicle equipment and maintenance log updated and provided to CPUC and BLM once monthly during construction
Effectiveness Criteria	Vehicles and equipment do not leak hazardous materials
Responsible Agency	CPUC and BLM
Timing	During construction
Interpretation & Approach	None required.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

MITIGATION MEASURE	H-4b: Avoid blasting where damage to groundwater wells or springs could occur. Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earthworking method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.
Location	Entire project above designated groundwater basins
Monitoring/Reporting Action	Applicant to prepare a blasting plan, including well survey.
Effectiveness Criteria	Avoidance of blasting where damage to wells or springs could occur, and use of rock anchoring or mini-pile system in its place
Responsible Agency	CPUC
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	H-5a: Install substation runoff control. The pad for new substations shall be constructed with a pervious and/or high-roughness (for example gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.
Location	New substations.
Monitoring/Reporting Action	Applicant to provide CPUC with a drainage plan for new substations showing compliance with this mitigation measure. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	No increase in runoff from new substations.
Responsible Agency	CPUC
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property. A determination of towers requiring scour protection under WQ-APM 10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.
Location	Stream crossings entire project.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

Monitoring/Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which towers may reasonably be subject to erosion during the life of the project. The report shall also provide plans for protection from scour, as well as an engineering demonstration that the tower and associated structures will not induce erosion onto adjacent property. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	Towers to withstand scour with no adverse effect on adjacent property.
Responsible Agency	CPUC
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation. SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.
Location	Entire project.
Monitoring/Reporting Action	Applicant to provide CPUC with a Hazardous Substance Control and Emergency Response Plan for project operations, for review and approval, prior to completion of construction. This plan to include monitoring and reporting protocols and responsibilities.
Effectiveness Criteria	Implementation of a Hazardous Substance Control and Emergency Response Plan for project operations.
Responsible Agency	CPUC
Timing	During construction
Interpretation & Approach	7/2/09 A draft Hazardous Waste Contingency Plan will be submitted which will include an emergency response program. Additionally, Construction SWPPPs will reiterate emergency response for quick, safe clean-up of spills, etc.
MITIGATION MEASURE	H-8a: Bury power line below 100-year scour depth. At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction. Engineering evaluation, and associated scour protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction. Compliance to be ensured during construction.
Location	Underground stream crossings
Monitoring/Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which crossings may be subject to scour. The report shall also provide plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion. CPUC to review and approve the report, then monitor to verify compliance during construction.
Effectiveness Criteria	Underground crossings to be protected from scour.
Responsible Agency	CPUC
Timing	Pre- and during construction
Interpretation & Approach	None required.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Interpretation & Approach	None required.
WQ-APM-2	To the extent feasible, structures shall be placed so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-3	Specific sites as identified by authorized agencies (*e.g.,* fragile watersheds) where construction equipment and vehicles are not allowed shall be clearly marked on-site before any construction or surface disturbing activities begin. Construction personnel shall be trained to recognize these markers and understand the equipment movement restrictions involved. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-4	1. Adequate distance from stream banks and beds will be maintained during construction activities. 2. Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams. 3. Surface water, riparian areas and floodplains will be spanned where feasible. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented. 5. Storm Water Best Management Practices (BMPs) for construction will be implemented per the requirements of the project's SWPPP. 6. Silt fencing, straw mulch, straw bale check dams would be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures. 7. The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction, operation and maintenance. 8. Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands and floodplains. 9. Structures will not be placed in streambeds or drainage channels to the extent feasible. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-2.
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-5	Any stream crossings will be constructed at low flow periods and, if necessary, a site-specific mitigation and restoration plan would be developed. (SDG&E)
Location	Entire project area along stream crossings.
Timing	Pre- and during construction
Interpretation & Approach	None required.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

WQ-APM-6	1. Designated surface water protection areas (source water) will be avoided. 2. There will be no diversions, detention, retention or consumption of surface waters for the project. 3. Prior to construction, interviews would take place with affected landowners regarding location of water supply wells located on their property. 4. SDG&E will negotiate with affected landowner to provide alternative water supplies in the event a supply well or springs dry up directly caused by project activities. Negotiation shall be by either a remedial cash payment to the landowner or by SDG&E contracting for the drilling of a replacement well. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-8	1. In no case will groundwater removed during construction be discharged to surface waters or storm drains without first obtaining any required permits. 2. If dewatering is necessary, the water will be contained and sampled to determine if contaminants requiring special disposal procedures are present. 3. If the water tests sufficiently clean and land application is determined feasible per applicable SWRCB and RWQCB requirements, the water would be directed to relatively flat upland areas for evaporation and infiltration back to the water table, used for dust control, or used as makeup for a construction process (*e.g.,* concrete production). 4. Water determined to be unsuitable for land application or construction use would be disposed of in another appropriate manner, such as treatment and discharge to a sanitary sewer system in accordance with applicable permit requirements or hauled offsite to an approved disposal facility. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-9	Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-10	At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth shall be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project. (SDG&E)
Location	Entire project area at locations that would cross below or pass adjacent to streams.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-11	Groundwater levels along the underground portion of the project will be tested by drilling pilot borings. The location, distribution, or frequency of such tests shall be determined to give adequate representation of the conditions. Locations where groundwater depth is less than eight feet below ground surface shall be identified prior to excavation activities and avoided, where possible. Avoidance is especially recommended where shallow groundwater flow direction is not parallel to the orientation of the alignment. Where avoidance is not possible, SDG&E shall consider constructing underground facilities in a shallower excavation, depending upon requirements of the underground method or existing underground facilities and other practical concerns. SDG&E shall document results of test drilling in a letter report to the CPUC construction starts and shall propose specific measures to minimize the impact on groundwater. (SDG&E)
Location	Entire project area along underground portions of the project.
Timing	Pre- and during construction
Interpretation & Approach	None required.

Table 14. Mitigation Measures and Applicant Proposed Measures – Hydrology and Water Resources

WQ-APM-13	Hazardous materials will not be disposed of onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for trash. Petroleum products and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. In the event of a release of hazardous materials to the ground, it will be promptly cleaned up in accordance with applicable regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-14	Secure any required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-3.
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-15	To the extent feasible, where the construction of access roads would disturb sensitive features such as streambeds, the route of the access road would be adjusted to avoid such impacts. Whenever practicable, construction and maintenance traffic would use existing roads or cross-country access routes (including the ROW) which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes will be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the appropriate agency or landowner before use. Where it is not feasible for access roads to avoid streambed crossings, such crossings would be built at right angles to the streambeds whenever feasible. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in such a manner that minimizes potential adverse impacts on waters of the U.S. or waters of the state. Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and SWRCB/RWQCB. (SDG&E)
Location	Entire project area along access roads.
Timing	Pre- and during construction
Interpretation & Approach	None required.
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (*e.g.,* through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval with the ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geo-textile matting should be considered in the CDFG/ACOE consultation process. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Interpretation & Approach	None required.

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, *e.g.,* — (A-1a). A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Table 15. Mitigation Measures and Applicant Proposed Measures – Geology, Mineral Resources, and Soils

MITIGATION MEASURE	G-2a: Protect desert pavement. Grading for new access roads or work areas in areas covered by desert pavement shall be avoided or minimized. If avoidance of these areas is not possible, the desert pavement surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats on the surface. A plan for identification and avoidance or protection of sensitive desert pavement shall be prepared and submitted to the CPUC and BLM for review and approval at least 60 days prior to start of construction.
Location	All project locations where desert pavement occurs.
Monitoring/Reporting Action	Review plan and ensure that it is implemented in the field.
Effectiveness Criteria	Construction activities do not damage desert pavement.
Responsible Agency	CPUC, BLM, USFWS
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design. The design-level geotechnical studies to be performed by the Applicant shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and ASTM standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where permanent project structures will be installed.
Monitoring/Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by problematic soils.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	G-4a: Reduce effects of groundshaking. The design-level geotechnical investigations performed by the Applicant shall include site-specific seismic analyses to evaluate the peak ground accelerations for design of project components. Based on these findings, project structure designs shall be modified/strengthened, as deemed appropriate by the project engineer, if the anticipated seismic forces (high calculated peak vertical and horizontal ground accelerations due to severe groundshaking) are found to be greater than anticipated wind load stresses on project structures. Study results and proposed design modifications shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where seismically induced groundshaking would potentially occur.
Monitoring/Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.

Table 15. Mitigation Measures and Applicant Proposed Measures – Geology, Mineral Resources, and Soils

MITIGATION MEASURE	G-4b: Conduct geotechnical investigations for liquefaction. Because seismically induced liquefaction-related ground failure has the potential to damage or destroy project components, the design-level geotechnical investigations to be performed by the Applicant shall include investigations designed to assess the potential for liquefaction to affect the approved project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts. Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the project designs as deemed appropriate by the project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project areas where liquefaction would potentially occur.
Monitoring/Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	G-5a: Minimize project structures within active fault zones. Prior to final project design SDG&E shall perform a geologic/geotechnical study to confirm the location of mapped traces of active and potentially active faults crossed by the project route. For crossings of active faults, the project design shall be planned so as not to locate towers or other project structures on the traces of active faults and in addition project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and BLM in a report submitted for review and approval at least 60 days prior to the start of construction.
Location	All Project locations that would cross active faults.
Monitoring/Reporting Action	Review report. Ensure that that the recommendations of the report are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by surface fault rupture.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	G-6a: Conduct geotechnical surveys for landslides and protect against slope instability. The design-level geotechnical surveys conducted by the Applicant shall perform slope stability analyses in areas in areas of planned grading and excavation that cross and are immediately adjacent to hills and mountains. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as grading for access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Proposed Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction, and to minimize potential for damage to project facilities. These design measures shall include, but are not limited to, retaining walls, visquene, removal of unstable materials, and avoidance of highly unstable areas. SDG&E shall document compliance with this measure prior to the final project design by submitting a report to the CPUC for review and approval at least 60 days before construction. The report shall document the investigations and detail the specific support and protection measures that will be implemented.
Location	All Project locations where slope instability would potentially occur.
Monitoring/Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.

Table 15. Mitigation Measures and Applicant Proposed Measures – Geology, Mineral Resources, and Soils

Effectiveness Criteria	Project structures are not damaged by slope instability.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
MITIGATION MEASURE	G-9a: Coordinate with quarry operations. SDG&E shall coordinate with operations and management personnel, and with BLM, to determine status of and plans for active quarries adjacent to or crossed by project alignments. SDG&E shall develop a plan to avoid or minimize interference with mining operations in conjunction with mine/quarry operators prior to construction, and submit it for review and approval to the BLM and CPUC. If mine operators are out of compliance with BLM lease requirements, SDG&E shall coordinate with all parties to resolve the situation and shall demonstrate compliance with this measure prior to the start of construction by submitting the plan to the CPUC and BLM for review at least 60 days prior to the start of construction. If active mining areas require a reroute of the existing SWPL or the Interstate 8 Alternative route, SDG&E shall provide a detailed map documenting proposed new tower and access road location(s), as well as a summary of environmental impacts that would occur (biological and cultural resources surveys must be completed).
Location	All Project locations that would cross active and potentially active quarries, specifically the Interstate 8 Alternative.
Monitoring/Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Project does not interfere with mining operations.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-1	No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable. (SDG&E)
Location	Entire project area along existing access roads.
Timing	Pre- and during construction
Interpretation & Approach	
GEO-APM-2	1. Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance. 2. In agricultural areas, topsoil would be left in roughened condition. 3. When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity. 4. Disturbed areas will be returned to their pre-construction contours and allowed to re-vegetate naturally, or will be reseeded with an appropriate seed mixture if necessary. 5. Affected landowners having property directly impacted by the project will be compensated to disc or till soil upon construction completion. 6. Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-3	Structure placement in areas of high shrink/swell potential will be avoided where possible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-4	Structures will be placed in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock, etc. (SDG&E)

Table 15. Mitigation Measures and Applicant Proposed Measures – Geology, Mineral Resources, and Soils

Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-5	Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Maintenance of cut and fill slopes created by project construction activities would consist primarily of erosion repair. Where re-vegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix would be done on slopes. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measure G-CM-21.
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-6	In areas where ground disturbance is substantial or where re-contouring is required (*e.g.,* marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and re-vegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or re-contouring shall be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor. To limit impact to existing vegetation, appropriately sized equipment (*e.g.,* bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities. (SDG&E)
	Also, see U.S. Fish and Wildlife Conservation Measures G-CM-22 and G-CM-23.
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
GEO-APM-8	During construction, SDG&E would remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage to those structures and would position structures to span over potential landslide areas to the greatest extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.

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Table 16. Mitigation Measures and Applicant Proposed Measures – Socioeconomics

MITIGATION MEASURE	S-2a: Notify public of utility service interruption. Prior to construction in which a utility service interruption is known to be unavoidable, SDG&E shall notify members of the public affected by the planned outage by mail of the impending interruption, and shall post flyers informing the public of the service interruption in neighborhoods affected by the planned outage. Copies of notices and dates of public notification shall be provided to the CPUC and BLM.
Location	Locations where existing utility services would have planned interruption of services.
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E posted notices/flyers and that copies have been submitted to the CPUC and the BLM.
Effectiveness Criteria	Residents and landowners are informed of planned outages.
Responsible Agency	CPUC; BLM.
Timing	Pre-construction
Interpretation & Approach	None required.
MITIGATION MEASURE	S-2b: Protect underground utilities. Prior to construction of the underground transmission line, SDG&E shall submit to the CPUC and BLM written documentation, including evidence of review by the appropriate jurisdictions, including the following: • Construction plans designed to protect existing utilities and showing the dimensions and location of the finalized alignment • Records that the Applicant provided the plans to affected jurisdiction for review, revision and final approval • Evidence that the project meets all necessary local requirements • Evidence of compliance with design standards • Copies of any necessary permits, agreements, or conditions of approval • Records of any discretionary decisions made by the appropriate agencies.
Location	Along the entire route, especially during underground construction where existing utility services would potentially be disrupted or a collocation accident would potentially occur.
Monitoring/Reporting Action	CPUC/BLM shall monitor to verify that SDG&E provides the CPUC with documentation
Effectiveness Criteria	Minimal disruption of existing utilities
Responsible Agency	CPUC; BLM
Timing	Pre-construction
Interpretation & Approach	None required.
MITIGATION MEASURE	S-3a: Recycle construction waste. To comply with the Integrated Waste Management Act of 1989, during project construction SDG&E and/or its construction contractor shall recycle a minimum of 50 percent of the waste generated during construction activities. In unincorporated San Diego County, to comply with the construction and demolition debris ordinance, SDG&E and/or its construction contractor shall recycle a minimum of 90 percent of inerts and 70 percent of all other materials, and submit all applicable plans and documentation. Following the completion of construction activities, SDG&E shall provide the CPUC and BLM with documentation from the recycling and landfill facilities used to show that the amount of waste recycled was 50 percent or more in Imperial Valley and incorporated San Diego County, and 90 percent of inerts and 70 percent of all other materials in unincorporated San Diego County.
Location	All project locations
Monitoring/Reporting Action	CPUC/BLM shall monitor to verify that SDGE provides the CPUC with documentation from the recycling and landfill facilities
Effectiveness Criteria	Recycle a minimum of 50 percent of the waste generated during construction activities.
Responsible Agency	CPUC; BLM
Timing	During construction

Table 16. Mitigation Measures and Applicant Proposed Measures – Socioeconomics

Interpretation & Approach	None required.
MITIGATION MEASURE	S-3b: Use reclaimed water. To the extent feasible, SDG&E shall coordinate with local water districts in advance in order to efficiently obtain reclaimed or potable water for delivery to the construction sites and to meet any restrictions imposed by them. The Applicant shall provide a letter describing the availability of reclaimed water and efforts made to obtain it for use during construction to the CPUC and BLM a minimum of 60 days prior to the start of construction.
Location	All project locations
Monitoring/Reporting Action	CPUC/BLM shall monitor to verify that SDG&E provides the CPUC with documentation
Effectiveness Criteria	Use of reclaimed water (recommended but not required for implementation)
Responsible Agency	CPUC; BLM
Timing	Pre- and during construction
Interpretation & Approach	7/2/09: Reclaimed water will be used when feasible. Written description (letter) regarding availability will be submitted to describe feasibility of use.
PSU-APM-1	SDG&E has and will continue to coordinate with all utility providers with facilities located within or adjacent to the Proposed Project to ensure that design does not conflict with other facilities. In the event of a conflict, the project will be aligned vertically and/or horizontally as appropriate to avoid other utilities and provide adequate operational and safety buffering. Alternately, the other existing facilities may be relocated. Long-term operations and maintenance of the project will be negotiated through easement, purchased right-of-way, franchise agreement, or joint use agreement. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Interpretation & Approach	None required.
PSU-APM-2	Underground Service Alert would be notified a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.
PSU-APM-3	SDG&E will coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Interpretation & Approach	None required.

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Table 17. Mitigation Measures and Applicant Proposed Measures – Fire and Fuels Management

MITIGATION MEASURE	— F-1a: Develop and implement a Construction Fire Prevention Plan. SDG&E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&E shall fully implement the Plan during all construction and maintenance activities.
	— (F-1a) All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan implementation responsibility shall remain with SDG&E.
	— (F-1a) At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) in Appendix 3D, and the elements listed below: • During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies. • During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF. • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies will review SDG&E's Construction Fire Prevention Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL

Table 17. Mitigation Measures and Applicant Proposed Measures – Fire and Fuels Management

Responsible Agency	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies.
Timing	Pre-construction
Interpretation & Approach	Red Flag warning. On 7/2/09 Construction will cease only in those areas where the Red Flag warning applies. Plan is Fire Plan for Construction, Operation and Maintenance.
MITIGATION MEASURE	F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007). The draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) are presented in Appendix 3D. The Amended Plan shall, at a minimum, include all of the provisions of the Final Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, U.S. Forest Service, and ABDSP, and shall submit the Plan (with agency comments incorporated) for review and approval by Cal Fire at least 90 days prior to energizing the Proposed Project.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP will review and comment and CAL FIRE will approve the SDG&E Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP
Timing	Post construction, pre-energizing the line.
Interpretation & Approach	The name of the draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) has been changed to the SDG&E Wildland Fire Prevention & Fire Safety Plan (ESP 113.1) Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	— F-1c: Ensure coordination for emergency fire suppression. SDG&E shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with fire agencies.
	— (F-1c) Onsite SDG&E and contracted personnel shall coordinate fire suppression activities through the active Fire Incident Commander, and emergency ingress and egress to construction-related access roads shall remain unobstructed at all times.
	— (F-1c) Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. SDG&E shall contact CAL FIRE and CNF dispatch two days prior to helicopter use and shall provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA and CNF lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from the CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by SDG&E shall immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CAL FIRE and CNF will ensure SDG&E: (1) coordinates fire suppression activities through the active Fire Incident Commander, (2) keeps emergency ingress and egress to construction-related access roads unobstructed at all times, (3) ceases work in the event of a fire, (4) contacts CAL FIRE and CNF prior to helicopter use.

Table 17. Mitigation Measures and Applicant Proposed Measures – Fire and Fuels Management

Effectiveness Criteria	• Access roads unobstructed at all times • Work stops in the event of fire • Pre-reporting of helicopter use • Cessation of helicopter use in the event of fire
Responsible Agency	CPUC; BLM, CAL FIRE, CNF
Timing	During construction
Interpretation & Approach	None required.
MITIGATION MEASURE	F-1d: Remove hazards from the work area. The Applicant shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC/BLM monitor SDG&E work areas.
Effectiveness Criteria	Work areas remain clear of brush and dead and decaying vegetation
Responsible Agency	CPUC; BLM
Timing	Pre-, during and post construction
Interpretation & Approach	None required.
MITIGATION MEASURE	F-1e: Contribute to defensible space grants fund. SDG&E shall contribute an annual sum to a fund that shall be distributed as homeowner grants for the creation of defensible space around homes, to promote compliance with PRC 4291, and to facilitate firefighting efforts and reduce structure damage from wildfires potentially ignited by the transmission line. The dollar value of the contribution is $2000 (2008USD) per home determined to be affected through Fire Behavior Model analysis (Table D.15-25). Grants from the fund shall be distributed to those homeowners at highest risk of sustaining structure damage from an ignition-related to the transmission line, as demonstrated by the Fire Behavior Trend Model results. Grants may alternatively be used toward retrofitting rooftops with fire-proof materials, fire shutters, double pane windows, cave boxing, removal of attic vents and/or installation of alternatives, automatic or remotely-operated water sprinklers and automatic or remotely-operated generator-supported water systems, and removal or replacement of wood fencing and decks with fire-resistant materials, at the discretion of the homeowner and under advisement by the agencies. The mechanism for grants distribution shall be determined through agency negotiations and detailed in the Memorandum of Understanding (Mitigation Measure F-3b).
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC/BLM verifies SDG&E contributes sum to fund.
Effectiveness Criteria	Annual contributions are made according to MOU and Table D.15-25 (see below)
Responsible Agency	CPUC/BLM
Timing	Post construction
Interpretation & Approach	None required.
MITIGATION MEASURE	— F-2a: Establish and maintain adequate line clearances. The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW, except where the transmission line spans a canyon. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

Table 17. Mitigation Measures and Applicant Proposed Measures – Fire and Fuels Management

	— F-2a During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times. Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E established adequate conductor clearance.
Effectiveness Criteria	Adequate (15 foot) conductor clearance is maintained
Responsible Agency	CPUC; BLM
Timing	Post construction, prior to energizing the project and for the life of the project.
Interpretation & Approach	None required.
MITIGATION MEASURE	F-2b: Install existing conductors on steel poles. Where construction of the Proposed Project or an alternative would result in the relocation of existing 69 kV transmission lines, these lines shall be relocated onto non-specular steel poles using vertical conductor construction. Also, all existing 69 kV or distribution lines with poles located within 100 feet of the Proposed Project or alternative shall be reconstructed so the existing conductors are on non-specular steel poles using vertical conductor construction to eliminate pole combustion hazard potential, increase wind loading capacity, and reduce mid-line slap ignition potential. Steel poles shall be finished to give the appearance of wood poles. This measure shall not apply to conductors that would be underbuilt on steel poles or lattice towers or installed underground. The vertical conductor construction requirement shall not apply to isolated towers that would be adjacent to existing structures with horizontal conductor construction, and shall apply to sets of four or more sequential towers.
Location	Milepost MRD-9 through MRD-31
Monitoring/Reporting Action	CPUC/BLM monitor verifies that SDG&E installs exiting conductors on steel poles.
Effectiveness Criteria	Existing conductors are installed on steel poles, and wood poles are removed
Responsible Agency	CPUC; BLM
Timing	During construction
Interpretation & Approach	Replacement of wood poles to steel poles will occur on all overhead electrical facilities within 100 feet of the proposed alignment edge of right of way for those adjacent structures that could come in conflict with the conductor of the new structure alignment if the adjacent structures were to fall over for one reason or another. If the adjacent structures do not pose a threat of falling into the new alignment conductors due to topography differences or other design constraints, then there will be no need to change the wood poles to steel poles.
MITIGATION MEASURE	F-2c: Perform climbing inspections. The Applicant shall perform climbing inspections on 10 percent of project structures annually, such that every project structure has been climbed and inspected at the end of a 10-year period, for the life of the project. In addition, the Applicant shall keep a detailed inspection log of climbing inspections, and any potential structural weaknesses or imminent component failures shall be acted upon immediately. The inspection log shall be submitted to CPUC for review on an annual basis.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	Inspection log is provided to CPUC annually
Effectiveness Criteria	Climbing inspections are performed on 10 percent of structures annually
Responsible Agency	CPUC; BLM
Timing	Post construction
Interpretation & Approach	None required.

Table 17. Mitigation Measures and Applicant Proposed Measures – Fire and Fuels Management

MITIGATION MEASURE	F-3a: Contribute to Powerline Firefighting Mitigation Fund. The Applicant shall contribute an annual sum to local, State, and federal fire protection districts in the project vicinity through the mechanism of a new Powerline Firefighting Mitigation Fund, which shall be organized and carried out by SDG&E, and shall be subject to the oversight of the CPUC for the life of the Fund. Funding shall be used toward fire prevention measures and protection equipment and services, as appropriate to each jurisdiction. An increase in funding for fire prevention and suppression services and equipment will increase the probability of a fire being successfully contained, especially during normal weather conditions, and will therefore partially mitigate the significant barrier the transmission line poses to firefighting operations. The annual sum shall be based on an equivalent fuelbreak mitigation (presented as Mitigation Measure F-3a in the Draft EIR/EIS), which is an alternative means of partially mitigating the significant effect that the presence of the transmission line on firefighting operations, but which would be jurisdictionally infeasible. This shall be $1,000 per acre for the first year plus $250 per acre for each subsequent year for the life of the project (in 2008 United States Dollars), based on the number of miles of Wildfire Containment Conflict listed in Table D.15-26 (see below). Should CAL FIRE wish to take over administrative authority for the Powerline Firefighting Mitigation Fund, an administrative transfer shall not be in violation of Mitigation Measure F-3a.
Location	Fund contribution based on miles of Wildfire Containment Conflict
Monitoring/Reporting Action	SDG&E provides proof of annual payment. CPUC, BLM, and U.S. Forest Service will ensure SDG&E contributes annually to the fund and shall have oversight for the life of the fund. The funds shall be used toward fire prevention measures and protection equipment and services.
Effectiveness Criteria	Annual sum is paid to Powerline Firefighting Mitigation Fund.
Responsible Agency	CPUC; BLM, U.S. Forest Service
Timing	Pre-, during and post construction
Interpretation & Approach	Reference to ABDSP is not applicable to FESSR.
MITIGATION MEASURE	F-3b: Prepare and implement a Multi-agency Fire Prevention MOU. A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The MOU shall be adopted prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall stipulate the mechanism for defensible space grants distribution (Mitigation Measure F-1e). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted. A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.
Location	Along entire Proposed Project and Alternatives
Monitoring/Reporting Action	CPUC/BLM monitor verifies that MOU is created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate.
Effectiveness Criteria	MOU is drafted, agreed upon, and reviewed every five (5) years
Responsible Agency	CPUC; BLM
Timing	Pre-, during, and post construction.
Interpretation & Approach	8/31/09: De-energizing of the transmission line will be conducted in coordination with fire agencies.

Table 18. Mitigation Measure F-1e Compliance Contributions

Segment Identification	Homes at Risk	Annual Contribution Per Home	Total Annual Contribution for 2008 (USD)
Final Environmentally Superior Southern Route Alternative	1,300	$2,000	$2,600,000

a To be determined through Fire Behavior Trend Modeling Analyses that shall be performed by SDG&E should any of these future routes be constructed.

b No additional homes would be placed at risk should this alternative be selected in addition to the primary route to which this alternative would connect.

Table 19. Mitigation Measure F-3a Compliance Locations

Segment Identification	Location of Significant Conflict	Length of Significant Conflict (miles)	Area of Significant Conflict (acres)
Final Environmentally Superior Southern Route Alternative	MRD 11-13, MRD 23-26.5, and MP just before 131-133	6.5	236

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

Project Construction Phase
G-CM-1 A qualified biologist[3] will monitor all work areas to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the Conservation Measures are met by being present during construction activities including all initial grubbing and clearing of vegetation. The qualified biologist will conduct monitoring for any area subject to disturbance from construction activities. The qualified biologist will perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies (the Service and CDFG, collectively), depending on the sensitivity of the resources. The qualified biologist will send weekly monitoring reports to the CPUC and BLM and will record any reduction or increase in construction impacts so that compensation requirements can be revised accordingly. The final impact calculations will be submitted to the CPUC, BLM, USFS (for sections of the Project that require monitoring on National Forest lands), and Wildlife Agencies for review and approval. • SDG&E, its contractors and subcontractors, and their respective project personnel, will refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (*e.g.,* Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations. • The qualified biologist will have the authority to issue stop work orders if any part of the Conservation Measures are being violated. The qualified biologist will immediately notify the CPUC, BLM, USFS and Wildlife Agencies of any significant events discovered during the monitoring. Reinitiation of work following a stop work order will only occur when the CPUC, BLM, USFS, and Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts will be made, and that any additional protection measures they deem necessary will be undertaken.
G-CM-2 Throughout the construction process all crews will use the SDG&E Water Quality Construction Best Management Practices Manual (BMPs) (SDG&E 2002). Following are some of the general guidelines: • Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams; • Surface water, riparian areas, and floodplains will be spanned where feasible; A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented; Storm Water BMPs for construction will be implemented per the requirements of the project's SWPPP; • Silt fencing, straw mulch, and straw bale check dams will be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures will be implemented. • The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction. • Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands, and floodplains; and • Structures will not be placed in streambeds or drainage channels to the extent feasible.
G-CM-3 SDG&E will secure any required General Permit for Storm Water Discharges Associated with Construction Activity (National Pollutant Discharge Elimination System (NPDES permit) authorization from the State Water Resources Control Board and/or the Regional WQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts.
G-CM-4 Prior to construction, all of SDG&E's contractors, subcontractors, and project personnel will receive training regarding the appropriate work practices necessary to effectively implement the Conservation Measures and to comply with the applicable environmental laws and regulations including appropriate wildlife avoidance and impact minimization procedures, the importance of these resources, and the purpose and necessity of protecting them.
G-CM-5 In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities, which could interfere with plant photosynthesis, a 24 km (15 mi) per hour speed limit will be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse.
G-CM-6 The area limits of project construction and survey activities will be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings, with activity restricted to and confined within those limits. In addition, survey personnel will keep survey vehicles on existing roads. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats occur. Any impacts associated with unauthorized activity (*e.g.,* exceeding approved construction limits) will be mitigated at a 5:1 ratio (5.5:1 in Flat-tail Horned Lizard (FTHL) Management Area (MA)). Restoration of the unauthorized impacts will be credited at a 1:1 ratio (*i.e.,* offset by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) will be acquired offsite.

[3] A qualified biologist or biological monitor must have (1) a bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) previous experience with applying the terms and conditions of a biological opinion; and (3) approval of the Service if conducting focused or protocol surveys for federally listed species.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-7 During project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat will require prior approval from the project biological monitor in conformance with the Conservation Measures. Hiking off roads or paths for survey data collection is allowed year-round as long as applicable Conservation Measures to minimize impacts are met.
G-CM-8 Stringing of new wire and reconductoring for the project will be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on project access roads. Where stringing requires that conductor drop within brush or drag on or through the brush or ground or vehicles leave project access roads, SDG&E will perform a site survey(s), to determine presence or absence of nesting migratory birds (including the three federally listed bird species subject to this consultation) or other listed species in the work area. Details of protocol survey requirements are outlined in the species-specific measures below. SDG&E will submit results of this survey(s) to the Wildlife Agencies, prior to dropping wire in brush, dragging wire on the ground or through brush, or taking vehicles off project access roads.
G-CM-9 Project personnel will not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris will remain in the ROW following completion of construction. All refuse will be placed in appropriate wildlife-proof containers and removed from job sites daily.
G-CM-10 Repairs may be required during the construction of the project to address emergency situations (*e.g.,* downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs, all Conservation Measures will be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage will be reported to the project biological monitor, who will promptly submit a written report of such impacts to the Wildlife Agencies and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological monitor will develop a reasonable and feasible mitigation plan consistent with the Conservation Measures and any permits previously issued for the project by the governmental agencies.
G-CM-11 In areas designated as sensitive by SDG&E or the Wildlife Agencies, to the extent feasible, structures and access roads will be designed to minimize impacts to sensitive features. These areas of sensitive features include, but are not limited to, high-value wildlife and plant habitats, sensitive vegetation communities, and habitat occupied by listed species. If the sensitive features cannot be completely avoided or spanned, structures and access roads will be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in designated sensitive areas, SDG&E will perform a site survey to determine presence or absence of endangered species in sensitive habitats as required in G-CM-32 below. SDG&E will submit results of this survey to the Wildlife Agencies prior to constructing structures or access roads.
G-CM-12 In construction areas where grading or re-contouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for re-sprouting. Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil located in areas containing sensitive habitat will be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation. Topsoil located in developed or disturbed areas is excluded from this measure. Disturbed soils will be restored based on a Habitat Restoration Plan per G-CM-16.
G-CM-13 Night lighting within the project area adjacent to preserved habitat will be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable. Vehicle traffic associated with project activities may not exceed 24 km (15 mi) per hour to prevent mortality of nocturnal wildlife species that may be moving about.
G-CM-14 To the extent practicable, surface-disturbing components of the project will be located in previously disturbed areas or where habitat quality is poor to minimize disturbance of vegetation and soils.
G-CM-15 Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist. The construction mats will not be left on the ground for more than three weeks. Use of construction mats will be considered a temporary impact to vegetation and will be incorporated into the Habitat Restoration Plan per conservation measure G-CM-16.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-16 SDG&E will prepare and implement a Habitat Restoration Plan, approved by the CPUC, BLM, USFS, and Wildlife Agencies, for all temporarily impacted project areas. The Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (*i.e.,* weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period of five years (or less if the restoration meets all success criteria). The compensation ratios listed in Table 2 will apply to impacts from emergency repairs during the construction phase. In cases where the impacts to sensitive vegetation communities occur on lands previously preserved to offset impacts from other projects, the mitigation ratios will be doubled, as is standard practice in San Diego County.

- Areas to be restored will include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Restoration of some habitats in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, impacts will be considered permanent, and the compensation will consist of offsite land acquisition and preservation. Where onsite restoration is planned, SDG&E will identify a qualified habitat restoration specialist to be approved by the CPUC, BLM, USFS, and Wildlife Agencies. The habitat restoration specialist will prepare and implement the Habitat Restoration Plan. Hydroseeding, drill seeding, or an otherwise proven restoration technique will be use on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, BLM, USFS, and Wildlife Agencies to restore the area to its original condition. The Habitat Restoration Plan will incorporate the measures identified in the May 25, 2006, Memorandum of Understanding (MOU) among Edison Electric Institute, USFS, BLM, Service, National Park Service, and Environmental Protection Agency (EPA) (Edison Electric Institute *et al*. 2006), where applicable.
- For restoration of temporary impacts to desert scrub and dune habitats, a separate Habitat Restoration Plan will be developed for desert vegetation communities and incorporate Desert Bioregion Revegetation/Restoration Guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.
- The restoration of habitat will be maintained and monitored for five years after installation by an experienced, licensed habitat restoration contractor, or until established success criteria identified in the Restoration Plan (*e.g.,* specified percent cover of native and nonnative species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance, monitoring, and reporting will be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (*e.g.,* additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) will be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring will extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, USFS and Wildlife Agencies. For areas where habitat restoration cannot meet restoration requirements, as determined by the habitat restoration specialist in coordination with the CPUC, BLM, USFS (for sections of the project with restoration on National Forest lands), and Wildlife Agencies, off-site purchase and dedication of habitat will be provided at the ratios provided in Table 2.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-17 SDG&E will purchase/dedicate suitable habitat for preservation, at ratios identified in Table 2, to offset permanently impacted areas. A Habitat Management Plan(s) will be required for all offsite parcels and must be approved, in writing, by the CPUC, BLM, USFS, and Wildlife Agencies prior to the initiation of any vegetation clearing activities. The Habitat Management Plan(s) shall include, but will not be limited to:

- Legal descriptions of all parcels approved by the CPUC, BLM, USFS, and Wildlife Agencies;
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to the CPUC, BLM, USFS, and Wildlife Agencies;
- Baseline biological data for all parcels;
- Designation of a land management entity approved by the CPUC, BLM, USFS, and Wildlife Agencies to provide in-perpetuity management;
- A Property Analysis Record (PAR) prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; and
- Designation of responsible parties and their roles (*e.g.,* provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity).

All off-site compensation parcels will be approved by the CPUC, BLM, USFS, and Wildlife Agencies and must be acquired or their acquisition must be assured through a mechanism such as a performance bond prior to ground disturbing activities. To demonstrate that such parcels will be acquired, SDG&E will submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan will be submitted to the CPUC, BLM, Wildlife Agencies, and USFS for review and approval and will include, but not be limited to: legal descriptions and maps of all parcels proposed to be acquired; acquisition schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (*e.g.,* performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities. SDG&E will fully fund an endowment for in-perpetuity management of all parcels acquired to off-set the permanent impacts of this project. The endowment will be based on the PAR included in the Habitat Management Plan(s) for these parcels and will be fully funded within three (3) months of the approval of the Habitat Management Plan(s).

G-CM-18 To reduce adverse impacts from unnatural wildfire (type conversion, proliferation of exotic weed species), SDG&E will re-seed disturbed areas after a transmission line–caused fire. Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the SRPL Project, SDG&E will re-seed all natural areas — both public and private — that are burned as a result of the project-caused fire. Re-seeding will be required for areas that have been burned within the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan will be developed with input from Cal Fire, the USFS, BLM, CPUC and Wildlife Agencies. Seeds shall be raked into the soil to avoid seed predation, and reseeding will be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. SDG&E will provide a written report documenting all re-seeding activities to the BLM, CPUC, USFS, and Wildlife Agencies. SDG&E will make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort will be submitted to the above mentioned agencies upon request. Specific re-seeding requirements stipulated in this conservation measure will be subject to approval and modification by any public landowning agency.

G-CM-19 SDG&E will prepare and implement a Raven Control Plan, approved by the Wildlife Agencies, for portions of the SRPL Project route. The raven control plan will include the use of raven perching and nesting deterrents. The plan will identify the purpose of conducting raven control; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; describe raven control methods to be employed along the route; and describe procedures for documenting the activities on an annual basis.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-20 SDG&E will prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. The Weed Control Plan will be approved by the BLM, USFS, and Wildlife Agencies before implementation Where SDG&E owns the ROW property, the Weed Control Plan will include specific weed abatement methods, practices, and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC). On the ROW easement lands administered by public agencies (BLM, USFS, and Wildlife Agencies), the Weed Control Plan will incorporate all appropriate and legal agency stipulated regulations. The Weed Control Plan will be submitted to the ROW landholding public agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands will include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, SDG&E will work with the landowners to obtain authorization of the weed control treatment that is required. Developed land will be excluded from weed control.

The Weed Control Plan will include the following:

- A pre-construction weed inventory will be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured), as well as at all ancillary facilities associated with the Project, for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]). These populations will be mapped and described according to density and area covered. These plant species will be treated (where access and permission can be secured) prior to construction or at a time when treatments will be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, as appropriate.
- For areas directly impacted by the Project, a pre-construction weed inventory will be conducted for those weed populations rated 'High' or 'Moderate' for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006). These weed species will be treated prior to construction or at a time when treatments will be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC.
- Weed control treatments will include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides will be in compliance with all State and Federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment will be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, and Cal-IPC with the goal of controlling populations before they start producing seeds.
- For the lifespan of the project (*i.e.,* as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area will be taken as follows:
- The survey areas described above would be surveyed annually to monitor previously-identified and treated populations and to identify new invasive weed populations. The treatment of weeds will occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, and Cal-IPC.
- During project construction, all seeds and straw materials will be certified weed free, and all gravel and fill material will be certified weed free by the San Diego County Agriculture Commissioner's Office.
- During project construction, vehicles and all equipment will be washed (including wheels, undercarriages, and bumpers) at an off-site washing facility (*e.g.,* a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. will be washed at an off-site washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. Vehicles, tools, and equipment will be washed at an off-site washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). All washing will take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort will be made to use wash facilities that use recycled water. A written daily log will be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log will include the signature of a responsible staff member. Logs will be available to the CPUC, BLM, USFS (for Project sections within National Forest lands), Wildlife Agencies, and biological monitor for inspection at any time and will be submitted to the CPUC on a monthly basis during construction.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-21 Project construction activities will be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Where revegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix, approved by the Wildlife Agencies, will be done on slopes. In addition to the measures above, the following erosion control procedures will be implemented:

- Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance.
- In agricultural areas, topsoil will be left in roughened condition.
- When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity.
- Disturbed areas will be returned to their pre-construction contours and allowed to revegetate naturally, or will be reseeded with an appropriate seed mixture if necessary.

Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations.

G-CM-22 In areas where ground disturbance is substantial or where re-contouring is required (*e.g.,* marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and revegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or recontouring will be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor.

G-CM-23 To limit impact to existing vegetation, appropriately sized equipment (*e.g.,* bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities.

G-CM-24 To suppress dust during Project construction, SDG&E will prepare and file with the Imperial County Air Pollution Control District, San Diego Air Pollution Control District, BLM, and CPUC, a Dust Control Plan. The Dust Control Plan will include a description of how the plan will be implemented and monitored at all locations of the project and contain the following measures:

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area;
- Pre-water sites for 48 hours in advance of clearing activities;
- Reduce the amount of disturbed area where possible;
- Spray all dirt stock-pole areas daily as needed;
- Cover loads in haul trucks or maintain at least 15.24 cm (six in) of free-board when traveling on public roads;
- Pre-moisten, prior to transport, import and export dirt, sand, or loose materials;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets;
- Plant vegetative ground cover in disturbed areas as soon as possible following construction; and
- Apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days)

In addition to the Dust Control Plan, the following dust reduction measures will be implemented:

- Prohibit construction grading on days when the wind gusts exceed 40.2 km per hour (25 mph), to the extent feasible, to control fugitive dust;
- All trucks hauling soil and other loose material will be covered or maintain at least 0.61 km (two feet) of freeboard;
- Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E;
- Vehicle speeds will be limited to 24.1 km per hour (15 mph) on unpaved (no gravel or similar surfacing material) roads;
- Unpaved roads will be treated by watering as necessary;
- Soil stabilizers will be applied to inactive construction areas on an as-needed basis; and
- Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered, treated with soil binders, or covered as necessary.

G-CM-25 Except when not feasible due to physical or safety constraints, all project vehicle movement will be restricted to existing access roads and access roads constructed as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-26 All limits of construction will be delineated with orange construction fencing. During and after construction, entrances to access roads will be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads will be posted on these gates.
G-CM-27 To the extent feasible, access roads will be built at right angles to the streambeds and washes. Where it is not feasible for access roads to cross at right angles, SDG&E will limit roads constructed parallel to streambeds or washes to a maximum length of 500 ft at any one transmission line crossing location. Such parallel roads will be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or waters of the state. Culverts will be installed where needed for right angle crossings, but rock crossings will be utilized across most right angle drainage crossings. All construction activities will be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and stream banks (*e.g.,* structures will not be located within a stream channel, construction activities will avoid sensitive features). Up to 30 days prior to construction in streambeds and washes, SDG&E will perform a pre-activity survey(s) to determine the presence or absence of threatened or endangered riparian species. Details of protocol survey requirements are listed in the species-specific measures below.
G-CM-28 To limit new or improved accessibility into the area, SDG&E shall coordinate with the authorized officer for the applicable Federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on existing and new access roads, especially trails that will be used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.
G-CM-29 To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.
G-CM-30 To limit new or improved accessibility into the area, all new access roads or spur roads constructed as part of the project that are not required as permanent access for future project maintenance and operation will be permanently closed. Where required, roads will be permanently closed, with the concurrence of the underlying landowner and the governmental agency having jurisdiction, using the most effective feasible and least environmentally damaging methods (*e.g.,* stockpiling and replacing topsoil or rock replacement) appropriate to that area. All permanently closed access roads and spur roads will be restored with native vegetation following closure.
G-CM-31 Mowing shall be used when permanent access is not required since, with time, total re-vegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing will be necessary to maintain permanent access. In such instances, SDG&E will mow at least once every two years. The project biological construction monitor will conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 4-m-wide (14-foot-wide) area on straight portions of the road and a 5-6-m-wide (16 to 20-ft-wide) area at turns, and that the mowing height is no less than 10 cm (4 in) from finished grade.
G-CM-32 Prior to construction activities, SDG&E will conduct on-the-ground surveys (following Service protocols where they exist) for the following listed species where such surveys had not been conducted in 2007 and 2008, or for those species for which surveys in 2007 and 2008 were not reliable due to lack of sufficient rainfall. • San Diego Thornmint (Acanthomintha ilicifolia) • San Bernardino Bluegrass (Poa atropurpurea) • Willowy Monardella (Monardella viminea) • Quino Checkerspot Butterfly (Euphydryas editha quino) • Arroyo Toad (Bufo californicus) • Southwestern Willow Flycatcher (Empidonax traillii extimus) • Least Bell's Vireo (Vireo bellii pusillus) • Coastal California Gnatcatcher (Polioptila californica californica) • Stephen's Kangaroo Rat (Dipodomys stephensi)

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-33 Prior to construction, plant population boundaries designated as listed or proposed by the Wildlife Agencies and other resources designated as listed or proposed by SDG&E and other resource agencies will be clearly delineated with visible flagging or fencing, which will remain in place for the duration of construction. Flagged areas will be avoided to the extent practicable during construction activities in that area. Where these areas cannot be avoided, focused surveys for covered plant species will be performed. Notification of presence of any covered plant species to be removed in the work area will occur within ten (10) working days prior to construction activity, during which time the Wildlife Agencies may remove such plant(s) or recommend measures to minimize or reduce the impact. If neither the Service nor CDFG has removed such plant(s) within ten (10) working days following written notice, SDG&E may proceed with work. In such cases, SDG&E will move plants to a nursery and hold them for up to one year while the Wildlife Agencies determine a specific relocation program.

G-CM-34 To offset the loss of native trees or native tree trimming, SDG&E shall (1) acquire and preserve habitat where the trees occur and/or (2) restore (*i.e.,* planting) trees on land that will not be subject to vegetation clearing (either in SDG&E's ROW and/or on land acquired and preserved). Any land to be used for this compensation shall be approved by the CPUC, BLM, USFS (for loss of trees on National Forest lands), and Wildlife Agencies. For habitat acquisition and preservation, the compensation ratios shall follow those in Table 2.

For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no compensation shall be required.

For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed:
Native trees that are removed shall be replaced in-kind (by species) as follows:

- Trees less than 12.7 cm (5 in) diameter at breast height (DBH) shall be replaced at 3:1
- Trees between 13 and 31 cm (5 and 12 in) DBH shall be replaced at 5:1
- Trees between 31 and 91cm (12 and 36 in) DBH shall be replaced at 10:1
- Trees greater than 91 cm (36 in) DBH shall be replaced at 20:1

Native trees that are trimmed shall be replaced in-kind (by species) as follows:

- Trees less than 30 cm (12 in) DBH shall be replaced at 2:1
- Trees greater than 30 (12 in) DBH shall be replaced at 5:1

All native tree restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, USFS, and Wildlife Agencies.

G-CM-35 Plant species identified as rare by the land managing agency will be salvaged where avoidance is not feasible. Generally, salvage may include removal and stockpiling for replanting on site; removal and transplanting out of surface disturbance area; removal and salvage by private individuals; and removal and salvage by commercial dealers; or any combination. Plant or wildlife species will not be collected except by biological monitors specifically directed by the Wildlife Agencies to do so.

G-CM-36 No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms will be prohibited in all Project areas except for those used by security personnel.

G-CM-37 Feeding of wildlife by SDG&E personnel or contractors is prohibited.

G-CM-38 To minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations, Project personnel are not allowed to bring pets into any project area.

G-CM-39 All steep-walled trenches or excavations used during construction will be covered at all times except when being actively utilized. If the trenches or excavations cannot be covered, exclusion fencing (*i.e.,* silt fencing) will be installed around the trench or excavation, or it will be covered to prevent entrapment of wildlife. Open trenches, or other excavations that could entrap wildlife will be inspected by the qualified biologist a minimum of three times per day and immediately before backfilling. Should a dead or injured listed species be found in a trench or excavation or anywhere in the construction zone or along an access road, the qualified biologist will contact the CPUC, BLM, USFS, and Wildlife Agencies within 48 hours of detection. The qualified biologist will report the species found, the location of the finding, the cause of death (if known), and will submit a photograph and any other pertinent information. Construction holes left open over night will be covered. Covers will be secured in place nightly, prior to workers leaving the site, and will be strong enough to prevent livestock or wildlife from falling through and into a hole. Holes and/or trenches will be inspected prior to filling to ensure absence of mammals and reptiles. Excavations will be sloped on one end to provide an escape route for small mammals and reptiles.

G-CM-40 Employees and contractors will look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment will be moved until the animal has left voluntarily or is removed by the qualified biologist.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-41 The applicant will ensure that the following conditions are implemented during project construction: • Disposal or temporary placement of excess fill, brush or other debris will not be allowed in waters of the United States or their banks; All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur in designated areas outside of waters of the United States within the fenced project impact limits. These designated areas will be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering waters of the United States, and will be shown on the construction plans. Fueling of equipment will take place within existing paved areas or designated fueling areas designed to contain fuel drips greater than 30.5 m (100 ft) from waters of the United States. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. “No-fueling zones” will be designated on construction plans and/or within the stormwater pollution prevention plan.
G-CM-42 A minimum of a 30.5-m (100-ft) riparian buffer will be maintained between all construction/staging areas, except where the access roads cross riparian areas.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

Operations and Maintenance Phase
General Conservation Measures G-CM 2, G-CM 4, G-CM-5, G-CM-8 to G-CM-10, G-CM-12 to G-CM-16, G-CM-21, G-CM-23, G-CM-25, and G-CM-31 to G-CM-41 will also be implemented during the O&M phase of the SRPL Project.
G-CM-43 A qualified biologist employed by SDG&E will be present during maintenance involving ROW repair requiring ground disturbance (*i.e.,* grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). The qualified biologist will send annual monitoring reports of maintenance activities to the CPUC, BLM, and USFS (for sections of the project that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were impacts that required mitigation.
G-CM-44 The area limits of Project maintenance and survey activities will be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings, with activity restricted to and confined within those limits, within SDG&E's ROW. In addition, survey personnel would keep survey vehicles on existing roads. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or maintenance activity where any sensitive biological resources or wildlife habitats occur.
G-CM-45 SDG&E will purchase/dedicate suitable habitat for preservation to offset areas permanently impacted by O&M activities. The preservation for O&M activities will be at the same ratios provided in Table 2 for construction activities. A Habitat Management Plan(s) will be required for all off-site parcels and must be approved in writing by the CPUC, BLM, USFS, and Wildlife Agencies. SDG&E may choose to establish conservation banks or purchase conservation credits from existing conservation banks, other than the conservation bank established for SDG&E's Subregional Plan (SDG&E 1995), to provide an efficient process to offset the anticipated minor impacts resulting from O&M activities.
G-CM-46 All O&M activities will be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and stream banks. Up to 30 days prior to O&M activities in streambeds and washes, SDG&E would perform a pre-activity survey(s) to determine the presence or absence of threatened or endangered riparian species. Details of protocol survey requirements are listed below in the species-specific measures.
G-CM-47 As part of the environmental training program, field crews will be trained to recognize the importance of invasive plant species control, and will be informed of the measures designed to control the spread of invasive species. Deliberate introduction of invasive plants or animals into any project site is prohibited. Heavy equipment will be inspected for invasive plant seeds or other plant material prior to entering an access road or a project site. Any plant seeds or other plant material discovered on heavy equipment will be manually removed. All seeds and straw materials used during O&M activities will be certified weed free, and all gravel and fill material would be certified weed free by the San Diego County Agriculture Commissioner's Office.
G-CM-48 Access roads shall be maintained once every two years. If this schedule is not adhered to, loss of habitat due to maintenance of access roads will be considered a new permanent impact and compensated according to the ratios provided in Table 2.
G-CM-49 Brush clearing around any project facilities (*e.g.,* structures, substations) for fire protection, visual inspection, or project surveying in areas that have been previously cleared or maintained within a two-year or shorter period would not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing will not be conducted during the breeding season (March through August) without a pre-activity survey for vegetation containing active nests, burrows, or dens. The pre-activity survey performed by the on-site biological resource monitor will make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work will be avoided until after the nesting season, or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance-level survey, soil in the brush clearing area will be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.

Table 20. U.S. Fish and Wildlife Service General Conservation Measures

G-CM-50 Brush clearing and other construction activities will occur outside the general avian breeding season. All vegetation clearing, except tree trimming or removal, will take place between September 16 and February 14 (*i.e.,* outside of the general avian breeding season of February 15 through September 15), when feasible. Tree trimming or removal will only take place between September 16 and December 31 (*i.e.,* outside the raptor breeding season of January 1 through September 15). For brush clearing and/or other construction activities that cannot occur outside the above-listed breeding seasons, a qualified biologist will work with a qualified acoustician to determine if a the construction activity will meet or exceed the 60 dB(A) Leq hourly noise threshold where nesting territories of the gnatcatcher and vireo occur. If the noise threshold will not be met or exceeded at the edge of their nesting territories, then brush clearing and/or other construction activities may proceed. If the noise threshold will be met or exceeded at the edge of their nesting territories, pre-construction surveys for nests of these species will be conducted by a qualified biologist (Service-approved biologist for gnatcatcher, vireo, and flycatcher) within 91 m (300 ft) of the construction area no more than seven days prior to initiation of construction that will occur between February 15 and August 31 for the gnatcatcher, March 15 and September 15 for the vireo, April 15 and September 15 for the flycatcher. If active nests are found, work may proceed provided that methods, determined by the qualified acoustician to be effective, are implemented to reduce noise below the threshold. These methods include, but are not limited to, turning off vehicle engines and other equipment whenever possible and/or installing a protective noise barrier between a nesting territory and maintenance activities. If the qualified acoustician determines that no methods will reduce noise to below the threshold, maintenance will be deferred until the nestlings have fledged or the nest has failed, as determined the qualified biologist. Where noise-reducing methods are employed, active nests will be monitored by the qualified biologist on a weekly basis until maintenance is complete or until the nestlings fledge or fails, whichever comes first. The qualified biologist will be responsible for documenting the results of the pre-maintenance nest surveys and the nest monitoring and for reporting these results to the CPUC, BLM, USFS, and Wildlife Agencies.
G-CM-51 Maintenance activities will occur outside the general avian breeding season, where feasible. For other maintenance activities that cannot occur outside the above-listed breeding seasons, SDG&E will follow the requirements in G-CM-50 for noise reduction at nest sites.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

Project Construction Phase
San Diego Thornmint
SS-CM-1 No impacts will occur to the thornmint population at and adjacent to MP 116 or to any thornmint occurrences between MP 114 and 119. To ensure the avoidance of impacts, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (*e.g.,* towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) between MP 114 and MP 119. In other areas where suitable thornmint habitat (*i.e.,* gabbro and calcareous soils and a slope of 0 to 25 percent) exists, the area to be impacted will be surveyed for thornmint before any impacts may occur, per G-CM-32. All permanent and temporary impact areas will be sited at least 100 feet away from any known thornmint occurrences. SDG&E will implement the Weed Control Plan described in G-CM-20 to ensure that intact thornmint populations are not impacted by non-natives that could be introduced by this project.
SS-CM-2 Impacts to San Diego thornmint will first be avoided where feasible, and where not feasible due to physical or safety constraints, impacts will be compensated through salvage and relocation via a restoration program, at a 1:1 ratio, and/or off-site acquisition and preservation of habitat, at a 2:1 ratio, containing the plant. The CPUC, BLM, USFS and Wildlife Agencies will decide whether the applicant can restore San Diego thornmint populations or will acquire habitat with San Diego thornmint (locations to be approved by the CPUC, BLM, USFS and Wildlife Agencies). A qualified biologist will prepare a Restoration Plan that will indicate where restoration will take place. The restoration plan will identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The applicant will work with the CPUC, BLM, Wildlife Agencies, and USFS until a plan is approved by all parties.
Quino Checkerspot Butterfly
SS-CM-3 A biologist permitted by the Service will delineate suitable/occupied habitat areas that will be impacted by project construction. Suitable habitat is defined as areas containing the primary constituent elements (PCEs) as outlined in the January 17, 2008, proposed revision to critical habitat (73 FR 3328) (see the "Status of the Species/Critical Habitat" section below for a discussion of the PCEs for Quino). Occupied Quino habitat is defined as contiguous suitable habitat containing the PCEs within 2 kilometers of a known Quino occurrence ("habitat-based population distribution") (73 FR 3328). Delineated suitable/ occupied habitat and the results of the Quino protocol presence/absence surveys will be submitted to the Service for review and approval before an incidental take permit may be issued for this species. Impacts to Quino habitat will be determined by the amount of suitable/unoccupied habitat and/or occupied habitat that is proposed to be impacted indirectly and directly.
SS-CM-4 A pre-construction, Service protocol presence/absence survey for the adult Quino will be conducted within the delineated suitable/occupied habitat in the construction zone. Any surveys will be conducted in a year where Quino is readily observed at Service Quino-monitored reference sites to determine what areas are occupied by Quino (*i.e.,* any suitable habitat within 1 km (0.6 mi) of a current Quino sighting is considered occupied) and what areas are not occupied. The biologist will record the precise locations of Quino larval host plants and nectar sources within the construction zone (and 10 meters beyond) using GPS technology. • If the protocol pre-construction Quino survey is determined by the Service to be conclusive, then areas found to be unoccupied by Quino will not require species-specific compensation. • If the Service determines that the protocol pre-construction survey is not conclusive for determining Quino absence (due to limited detectability per the 2002 protocol, for example), then all suitable habitat areas will be considered potentially occupied. SDG&E will avoid siting any permanent or temporary impacts within 1 km (1 mi) of any known or newly discovered Quino occurrences. If the SDG&E believes that impacts to Quino are unavoidable, it will provide evidence to such an effect to the Service for review and approval. Any approved impacts to Quino occupied or Quino suitable habitat will require compensation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15), stays at least 10 m (33 ft) away from all host plant locations, and does not impact suitable habitat then no compensation is required (Service 2007a). If construction occurs between October 16 and May 31, is within 10 m (33 ft) of host plant locations, or removes suitable habitat then, (1) temporary impacts to the habitat will be mitigated at 2:1 through 1:1 on-site restoration of temporarily disturbed areas and 1:1 offsite acquisition and preservation of an equal sized, contiguous area of Quino-occupied habitat, and (2) permanent impacts will be compensated through 3:1 off-site acquisition and preservation of Quino-occupied habitat (or Quino-designated critical habitat for impacts to designated critical habitat). Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies. A Service approved biologist will be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same compensation will apply where the protocol pre-construction survey was conclusive for determining that the Quino is present and where construction will occur in designated critical habitat. Impacts to Quino critical habitat must be off-set within the same Critical Habitat Unit where the impacts occur. • If host plant mapping is not possible during the pre-construction survey (*e.g.,* drought prevents plant germination), then all suitable habitat (*i.e.,* non-excluded habitat per the 2002 protocol) will be considered occupied by the Quino and compensated under the assumption that Quino is present.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

SS-CM-5 Any Service-approved restoration of impacted habitat will be conducted in areas with appropriate topographical and biological features to be determined by the Service, BLM, USFS and SDG&E. The details of the restoration shall be based on Appendix II of the Recovery Plan for the Quino Checkerspot Butterfly (Service 2003a) and described in a plan to be reviewed and approved by the Service. The restoration plan shall include, but not be limited to: (1) larval host plants (local stock, if possible) to be planted; (2) nectar resources; (3) irrigation needs and/or other establishment procedures; (4) timeline for implementation; (5) success criteria; (6) contingency measures for success criteria that are not met; (7) weed control measures; (8) monitoring program; and (9) implementation schedule. The restoration plan will be prepared and submitted to the Service prior to commencement of ground disturbance associated with the proposed project. The proposed project will not commence until the restoration begins. The restoration plan actions will be completed no later than completion of project construction. Success criteria will be modeled on undisturbed native plant communities in the vicinity of the proposed project and sites within the area known to be occupied by Quino.

SS-CM-6 Due the extreme importance of the Quino population located in the Jacumba Unit of Quino critical habitat, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (*e.g.,* towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) within Quino critical habitat. SDG&E will work with the Service to ensure that no larvae or adults within critical habitat will be impacted by this project.

SS-CM-7 No new construction will occur during the Quino flight season within 1 km (1 mi) of any known or newly discovered Quino occurrence. If it is not feasible to construct outside of the flight season in these instances, SDG&E must obtain written consent from the Service to proceed with construction.

Arroyo Toad

SS-CM-8 A pre-construction, Service protocol, survey will be conducted for the arroyo toad by a biologist approved by the Service to handle the toad) in all areas of the project located within suitable arroyo toad breeding habitat.

- The removal of toad riparian breeding habitat will occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

SS-CM-9 SDG&E will develop an arroyo toad translocation monitoring program to be implemented during all construction activities that have the potential to adversely affect the arroyo toad. This program will be coordinated with the Service, USFS, and BLM and finalized prior to initiation of construction activities. The program will include the following requirements:

- Prior to clearing, grubbing, and construction activities, Service-permitted biologists will monitor arroyo toad breeding activity in those project areas containing or adjacent to breeding habitat. The biologists will determine when egg clutches or larvae are no longer present in the waterway (generally late May at lower elevation, June at higher elevation). When sign of breeding is no longer evident, an exclusionary fence will be installed and clearance surveys initiated.
- Prior to clearing, grubbing, and grading activities, arroyo toad temporary exclusionary fence will be constructed along the perimeter of the project footprint within or immediately adjacent to arroyo toad habitat (breeding and aestivation). The intent of the fence is to fully contain the area(s) to be impacted and to remove and exclude arroyo toads. Exclusionary fence in aestivation habitat will not be installed prior to May 1. The Service-permitted biologist will be present during the exclusionary fence installation, reconfigurations, breach repairs, and weekly during the breeding season. The fence will consist of fabric or plastic at least 0.6 m (2 ft) high, staked firmly to the ground with the lower 0.3 m (1 ft) of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of the fence and all materials shall be removed when the Project is complete. The removal of some vegetation, without disturbing the soil, within the project footprint to aid in the observance and collection of arroyo toads is acceptable. All fencing materials (*i.e.,* mesh, stakes, etc.) will be removed following construction. Ingress and egress of construction equipment and personnel will be kept to a minimum, but when necessary, equipment and personnel will use a single access point to the site. This access point will be as narrow as possible and will be closed off by exclusionary fencing when personnel are not on the project site.
- Prior to clearing, grubbing, and grading activities, but after exclusionary fencing has been installed, Service-approved biologists will perform a minimum of three nighttime surveys inside the exclusionary fence and remove all arroyo toads found within its perimeter. The approved biologist will continue until there have been two consecutive nights without arroyo toads inside the fencing. Any breach in the exclusionary fence during times when arroyo toads area active above ground, will result in repeating the 3-day minimum clearance surveys for that particular area.
- If conditions do not occur that result in sufficient arroyo toad emergence and movement, a Service-approved biologist will attempt to elicit a response from the arroyo toads during nights late in the known breeding season, with temperatures above 50°F, by spraying the area inside the exclusionary fence with water to a depth of approximately 2 to 5 cm (1 to 2 in) to simulate a rain event.
- Whether or not a simulated precipitation event is done, arroyo toads found within the project footprint will be captured and translocated by Service-approved biologists to the closest area of suitable habitat. The Service-approved biologist will coordinate with the appropriate property owner(s) and the Service on where the arroyo toads will be placed.
- Service-approved biologists will maintain a complete record of all arroyo toads encountered and moved from harms way during translocation efforts. The date and time of capture, sex, physical dimensions, and coordinates/specific location of capture will be recorded and provided to the Service, within 30 days of the completion of translocation. In addition to reporting on the translocation effort, monthly reports (including photographs of impact areas) will be submitted to the Service during construction activities within areas demarcated by arroyo toad exclusion fencing. The monthly reports will document general compliance with all applicable conditions and report all incidents not in compliance with this biological opinion. The reports will also outline the duration of arroyo toad monitoring, the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, sex, observed behavior, and remedial measures employed to avoid, minimize, and mitigate impacts to arroyo toads. All field notes and other documentation generated by the Service-approved biologist will be made available upon request to the Service.
- To avoid transferring disease or pathogens between aquatic habitats during surveys and handling of arroyo toads, the approved biologists will follow the Declining Amphibian Population Task Force's Code of Practice (DAPTF, 1991) or newer version when available.
- After the clearance surveys outlined above have been completed, daily surveys will be conducted each morning prior to the continuation of construction activity. Any toads found will be relocated per the translocation plan.
- The applicant will submit, in writing, the names, any permit numbers, résumés, and at least three references (of people who are familiar with the relevant qualifications of the proposed biologist), of all biologists who might need to handle, move, or monitor arroyo toads for the proposed project. This information will be submitted to the Service for approval at least 15 days prior to the initiation of any arroyo toad surveys. Proposed activities will not begin until an authorized biologist has been approved by the Service.

SS-CM-10 To offset the loss of occupied and suitable arroyo toad habitat within the project area, and to offset indirect effects of the project on arroyo habitat, SDG&E will develop and implement an arroyo toad predator control program on USFS lands. The scope and methods for this program will be developed in consultation with the Service and USFS.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

SS-CM-11 Compensation for the loss of arroyo toad-occupied habitat will be implemented as follows. Permanent impacts to occupied arroyo toad breeding habitat will include 3:1 off-site acquisition and preservation of occupied arroyo toad breeding habitat. Permanent impacts to occupied upland burrowing habitat will include 2:1 off-site acquisition and preservation of occupied upland burrowing habitat. Temporary impacts to occupied breeding habitat will include 1:1 on-site restoration and 2:1 off-site acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied upland burrowing habitat will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied upland burrowing habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-12 To avoid and minimize impacts to arroyo toads, access road construction and use, with the exception of emergency situations, will occur during daylight hours (from 2 hours after sunrise to 2 hours before sunset) when amphibian movement is less frequent.

SS-CM-13 No construction activities will take place during the arroyo toad breeding season (March 15-July 31) within suitable arroyo toad breeding habitat.

SS-CM-14 To avoid long-term impacts to wildlife movement, including, but not limited to arroyo toad movement on the project site, all temporary arroyo toad exclusion fencing and temporary construction fencing will be removed at the conclusion of construction activities.

SS-CM-15 Towers, pads, pull stations, access roads, staging areas, and fly yards will not be located within suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the extent feasible. In cases where the applicant determines it is not feasible to fully avoid suitable/potential arroyo toad habitat, the applicant will consult with the Service to identify a site for the above-listed features that would avoid and minimize impacts to suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the maximum extent.

Least Bell's Vireo

SS-CM-16 During construction, all grading or brushing taking place within riparian habitats occupied by the vireo will be conducted outside the vireo breeding season (defined as March 15 through September 15). When conducting all other construction activities during the breeding season within 152 m (500 ft) (Service 2007b) of occupied or suitable habitat, a biologist approved by the Service will survey for vireos within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

- During construction, if vireos are present, a Service-approved biologist will survey daily for nesting vireos within 152 m (500 ft) of the construction area, for the duration of the activity in that area during the breeding season. If an active nest is located, a 91-m (300-ft) no-construction buffer zone will be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. SDG&E will contact the Wildlife Agencies to determine the appropriate buffer zone. No construction will take place within this buffer zone until the nest has fledged or is no longer active. If construction must take place within the buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied vireo habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that construction activities are disturbing nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies, BLM and USFS, to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The Service-approved biologist will monitor the nest daily until activities are no longer within 91-m (300 ft) of the nest, or the fledglings become independent of their nest or the nest has failed.
- Impacts to aquatic resources under the jurisdiction of the Corps of Engineers, Regional Water Boards, State Water Board, and CDFG will be avoided to the extent feasible. The avoidance of these resources will further minimize impacts to vireo.

SS-CM-17 To avoid impacts to vireo, towers, pads, pull stations, access roads, staging areas, and fly yards will be located outside of riparian vegetation, including occupied vireo habitat, where feasible. If avoidance is not feasible, compensation for the loss of suitable vireo habitat will be implemented as follows. Permanent impacts to suitable habitat will include 3:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of occupied habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-18 To minimize adverse impacts from loss of occupied habitat in the Cleveland National Forest, and to minimize predation and parasitism, SDG&E will develop and implement a brown-headed cowbird (*Molothrus ater*) trapping program, in consultation with the USFS.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

California Gnatcatcher

SS-CM-19 All brushing or grading taking place within occupied habitat of the gnatcatcher (defined as within 152 m (500 ft) of any gnatcatcher sightings (Service 2007b)) during construction will be conducted outside of the gnatcatcher breeding season (February 15 through August 31). When conducting all other construction activities during the gnatcatcher breeding season, within occupied habitat, the following avoidance measures will apply.

- Vegetation clearing outside of the breeding season (October 1 through February 14) will take place in the presence of a biological monitor approved by the Service. The monitor will walk ahead of vegetation removal equipment and ensure that gnatcatchers are not killed or injured as a direct result of vegetation removal activities. The monitor will have the authority to halt/suspend all activities until appropriate corrective measures have been completed. The monitor will also be required to report violations immediately to the Service and CDFG. This measure is required for construction activities only.
- A Service-approved biologist will survey for gnatcatchers within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If gnatcatchers are present, a Service-approved biologist will survey for nesting activity approximately once per week within 152 m (500 ft) of the construction area for the duration of the activity.
- If an active nest is located, a 91-m (300-ft) no-construction buffer (Service 2007b) will be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The applicant will contact the Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction will take place within this buffer zone until the nest is no longer active. However, if construction must take place within the 91-m (300-ft) buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting gnatcatchers and the activities, and working in other areas until the young have fledged.

SS-CM-20 Compensation for the loss of occupied gnatcatcher habitat will be implemented as follows. Permanent impacts to occupied habitat will include 2:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 onsite restoration and 1:1 off-site acquisition and preservation of occupied habitat. Impacts to occupied gnatcatcher designated critical habitat must be compensated within the same Critical Habitat Unit where the impacts occurred. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-21 Compensation for the loss of unoccupied designated critical habitat for the gnatcatcher will be implemented as follows. Permanent impacts to unoccupied designated critical habitat will include 2:1 offsite acquisition and preservation of designated critical habitat. Temporary impacts to unoccupied designated critical habitat will include 1:1 onsite restoration. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

Peninsular Bighorn Sheep

SS-CM-22 Construction activities (including the use of helicopters) in bighorn sheep designated critical habitat will be limited to outside the lambing season (January 1 through June 30) and the period of greatest water need (June 1 through September 30) as defined in the Recovery Plan. Construction activities in designated critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.

SS-CM-23 Compensation for the loss of occupied bighorn sheep habitat will be implemented as follows. Permanent impacts to designated critical habitat will include 5:1 offsite acquisition and preservation of critical habitat. Temporary impacts to designated critical habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of critical habitat. Any acquired habitat will be approved by the CPUC, BLM, and Wildlife Agencies.

SS-CM-24 A biological consultant approved by the Wildlife Agencies will be retained by SDG&E to collect data on bighorn sheep movements in the area during the construction phase. Prior to construction the biologist shall submit a bighorn sheep monitoring plan that meets the approval of the Wildlife Agencies. Helicopters shall follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying "short-cuts" or sight-seeing trips away from the project site. Helicopters shall avoid flying within 0.6 mi (1 km) of bighorn sheep water sources. Helicopter landing areas, vehicle parking sites, and fly yards shall be cited at least 0.6 mi (1 km) from bighorn sheep water sources and other key resource areas identified by the biologist. When bighorn sheep are detected within the I-8 Island, construction operations shall cease until bighorns leave the area as verified by the biologist.

Table 21. U.S. Fish and Wildlife Service Species Specific Conservation Measures

SS-CM-25 To help reconnect desert bighorn sheep subpopulations and at least partially offset impacts to the overall population caused by the project, SDG&E will:

- Fund the design and construction of an overpass or underpass (for sheep), or tunnel (for vehicles) to facilitate desert bighorn sheep movement across a highway at a location determined by the Service (in coordination with CDFG). Tunnel or overpass design must be approved by the Wildlife Agencies, and construction of the facility will be completed prior to connecting and energizing the proposed project to the grid.
- Fund, design, and construct a system of fences to prevent bighorn sheep from crossing on the surface of westbound Interstate 8. The fencing shall be designed in consultation with Caltrans and the Wildlife Agencies to facilitate bighorn sheep movement through/across the island using structures currently present, such as the bridges spanning Devil's Canyon, and the culverts/low bridge along eastbound Interstate 8.
- Fund removal of tamarisk, fountain grass, other invasive species, and hazardous fences for the life of the project in the action area, and install and maintain water sources per direction and at locations specified by the Wildlife Agencies for the life of the project.
- Fund a minimum 10-year-long program to monitor the effects of the project on bighorn sheep behavior, movements, and dispersal in the area from Carrizo Gorge south to the international boundary (10 years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program will be designed and implemented by the Wildlife Agencies following construction. Funding for the project will be provided prior to completion of project construction and is estimated to cost $150,000 per year in 2008 dollars.
- The project proponent will provide sufficient funds to CDFG, or a third party designated by CDFG, to ensure five complete biennial aerial surveys from Carrizo Gorge to the international boundary, for the 10-year period beginning with the scheduled 2010 CDFG survey.
- Water used for operation and maintenance purposes will not be obtained from water sources used by bighorn sheep or other wildlife.

Operations and Maintenance Phase

Species-Specific Conservation Measures SS-CM-1 to SS-CM-23 will also be implemented during the O&M phase of the SRPL Project.

Quino Checkerspot Butterfly

SS-CM-26 If access roads in Quino-occupied or suitable habitat are maintained (*i.e.,* regraded) and vegetation around structures is cleared at least once every two years, then no additional compensation will be required for this ongoing maintenance. If more than two years pass without re-grading or clearing, then the maintenance will be considered a new impact to Quino and would be compensated based on SS-CM-2.

SS-CM-27 Some O&M activities associated with the project may need to be conducted on emergency basis. Under these circumstances, no pre-activity survey will be conducted and no Quino adult surveys will be conducted. SDG&E may take action immediately and must contact the Service within 24 hours after undertaking the activity to provide information on the location and emergency nature of the activity. Unavoidable impacts that occurred during emergency O&M activities will be mitigated at a 2:1 ratio.

Attachment A

Project Segments Map

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

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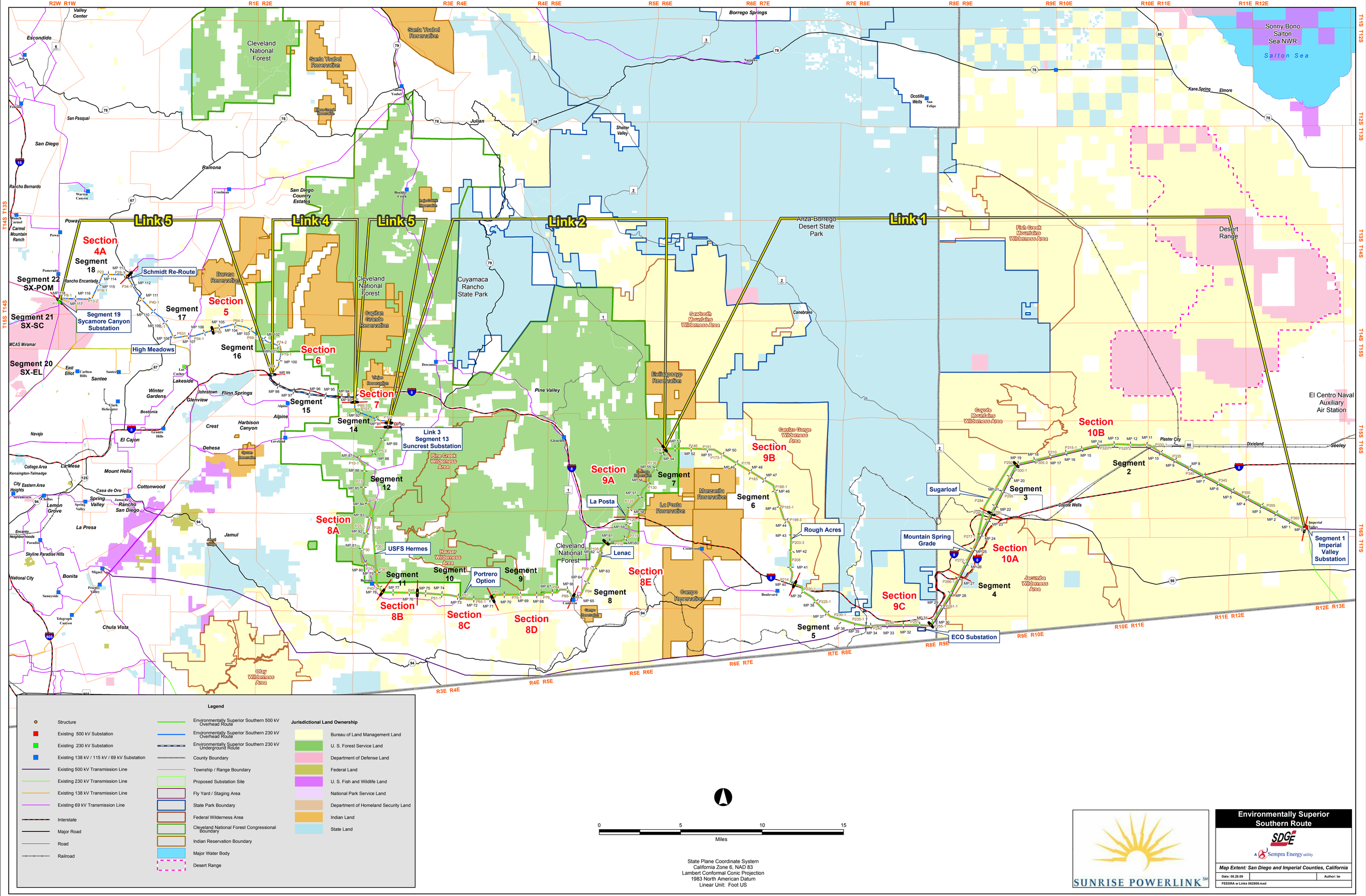
Link 5
Link 4
Link 5
Link 2
Link 1
Section 4A
Segment 18
Segment 22 SX-POM
Segment 21 SX-SC
Segment 20 SX-EL
Segment 19 Sycamore Canyon Substation
Schmidt Re-Route
High Meadows
Segment 17
Section 5
Segment 16
Section 6
Segment 15
Section 7
Segment 14
Link 3 Segment 13 Suncrest Substation
Segment 12
Section 8A
USFS Hermes
Section 8B
Segment 11
Portrero Option
Section 8C
Segment 10
Section 8D
Segment 9
Section 8E
Segment 8
Lenac
La Posta
Section 9A
Segment 7
Section 9B
Segment 6
Rough Acres
Section 9C
Segment 5
ECO Substation
Mountain Spring Grade
Sugarloaf
Section 10A
Segment 4
Segment 3
Segment 2
Section 10B
Segment 1 Imperial Valley Substation
Anza-Borrego Desert State Park
Cuyamaca Rancho State Park
Cleveland National Forest
Santa Ysabel Reservation
Barona Reservation
Capitan Grande Reservation
Viejas Reservation
Ewiiaapaayp Reservation
Manzanita Reservation
La Posta Reservation
Campo Reservation
Sawtooth Mountains Wilderness Area
Pine Creek Wilderness Area
Hauser Wilderness Area
Otay Wilderness Area
Fish Creek Mountains Wilderness Area
Coyote Mountains Wilderness Area
Carrizo Gorge Wilderness Area
Jacumba Wilderness Area
Sonny Bono Salton Sea NWR
Salton Sea
Desert Range
El Centro Naval Auxiliary Air Station
Borrego Springs
Julian
Ramona
San Diego
Escondido
Valley Center
San Pasqual
Poway
Rancho Bernardo
Santee
El Cajon
La Mesa
Lemon Grove
Spring Valley
La Presa
Jamul
Bonita
Chula Vista
National City
MCAS Miramar
Alpine
Descanso
Pine Valley
Boulevard
Campo
Dehesa
Harbison Canyon
Crest
Flinn Springs
Lakeside
Winter Gardens
Glenview
Johnstown
Mount Helix
Cottonwood
Casa de Oro
Rancho San Diego
Jamacha
Lincoln Acres
Encanto Neighborhoods
Skyline Paradise Hills
Sunnyside
Paradise
Kensington-Talmadge
College Area
Eastern Area
City Heights
Normal Heights
Kane Spring
Elmore
Ocotillo Wells
Shelter Valley
Plaster City
Dixieland
Seeley
Coyote Wells
Imperial Valley
Ocotillo
Tierra Del Sol
Carmel Mountain Ranch
Rancho Encantada
Pomerado
Warren Canyon
Creelman
Boulder Creek
Descanso
Cameron Corners
Crestwood
Yaqui Well Recreation Area
Granite Hills
Loveland
Alpine
Glencliff
Harbison Canyon
Dehesa
Crest
Flinn Springs
Lakeside
Winter Gardens
Glenview
Johnstown
Bostonia
Navajo
El Cajon
Lemon Grove
Spring Valley
La Presa
Jamul
Bonita
Chula Vista
National City
Sunnyside
Telegraph Canyon
Encanto Neighborhoods
Skyline Paradise Hills
Paradise
Mount Helix
Cottonwood
Casa de Oro
Rancho San Diego
Jamacha
Lincoln Acres
Spring Valley
Lemon Grove
Sweetwater Reservoir
Loveland Reservoir
Barrett Junction
Cameron Corners
Campo Reservation
Boulevard
Crestwood
Yaqui Well Recreation Area
Descanso
Pine Valley
Julian
Santa Ysabel
Ramona
San Diego
Escondido
Valley Center
Poway
Rancho Bernardo
Santee
El Cajon
La Mesa
Lemon Grove
Spring Valley
La Presa
Jamul
Bonita
Chula Vista
National City
MCAS Miramar
Alpine
Descanso
Pine Valley
Boulevard
Campo
Dehesa
Harbison Canyon

Attachment B

Project Contact List

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

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Attachment B. Mitigation Monitoring Program Contact List for the Sunrise Powerlink Project

Contact Name & Title	Address	Phone	FAX	Email Address
SAN DIEGO GAS & ELECTRIC COMPANY (SDG&E)				
Patrick Lee Project Vice President	8330 Century Park Ct., MS CP33A San Diego, CA 92123	858-650-6101	858-650-6106	Patrick.lee@semprautilities.com
Bob Jackson General Manager & Director Construction and Engineering	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-654-6451	858-654-0234	RCJackson@semprautilities.com
Jonathan Woldemariam Manager, Engineering, Procurement & Construction Services	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-650-4084	858-654-1692	JWoldemariam@semprautilities.com
Alan Colton Manager Environmental Services	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-654-8727	858-637-3770	AColton@semprautilities.com
Don Haines Environmental Resource Manager	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-637-3708	858-637-3700	DEHaines@semprautilities.com
Tina Carter Environmental Compliance Lead	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-637-7940	858-637-3700	TMCarter@semprautilities.com
SDG&E Project Managers & Construction Personnel				
TBD Project Manager, Link 1	8315 Century Park Ct., MS CP21G San Diego, CA 92123		858-637-3731	
TBD Project Manager, Link 2	8315 Century Park Ct., MS CP21G San Diego, CA 92123		858-637-3731	
John Jenkins Project Manager, Link 3	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-654-8242	858-637-3731	JJenkins@semprautilities.com
Gerry Akin Project Manager, Link 4	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-637-3733	858-637-3731	GAkin@semprautilities.com
Jose Lopez Project Manager, Link 5	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-636-5583	858-637-3731	JLopez@semprautilities.com
TBD Construction Contractor Construction Personnel				
SDG&E Environmental Resource Specialists and Monitors				
Linda Collins Principal Environmental Specialist	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-650-4064	858-637-3731	LCollins@semprautilities.com

Attachment B. Mitigation Monitoring Program Contact List for the Sunrise Powerlink Project

Contact Name & Title	Address	Phone	FAX	Email Address
Karen Wilson Senior Environmental Specialist	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-636-3972	858-637-3731	KWilson@semprautilities.com
Dayle Cheever Senior Environmental Specialist	8315 Century Park Ct., MS CP21G San Diego, CA 92123	858-654-1856	858-637-3731	DCheever@semprautilities.com
TBD Environmental Monitors				
SDG&E Additional Roles:				
Kevin O'Beirne Regulatory Affairs	8330 Century Park Ct., MS CP32D San Diego, CA 92123	858-654-1765	858-654-1788	KO'Beirne@semprautilities.com
Jill Larson Sr. Counsel, Environmental Law	101 Ash St., MS HQ13D San Diego, Ca 92101	619-696-4364	619-696-4488	JDLarson@sempra.com
CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC) THIRD-PARTY MONITORS				
Susan Lee Vice President Aspen Environmental Group	235 Montgomery Street, #935 San Francisco, CA 94104	415-290-4984 x203	415-955-4776	SLee@aspeneg.com
Vida Strong Lead Environmental Monitor Aspen Environmental Group	950 Debra Drive Santa Barbara, CA 93110	805-597-3407		VStrong@Aspeneg.com
Brewster Birdsall, P.E., QEP Aspen Environmental Group	235 Montgomery Street, #935 San Francisco, CA 94104	415-955-4775 x202	415-955-4776	BBirdsall@aspeneg.com
Anne Coronado Environmental Monitor	235 Montgomery Street, #935 San Francisco, CA 94104	818-292-0998	415-955-4776	acoronado@aspeneg.com
Hedy Koczwara Aspen Environmental Group	235 Montgomery Street, #935 San Francisco, CA 94104	415-955-4775 x207	415-955-4776	hkoczwara@aspeneg.com
CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC)				
Billie Blanchard CPUC Project Manager	505 Van Ness, 4th Floor San Francisco, CA 94102	415-703-2068		SLee@aspeneg.com
BUREAU OF LAND MANAGEMENT				
Daniel Steward El Centro Field Office	El Centro Field Office 1661 S. 4th St El Centro CA 92243	760-337-4424		Daniel_Steward@ca.blm.gov

Attachment B. Mitigation Monitoring Program Contact List for the Sunrise Powerlink Project

Contact Name & Title	Address	Phone	FAX	Email Address
Carrie Simmons Archaeologist	El Centro Field Office 1661 S. 4th St El Centro CA 92243	760-337-4437		Carrie_Simmons@ca.blm.gov
Michael Bennett Palm Springs/South Coast Field Office	Palm Springs/South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262	760-833-7139		Michael_Bennett@blm.gov
Greg Hill Palm Springs/South Coast Field Office	Palm Springs/South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262	760-833-7140		Greg_Hill@blm.gov
Janaye Byergo (San Diego)	Palm Springs/South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262	858-451-1767		Janaye_Byergo@blm.gov
UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE				
Bob Hawkins	10845 Rancho Bernardo Road, Suite 200 San Diego CA 92127	707-562-8699		rhawkins@fs.fed.us
UNITED STATES DEPARTMENT OF DEFENSE – MARINE CORPS AIR STATION (MCAS) MIRAMAR				
Jack Harkins Deputy Assistant Chief of Staff G-4 I&L	Marine Corps Air Bases Western Area P.O. Box 452007 San Diego, Ca 92145-2007	858-577-6678 (O) 858-864-3464 (C)		Jack.Harkins@usmc.mil
UNITED STATES ARMY CORPS OF ENGINEERS				
Robert R. Smith Jr., P.E. 404 Permit	6010 Hidden Valley Road, Suite 105 Carlsbad, CA 92011	760-602-4831		robert.r.smith@usace.army.mil
UNITED STATES FISH AND WILDLIFE SERVICE				
Eric Porter	6010 Hidden Valley Road, Suite 101 Carlsbad, CA 92011	760-431-9440 x285		eric_porter@fws.gov
Doreen Stadtlander	6010 Hidden Valley Road, Suite 101 Carlsbad, CA 92011	760-431-9440 x223		doreen_stadtlander@fws.gov
CALIFORNIA DEPARTMENT OF FISH AND GAME				
Helen Birss main contact	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	805-569-6863		hbirss@dfg.ca.gov

Attachment B. Mitigation Monitoring Program Contact List for the Sunrise Powerlink Project

Contact Name & Title	Address	Phone	FAX	Email Address
Marilyn Fluharty	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	858-467-4231		mfluharty@dfg.ca.gov
Paul Schlitt Region 5 CEQA/CESA	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	858-637-5510		pschlitt@dfg.ca.gov
James Sheridan Region 6 CEQA/CESA	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	760-200-9419		jsheridan@dfg.ca.gov
Kelly Fisher Region 5 LSAA Program within San Diego County	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	858-467-4207		kfisher@dfg.ca.gov
Heather Pert Region 6 LSAA Program in Imperial Cty, Region 6	South Coast Region 4949 Viewridge Avenue San Diego CA 92123	858-395-9692		hpert@dfg.ca.gov
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY – STATE WATER RESOURCES CONTROL BOARD				
Cliff Harvey	1001 I Street, 15th floor Sacramento, CA 95814	916-558-1709		charvey@waterboards.ca.gov

Attachment C

Daily Monitoring Form

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
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U.S. Department of Interior

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Aspen Environmental Group

30423 Canwood St., Suite 215, Agoura Hills, CA 91301
Tel. 818-597-3407, Fax 818-597-8001, www.aspeneg.com

MITIGATION IMPLEMENTATION AND MONITORING PROGRAM
SITE INSPECTION FORM

Project: **Lead Agency:**
Owner: **Project Manager**
Environmental Monitor:

LOCATION: **DATE**

PROJECT PHASE: ☐ Pre-Construction
☐ Construction
☐ Operation

SITE INSPECTION CHECKLIST

AIR QUALITY	**Yes**	**No**
Are dust control measures being implemented? Are vehicles or equipment prevented from idling unnecessarily?		
BIOLOGY		
Are appropriate measures in place to protect sensitive habitat (i.e. flagging, signage, exclusion fencing, biological monitor)? Are all activities being conducted within the approved work limits? Is construction activity being conducted within approved work limits to avoid impacts to adjacent habitat (sensitive or non-sensitive)?		
CULTURAL RESOURCES		
Are known cultural resources clearly marked for exclusion? Is a cultural monitor on-site if grading is occurring near known cultural sites?		
HAZARDOUS MATERIALS		
Have all spills been cleaned up in accordance with the projects SCCP? Are fuels, oils, lubricants, and other hazardous materials on-site labeled and stored in appropriate containers?		
WATER QUALITY		
Have temporary erosion and sediment control measures been installed? Are BMPs in good condition and functional? Is mud tracked onto roadways cleaned up in accordance with the project's SWPPP?		

DESCRIPTION OF OBSERVED ACTIVITY:

MITIGATION MEASURES VERIFIED:

COMPLIANCE

☐ Project is in compliance with environmental mitigation measures

☐ Project Memorandum (Mitigation Measure not fully implemented, however, no eminent resource threat or damage)

☐ Non-Compliance Report (Violates the project's environmental requirements and places environmental resources at risk or minor incidents are repeated, and show a trend toward placing resources at unnecessary risk)

ITEMS REQUIRING FOLLOW-UP:

Attachment D

Variance Request Form

Note: Variances are required for any change to the approved project or for a change to an adopted mitigation measure or Applicant Proposed Measure. Variance requests must include:

(1) A detailed description of the proposed change and the reason for the need for the change,

(2) A description of the existing conditions in the area, and

(3) The potential impacts of the proposed change (including discussion of each environ¬mental issue area that could be affected by the change).

(4) Attachments to the attached form may be required (photos, maps, additional description)

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SAMPLE FORM BELOW: SDG&E to develop one for the Sunrise Powerlink Project

VARIANCE REQUEST FORM

Date Approval Required: _____ Variance Request No: _____

Date Submitted: _____ Segment/Location: _____

Landowner: _____ Landowner Parcel Number: _____

Current Land Use: _____ Existing Sensitive Resource? Yes ☐ No ☐

Resource Name and Number: _____

Variance From: (check one): Mitigation Measure ☐ Permit ☐ Plan/Procedure ☐ Specification ☐ Drawing ☐ Other ☐

Specify Source (e.g., Mitigation Measure B.5): _____

Detailed Description of Variance and Justification: Attachments? Yes ☐ No ☐ Photos? Yes ☐ No ☐

Comments/Conditions:

Request prepared by: _____ Date: _____

Approvals (as required)	Date	Name (print)	Approval Signature	Conditions (see attached)
Construction Manager				Yes ☐ No ☐
Environmental Inspector				Yes ☐ No ☐
Environmental Supervisor				Yes ☐ No ☐
Environmental Manager				Yes ☐ No ☐
				Yes ☐ No ☐
Other				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐

Attachment E

Temporary Extra Work Space Form

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

TEMPORARY EXTRA WORK SPACE REQUEST

Location/Address City/County

Proposed Use of Site

Proposed Date(s) of Use Proposed Hours of Use

Adjacent Land Uses

SDG&E Permit Coordinator (Prepared by) Date

Biological, Cultural and Paleontological reconnaissance surveys are mandatory for use of any areas containing vegetation, or exposed earth that have not been previously surveyed and fully described in project documents. Biological surveys are mandatory for all temporary extra work sites. Attach a diagram of the proposed area that identifies the location of the site and proximity to sensitive resources or receptors.

* Complete the environmental checklist below. Note: **Yes** answers require additional clarification and should be submitted as an attachment to this form.

Environmental Checklist	Yes*	No	CPUC Verified
Air Quality: Would equipment be on site or idled for more than 10 minutes? Would there be dust-producing activities?			
Biological Resources A: Would use of the site result in potential impacts to sensitive biological resources? Would use of the site result in potential for the spread of noxious weeds?			
Cultural/Paleontological Resources: Would clearing or grading be required?			
Water Resources: Would runoff from the site flow into storm drains or a waterway? Would equipment refueling or maintenance be performed? Would materials block/impact storm drains or gutters?			
Land Use and Recreation: Would use of site block access to local land uses and recreational areas?			
Noise: Are noise-sensitive receptors (e.g., homes, schools, hospitals, churches convalescent homes, parks, recreational areas) adjacent to the site?			
Socioeconomics: Would access to business be blocked? Would there be disruption of business operations?			
Traffic: Would parking be eliminated? Would increased construction traffic result in impacts? Is the site a residential area?			
Visual: Would lights at site create glare for adjacent land uses (including roadways)?			

Standard Conditions of Approval

- *The CPUC, via its designated Environmental Monitor, will review and approve/deny the Temporary Extra Workspace Request (TEWS) request within four business days of receiving this completed form.*
- Use of TEWS is limited to 60 days. First proposed date of use: _____
- Use of TEWS shall be in compliance with local ordinances (including traffic/noise) and mitigation measures.
- If any signs of cultural resources are identified, work shall cease immediately and the site shall be reevaluated.
- The proposed site shall not be used for storage of fuel or hazardous materials.
- All drips, leaks, and/or spills from vehicles and/or equipment shall be cleaned-up immediately and disposed of in appropriate, labeled containers.
- Adjacent streets shall be swept or cleaned with water at the end of each workday if visible soil material is carried on them.
- No parking or storage of vehicles (including personnel vehicles), equipment, pipe, or any other project-related item shall be allowed on adjacent roadways.
- If a complaint is received, it shall be forwarded to the SDG&E Permit Coordinator, the CPUC Environmental Monitor, and the CPUC Lead Environmental Monitor for review.

The following signatures indicate that the proposed site is approved for TEWS. On a random basis, a CPUC Environmental Monitor will verify that use of the proposed site is in accordance with the conditions noted. This approval may be revoked at any time by any one of the approval team. Failure to comply with all conditions will result in immediate revocation of this TEWS approval.

Property Owner Date

SDG&E Construction Date

SDG&E Permit Coordinator Date

The above TEWS request and attached documentation have been reviewed and this request is approved or denied (*circle one*).

CPUC Environmental Monitor Date

****Additional CPUC Conditions of Approval**

(CPUC Monitor Initial _____)

REASON(S) FOR DENIAL:

Attachment F

Sunrise Mitigation Measures – Sorted by Time of Implementation

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
B-1a: Provide restoration/ compensation for impacted sensitive vegetation communities	B-1a: Provide restoration/ compensation for impacted sensitive vegetation communities	WR-2b: Evaluate and Implement PCT Route Revision
B-1c: Conduct biological monitoring	B-1c: Conduct biological monitoring	PS-2a: Implement grounding measures
B-1l: SDG&E shall continue to work with the USDA Forest Service to minimize impacts to the RCA between Structures 184 and 187	B-1k: Re-seed disturbed areas after a transmission line–caused fire	F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007)
B-2a: Provide restoration/compensation for impacted jurisdictional areas	B-2a: Provide restoration/compensation for impacted jurisdictional areas	F-2a: Establish and maintain adequate line clearances
B-3a: Prepare and implement a Weed Control Plan	B-3a: Prepare and implement a Weed Control Plan	
B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies	B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies	
B-7a: Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals)	B-7a: Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals)	
B-7b: Implement avoidance/ mitigation/ compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy	B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy	
B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat	B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat	
B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/ minimization/ compensation strategies	B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/ minimization/ compensation strategies	
B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/ minimization/ compensation strategies	B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/ minimization/compensation strategies	
B-7h: Implement appropriate avoidance/ minimization strategies for eagle nests	B-7h: Implement appropriate avoidance/ minimization strategies for eagle nests	
B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/ compensation strategies	B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/ compensation strategies	
B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/ minimization/compensation strategies	B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/ minimization/compensation strategies	
B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/ minimization/compensation strategies	B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/ minimization/compensation strategies	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
B-8a: Conduct pre-construction surveys and monitoring for breeding birds	B-8a: Conduct pre-construction surveys and monitoring for breeding birds	
B-9a: Survey for bat nursery colonies	B-9a: Survey for bat nursery colonies	
B-10a: Utilize collision-reducing techniques in installation of transmission lines	B-10a: Utilize collision-reducing techniques in installation of transmission lines	
B-11a: Prepare and implement a Raven Control Plan	BIO-APM-1: Perform any detailed on-the-ground protocol surveys with regard to specific sensitive plant or wildlife species whose habitat would be impacted. Implement with B-1a, B-1b, B-2a, B-5a, B-7d, B-7e, B-7g, B-7i, B-7j, B-k, B-7l, B-7m, and B-7o	
BIO-APM-1: Perform any detailed on-the-ground protocol surveys withregard to specific sensitive plant or wildlife species whose habitat would beimpacted. Implement with B-1a, B-1b, B-2a, B-5a, B-7d, B-7e, B-7g, B-7i, B-7j, B-k, B-7l, B-7m, and B-7o	BIO-APM-3: Restrict vehicle movement to existing and constructed roads. Implement with B-5a, B-7a, B-8a, B-9a, B-12a, B-12b, and B-12c	
BIO-APM-2: Train personnel regarding the appropriate work practices necessary to effectively implement the biological APMs.	BIO-APM-4: Comply with survey vehicles guidelines on existing roads	
BIO-APM-3: Restrict vehicle movement to existing and constructed roads. Implement with B-5a, B-7a, B-8a, B-9a, B-12a, B-12b, and B-12c	BIO-APM-5: Configure access roads in compliance with hydrological resources guidelines. Implement with B-1a, B-2a, B-5a, and B-8a	
BIO-APM-4: Comply with survey vehicles guidelines on existing roads	BIO-APM-6: Comply with all applicable environmental laws and regulations. Implement with B-1a, B-5a, B-8a, and B-12a	
BIO-APM-7: Littering is not allowed. Implement with B-6a, B-8a, and B-12a	BIO-APM-7: Littering is not allowed. Implement with B-6a, B-8a, and B-12a	
BIO-APM-8: Delineate sensitive plant population boundaries. Implement with B-5a	BIO-APM-8: Delineate sensitive plant population boundaries. Implement with B-5a	
BIO-APM-10: No wildlife, including rattlesnakes, may be harmed except to protect life and limb; Firearms shall be prohibited. Implement with B-12a	BIO-APM-10: No wildlife, including rattlesnakes, may be harmed except to protect life and limb; Firearms shall be prohibited. Implement with B-12a	
BIO-APM-11: Feeding of wildlife is not allowed. Implement with B-12a	BIO-APM-12: Do not bring pets. Implement with B-12a	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
BIO-APM-12: Do not bring pets. Implement with B-12a	BIO-APM-13: Plant or wildlife species may not be collected for pets or any other reason. Implement with B-5a and B-12a	
BIO-APM-13: Plant or wildlife species may not be collected for pets or any other reason. Implement with B-5a and B-12a	BIO-APM-14: Comply with removal of wildlife and transportation guidelines. Implement with B-7a	
BIO-APM-16: Follow sensitive tree trimming guidelines. Implement with B-1a, B-2a, B-8a, and B-12a	BIO-APM-15: Follow APMs during emergency repairs. Implement with B-1a and B-2a	
BIO-APM-18: Design access roads to minimize impacts to sensitive features. Implement with B-2a and B-5a, B-8a, and B-9a	BIO-APM-16: Follow sensitive tree trimming guidelines. Implement with B-1a, B-2a, B-8a, and B-12a	
BIO-APM-19: Implement restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM	BIO-APM-17: Permanently close any new access roads or spur roads constructed as part of the project that are not required as permanent access. Implement with B-1a	
BIO-APM-21: Comply with "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc., 1981). Implement with B-10a	BIO-APM-18: Design access roads to minimize impacts to sensitive features. Implement with B-2a and B-5a, B-8a, and B-9a	
BIO-APM-27: Remove all existing raptor nests from structures that would be affected by Project construction.Implement with B-8a	BIO-APM-19: Implement restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM	
BIO-APM-28: Remove potential roost trees	BIO-APM-20: Leave vegetation in place in construction areas where recontouring is not required. Implement with B-1a	
V-1a: Reduce visibility of construction activities and equipment	BIO-APM-21: Comply with "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc., 1981). Implement with B-10a	
V-1b: Reduce construction night lighting impacts	BIO-APM-22: Salvage may include removal and stockpiling for replanting. Implement with B-5a	
V-2a: Reduce in-line views of land scars	BIO-APM-23: Remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Implement with B-1a and B-3a	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
V-2b: Reduce visual contrast from unnatural vegetation lines	BIO-APM-24: Prevent livestock or wildlife from falling through covers. Implement with B-7a	
V-2c: Reduce color contrast of land scars on non-Forest lands	BIO-APM-25: Revegetate disturbed soils. Implement with B-1a and B-3a	
V-2d: Construction by helicopter	BIO-APM-26: Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles. Implement with B-7a	
V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands	BIO-APM-27: Remove all existing raptor nests from structures that would be affected by Project construction. Implement with B-8a	
V-3a: Reduce visual contrast of towers and conductors	BIO-APM-28: Remove potential roost trees	
V-7a: Reduce visual contrast associated with ancillary facilities	BIO-APM-29: Reduce construction night lighting on sensitive habitats. Implement with B-7a and B-9a	
V-7b: Screen ancillary facilities	V-1a: Reduce visibility of construction activities and equipment	
V-21a: Reduce night lighting impacts	V-1b: Reduce construction night lighting impacts	
V-45a Prepare and implement Scenery Conservation Plan	V-2a: Reduce in-line views of land scars	
V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures	V-2b: Reduce visual contrast from unnatural vegetation lines	
V-68a: Eliminate skylining of ridgeline towers and conductors	V-2c: Reduce color contrast of land scars on non-Forest lands	
VR-APM-1: Place structures at the maximum feasible distance from highway, canyon, and trail crossings. (Need SDG&E input)	V-2d: Construction by helicopter	
VR-APM-3: Match the spacing of structures where the line parallels existing transmission lines	V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands	
VR-APM-4: No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. Implement with V-1c	V-3a: Reduce visual contrast of towers and conductors	
VR-APM-5: Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence. Implement with V-3c	V-7a: Reduce visual contrast associated with ancillary facilities	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
VR-APM-6: In scenic view areas place structures to avoid sensitive features and/or allow conductor to clearly span the features. (Need SDG&E input)	V-7b: Screen ancillary facilities	
L-1a: Prepare Construction Notification Plan	V-21a: Reduce night lighting impacts	
L-1c: Coordinate with MCAS Miramar	V-45a Prepare and implement Scenery Conservation Plan	
L-2b: Revise project elements to minimize land use conflicts	V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures	
LU-APM-1: Provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and SDG&E will appoint a public affairs officer to address public concerns or questions. Implement with L-1d	V-68a: Eliminate skylining of ridgeline towers and conductors	
LU-APM-2: Place new transmission structures more than 330 feet from an existing residence. Implement with L-1d	VR-APM-1: Place structures at the maximum feasible distance from highway, canyon, and trail crossings. (Need SDG&E input)	
LU-APM-4: Notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. Implement with L-1e	VR-APM-2: Use dulled metal finish on transmission structures and non-specular conductors in visually sensitive areas. Implement with V-3b (Need SDG&E input)	
LU-APM-5: Coordinate construction activities with appropriate water management representatives. (Need SDG&E input). Implement with L-1a	VR-APM-3: Match the spacing of structures where the line parallels existing transmission lines	
LU-APM-6: Flag ROW boundary and limits of construction activity inside and outside the ROW in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. Implement with L-1f	VR-APM-4: No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. Implement with V-1c	
LU-APM-7: Install project facilities along the edges or borders of private property, open space parks, and recreation areas	VR-APM-5: Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence. Implement with V-3c	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
LU-APM-8: Continue coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans.	VR-APM-6: In scenic view areas place structures to avoid sensitive features and/or allow conductor to clearly span the features. (Need SDG&E input)	
LU-APM-9: Obtain all necessary and/or appropriate ministerial land use permits	L-1a: Prepare Construction Notification Plan	
LU-APM-10: Match structure locations with existing transmission facilities. (Need SDG&E input)	L-1c: Coordinate with MCAS Miramar	
WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area	L-2b: Revise project elements to minimize land use conflicts	
WR-1b: Provide temporary detours for trail users	LU-APM-1: Provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and SDG&E will appoint a public affairs officer to address public concerns or questions. Implement with L-1d	
WR-1c: Coordinate with local agencies to identify alternative recreation areas	LU-APM-2: Place new transmission structures more than 330 feet from an existing residence. Implement with L-1d	
WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation	LU-APM-4: Notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. Implement with L-1e	
WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area.	LU-APM-5: Coordinate construction activities with appropriate water management representatives. (Need SDG&E input). Implement with L-1a	
R-APM-2a: Provide advance notice of restriction of conflicts with access routes to recreational use areas. Implement with WR-1a	LU-APM-6: Flag ROW boundary and limits of construction activity inside and outside the ROW in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. Implement with L-1f	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
R-APM-2c: Coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department. Implement with WR-1a	LU-APM-7: Install project facilities along the edges or borders of private property, open space parks, and recreation areas	
R-APM-2e: Post signs advising recreation users of construction activities and directing them to alternative trails or bikeways on both sides of all trail intersections. Implement with WR-1a	LU-APM-8: Continue coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans.	
R-APM-3a: Construction-related traffic shall be restricted to routes approved by the authorized agencies	LU-APM-10: Match structure locations with existing transmission facilities. (Need SDG&E input)	
AG-1a: Avoid interference with agricultural operations	WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area	
AG-1c: Coordinate with grazing operators	WR-1b: Provide temporary detours for trail users	
AG-3b: Consult with and inform aerial applicators	WR-1c: Coordinate with local agencies to identify alternative recreation areas	
LU-APM-3: Compensate farmers for losses of crops along ROW. Implement with L-1d	WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation	
C-1a: Inventory and evaluate cultural resources in Final Area of Potential Effect (APE)	WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area.	
C-1b: Avoid and protect potentially significant resources	R-APM-2a: Provide advance notice of restriction of conflicts with access routes to recreational use areas. Implement with WR-1a	
C-1c: Develop and implement Historic Properties Treatment Plan	R-APM-2b: No construction that affects trail use will be conducted in that area on federal holidays. Implement with WR-1a	
C-1d: Conduct data recovery to reduce adverse effects	R-APM-2c: Coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department. Implement with WR-1a	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
C-1f: Train construction personnel	R-APM-2d: Post signs directing vehicles to alternative park access and parking in the event construction temporarily obstructs parking areas near trailheads. Implement with WR-1a	
C-1g Avoid and protect Old Highway 80 (P-37-024023)	R-APM-2e: Post signs advising recreation users of construction activities and directing them to alternative trails or bikeways on both sides of all trail intersections. Implement with WR-1a	
C-2a: Properly treat human remains	R-APM-2f: Post signs advising equestrians of construction timeframes where helicopters are used for construction, at all equestrian trail-access points within the vicinity of the flight paths. Implement with WR-1a	
C-3a: Monitor construction in areas of high sensitivity for buried resources	R-APM-3a: Construction-related traffic shall be restricted to routes approved by the authorized agencies	
C-4a: Complete consultation with Native American and other Traditional Groups	AG-1a: Avoid interference with agricultural operations	
C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties	AG-1c: Coordinate with grazing operators	
C-6a: Reduce adverse visual intrusions to historic built environment properties	LU-APM-3: Compensate farmers for losses of crops along ROW. Implement with L-1d	
C-6e: Reduce adverse visual intrusions to portions of Old Highway 80	C-1b: Avoid and protect potentially significant resources	
C-6f: Reduce adverse visual intrusions to the Desert View Tower viewshed	C-1d: Conduct data recovery to reduce adverse effects	
CR-APM-1: Instruct construction personnel on the protection and avoidance of cultural resources. Implement with PAL-1e	C-1e: Monitor construction at known ESAs	
CR-APM-2: Flag archeological sites that are eligible or potentially eligible for the National Register	C-1f: Train construction personnel	
CR-APM-3: Report any previously unidentified cultural resource (historic or prehistoric site or object) discovered	C-2a: Properly treat human remains	
CR-APM-4: Conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines	C-3a: Monitor construction in areas of high sensitivity for buried resources	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
CR-APM-5: Follow the guidance described for: Preservation in-place for mitigating impacts to archaeological sites, and preparation of data recovery plans	C-4a: Complete consultation with Native American and other Traditional Groups	
CR-APM-6: Avoid, fence, or barricade historic properties, contributing portions and sensitive features for protection	C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties	
CR-APM-7: Control erosion, sedimentation, or indirect displacement. Implement with C-2a, C-3a, C-4a, and C-5a	C-6a: Reduce adverse visual intrusions to historic built environment properties	
CR-APM-8: Avoid and protect elements of the landscape that are essential to the historic setting of the property	C-6e: Reduce adverse visual intrusions to portions of Old Highway 80	
CR-APM-9: Install permanent fencing or barriers; or control/restrict access to the historic property	CR-APM-1: Instruct construction personnel on the protection and avoidance of cultural resources. Implement with PAL-1e	
CR-APM-10: Locate project structures so that conductors span linear historic properties; underground placement of pipelines and conductors will be bored under linear properties to avoid disturbance or intrusion	CR-APM-2: Flag archeological sites that are eligible or potentially eligible for the National Register	
CR-APM-11: Implement standard practices for cultural and paleontological resources on private lands	CR-APM-3: Report any previously unidentified cultural resource (historic or prehistoric site or object) discovered	
CR-APM-12: Conduct cultural surveys for staging areas that have not yet been identified	CR-APM-4: Conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties w	
PAL-1a: Inventory and evaluate paleontological resources in Final APE	CR-APM-5: Follow the guidance described for: Preservation in-place for mitigating impacts to archaeological sites, and preparation of data recovery plans	
PAL-1b: Develop Paleontological Monitoring and Treatment Plan	CR-APM-6: Avoid, fence, or barricade historic properties, contributing portions and sensitive features for protection	
PAL-1e: Train construction personnel	CR-APM-7: Control erosion, sedimentation, or indirect displacement. Implement with C-2a, C-3a, C-4a, and C-5a	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
GEO-APM-9: Implement appropriate mitigation efforts if paleontological resources are encountered. Implement with PAL-1d	CR-APM-8: Avoid and protect elements of the landscape that are essential to the historic setting of the property	
N-1a: Implement Best Management Practices for construction noise	CR-APM-9: Install permanent fencing or barriers; or control/restrict access to the historic property	
N-2a: Avoid blasting where damage to structures could occur (SDG&E to define blasting)	CR-APM-10: Locate project structures so that conductors span linear historic properties; underground placement of pipelines and conductors will be bored under linear properties to avoid disturbance or intrusion	
NOI-APM-1: Provide notice by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads; and establish a toll free telephone number for receiving questions/complaints. Implement with L-1a	CR-APM-11: Implement standard practices for cultural and paleontological resources on private lands	
T-1a: Restrict lane closures	CR-APM-12: Conduct cultural surveys for staging areas that have not yet been identified	
T-4a: Ensure pedestrian and bicycle circulation and safety.	PAL-1a: Inventory and evaluate paleontological resources in Final APE	
T-7a: Notify public of potential short-term elimination of parking spaces	PAL-1c: Monitor construction for paleontology	
T-9a: Prepare Construction Transportation Management Plan	PAL-1d: Conduct paleontological data recovery	
T-11b: Consult with and inform U.S. Customs and Border Patrol	PAL-1e: Train construction personnel	
T-APM-2a: Obtain required permits for temporary lane closures	GEO-APM-9: Implement appropriate mitigation efforts if paleontological resources are encountered. Implement with PAL-1d	
T-APM-2b: Submit detour plans. Implement with T-1b	N-1a: Implement Best Management Practices for construction noise	
T-APM-4a: Coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.	N-2a: Avoid blasting where damage to structures could occur (SDG&E to define blasting)	
T-APM-5a: Consult with County Education Offices, School Districts to coordinate construction activities adjacent to school bus stops	NOI-APM-1: Provide notice by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads; and establish a toll free telephone number for receiving questions/complaints. Implement with L-1a	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
T-APM-8a: Obtain required permits for entering railroad ROW	T-1a: Restrict lane closures	
T-APM-9a: Underground all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway. (Need SDG&E input)	T-4a: Ensure pedestrian and bicycle circulation and safety.	
P-1a: Implement Environmental Monitoring Program	T-7a: Notify public of potential short-term elimination of parking spaces	
P-2a: Test for residual pesticides/herbicides on currently or historically farmed land	T-9a: Prepare Construction Transportation Management Plan	
P-7a: Evaluate contaminated sites	T-APM-2a: Obtain required permits for temporary lane closures	
HS-APM-1: Train personnel involved in using hazardous materials. Develop a Hazardous Communication Plan.Implement with P-1a	T-APM-2b: Submit detour plans. Implement with T-1b	
HS-APM-2: Train personnel in refueling vehicles. Implement with P-1a	T-APM-4a: Coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.	
HS-APM-3: Develop applicable environmental safety plans associated with hazardous materials. Implement with P-1a	T-APM-5a: Consult with County Education Offices, School Districts to coordinate construction activities adjacent to school bus stops	
HS-APM-4: Develop a site specific blasting plan of tower footing	T-APM-6a: Comply with county parking ordinances or approved traffic control plan	
HS-APM-5: Investigate all Government Code §65962.5 sites or other known contamination sites along the transmission line ROW.	T-APM-6b: Prohibit parking on San Diego County-maintained roads and highways unless otherwise noted at specific locations; comply with the County of San Diego Department of Public Works Traffic Guidelines, 2001 whenever possible, or an approved traffic co	
HS-APM-6: Investigate any known or potential areas for Unexploded Ordinance (UXO) used by the military along the ROW	T-APM-8a: Obtain required permits for entering railroad ROW	
HS-APM-7: Train personnel involved in excavation and grading or for ROW clearing to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites	T-APM-9a: Underground all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway. (Need SDG&E input)	
HS-APM-8: Assign an Environmental Field Representative and/or General Contractor for Health & Safety. Implement with P-1a	T-APM-10a: Provide the ability to quickly lay a temporary steel plate trench bridge upon request in order to ensure access to properties when not actively constructing the underground cable alignment	

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Pre-Construction Measures	During Construction	Pre-Energizing
HS-APM-9: Contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport.	P-1a: Implement Environmental Monitoring Program	
HS-APM-10: Store and dispose of hazardous waste and solid waste in accordance with federal, State, and local regulations. Implement with P-1a	P-1b: Maintain emergency spill supplies and equipment	
HS-APM-11: Develop Fire Prevention and Response Plan (FPRP). Assign a project Fire Marshal to enforce all provisions of the FPRP	P-3a: Appoint individuals with correct training for sampling, data review, and regulatory coordination	
HS-APM-12: Develop a Traffic Control Plan	P-3b: Documentation of compliance with measures for encountering unknown contamination	
HS-APM-14: Construction workers shall undergo environmental training regarding potential exposure	HS-APM-1: Train personnel involved in using hazardous materials. Develop a Hazardous Communication Plan. Implement with P-1a	
HS-APM-15: Stop work and notify Health and Safety Officer if during excavation soil or groundwater contamination is suspected	HS-APM-2: Train personnel in refueling vehicles. Implement with P-1a	
HS-APM-16: Terminate and cordon off work if soil or groundwater contamination is suspected	HS-APM-3: Develop applicable environmental safety plans associated with hazardous materials. Implement with P-1a	
HS-APM-17: Notify regulatory agency if the sample testing determines that contamination is found above regulatory limits	HS-APM-4: Develop a site specific blasting plan of tower footing	
PS-1a: Limit the conductor surface electric gradient	HS-APM-5: Investigate all Government Code §65962.5 sites or other known contamination sites along the transmission line ROW.	
PS-2a: Implement grounding measures	HS-APM-6: Investigate any known or potential areas for Unexploded Ordinance (UXO) used by the military along the ROW	
AQ-1a: Suppress dust at all work or staging areas and on public roads	HS-APM-7: Train personnel involved in excavation and grading or for ROW clearing to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
AQ-1h: Obtain NOx and particulate matter emission offsets	HS-APM-8: Assign an Environmental Field Representative and/or General Contractor for Health & Safety. Implement with P-1a	
AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits	HS-APM-9: Contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport.	
AQ-4c: Avoid sulfur hexafluoride emissions	HS-APM-10: Store and dispose of hazardous waste and solid waste in accordance with federal, State, and local regulations. Implement with P-1a	
AQ-APM-1: Comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). File a Dust Control Plan with the ICAPCD	HS-APM-11: Develop Fire Prevention and Response Plan (FPRP). Assign a project Fire Marshal to enforce all provisions of the FPRP	
AQ-APM-2: Control fugitive dust	HS-APM-12: Develop a Traffic Control Plan	
AQ-APM-3: Minimize mud and dust from being transported onto paved roadway surfaces, pave, and gravel	HS-APM-14: Construction workers shall undergo environmental training regarding potential exposure	
AQ-APM-4: Carpool to the job site	HS-APM-15: Stop work and notify Health and Safety Officer if during excavation soil or groundwater contamination is suspected	
AQ-APM-5: Minimize unnecessary construction vehicle and idling time	HS-APM-16: Terminate and cordon off work if soil or groundwater contamination is suspected	
H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season	HS-APM-17: Notify regulatory agency if the sample testing determines that contamination is found above regulatory limits	
H-1a (CC):Construct during the dry season	PS-2a: Implement grounding measures	
H-1k: Comply with Forest Service conditions	AQ-1a: Suppress dust at all work or staging areas and on public roads	
H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan	AQ-1b: Use low-emission construction equipment	
H-4b: Avoid blasting where damage to groundwater wells or springs could occur	AQ-1h: Obtain NOx and particulate matter emission offsets	
H-5a: Install substation runoff control	AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property	AQ-APM-1: Comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). File a Dust Control Plan with the ICAPCD	
H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation	AQ-APM-2: Control fugitive dust	
H-8a: Bury power line below 100-year scour depth	AQ-APM-3: Minimize mud and dust from being transported onto paved roadway surfaces, pave, and gravel	
WQ-APM-1: Minimize disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks	AQ-APM-4: Carpool to the job site	
WQ-APM-2: Place structures so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design	AQ-APM-5: Minimize unnecessary construction vehicle and idling time	
WQ-APM-3: Clearly mark where construction equipment and vehicles are not allowed on-site; and train personnel	H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season	
WQ-APM-4: Maintain adequate distance from stream banks and beds; use existing bridges to cross major streams and culverts in most dry intermittent streams; Span surface water, riparian areas and floodplains; prepare and implement a Storm Water Pollution Prevention Plan (SWPPP)	H-1a (CC):Construct during the dry season	
WQ-APM-5: Construct any stream crossings at low flow periods; and if necessary, develop a site-specific mitigation and restoration plan	H-1k: Comply with Forest Service conditions	
WQ-APM-6: Avoid designated surface water protection areas	H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan	
WQ-APM-8: Obtain and comply with required permits for any groundwater discharged to surface waters or storm drains	H-2d: Maintain vehicles and equipment	
WQ-APM-9: Prohibit storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells	H-4b: Avoid blasting where damage to groundwater wells or springs could occur	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
WQ-APM-10: At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, comply with burial depth requirements. Implement with H-6a	H-5a: Install substation runoff control	
WQ-APM-11: Test groundwater levels along underground portion of the project drilling pilot borings	H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property	
WQ-APM-13: Do not disposed of hazardous materials onto the ground, the underlying groundwater, or any surface water	H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation	
WQ-APM-14:Secure required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization	H-8a: Bury power line below 100-year scour depth	
WQ-APM-15: Construct access roads to avoid streambeds	WQ-APM-1: Minimize disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks	
WQ-APM-16: Conduct site-specific assessments for each affected site	WQ-APM-2: Place structures so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design	
G-2a: Protect desert pavement	WQ-APM-3: Clearly mark where construction equipment and vehicles are not allowed on-site; and train personnel	
G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design	WQ-APM-4: Maintain adequate distance from stream banks and beds; use existing bridges to cross major streams and culverts in most dry intermittent streams; Span surface water, riparian areas and floodplains; prepare and implement a Storm Water Pollution P	
G-4a: Reduce effects of groundshaking	WQ-APM-5: Construct any stream crossings at low flow periods; and if necessary, develop a site-specific mitigation and restoration plan	
G-4b: Conduct geotechnical investigations for liquefaction	WQ-APM-6: Avoid designated surface water protection areas	
G-5a: Minimize project structures within active fault zones	WQ-APM-8: Obtain and comply with required permits for any groundwater discharged to surface waters or storm drains	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
G-6a: Conduct geotechnical surveys for landslides and protect against slope instability	WQ-APM-9: Prohibit storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells	
G-9a: Coordinate with quarry operations	WQ-APM-10: At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, comply with burial depth requirements. Implement with H-6a	
GEO-APM-1: No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable	WQ-APM-11: Test groundwater levels along underground portion of the project drilling pilot borings	
GEO-APM-2: Comply with soil disturbance guidelines	WQ-APM-13: Do not disposed of hazardous materials onto the ground, the underlying groundwater, or any surface water	
GEO-APM-3: Avoid placing structures in areas of high shrink/swell potential	WQ-APM-14:Secure required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization	
GEO-APM-4: Place structures in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock	WQ-APM-15: Construct access roads to avoid streambeds	
GEO-APM-5: Avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation	WQ-APM-16: Conduct site-specific assessments for each affected site	
GEO-APM-6: Conduct surface restoration for erosion control and re-vegetation	G-2a: Protect desert pavement	
GEO-APM-8: Remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage; and position structures to span over potential landslide areas	G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design	
S-2a: Notify public of utility service interruption	G-4a: Reduce effects of groundshaking	
S-2b: Protect underground utilities	G-4b: Conduct geotechnical investigations for liquefaction	
S-3b: Use reclaimed water	G-5a: Minimize project structures within active fault zones	

MMCRP Attachment F: Sunrise Mitigation Measures – Sorted by Time of Implementation		
Pre-Construction Measures	During Construction	Pre-Energizing
PSU-APM-1: Coordinate with all utility providers with facilities located within or adjacent to ensure that design does not conflict with other facilities	G-6a: Conduct geotechnical surveys for landslides and protect against slope instability	
PSU-APM-2: Notify Underground Service Alert a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines	G-9a: Coordinate with quarry operations	
PSU-APM-3: Coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized	GEO-APM-3: Avoid placing structures in areas of high shrink/swell potential	
F-1a: Develop and implement a Construction Fire Prevention Plan	GEO-APM-4: Place structures in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock	
F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007)	GEO-APM-5: Avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation	
F-1d: Remove hazards from the work area	GEO-APM-6: Conduct surface restoration for erosion control and re-vegetation	
F-3a: Contribute to Powerline Firefighting Mitigation Fund	GEO-APM-8: Remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage; and position structures to span over potential landslide areas	
F-3b: Prepare and implement a Multi-agency Fire Prevention MOU	S-3a: Recycle construction waste	
	S-3b: Use reclaimed water	
	PSU-APM-1: Coordinate with all utility providers with facilities located within or adjacent to ensure that design does not conflict with other facilities	

Attachment G

Pre-Construction Mitigation Measures

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, e.g., **— (A-1a)**. A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Several of the biological resources APMs have been updated to show changes (in underline/~~strikeout~~) that were originally incorporated into Appendix 8N of the Final EIR/EIS. These changes are included in the following table, and throughout the MMCRP.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— B-1a: Provide restoration/compensation for impacted sensitive vegetation communities. Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible, and disturbance of vegetation and soils shall be minimized. Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist (see Mitigation Measure B-1c). The construction mats shall not be left on the ground for more than three weeks. Use of construction mats shall be considered a temporary impact to vegetation and shall be mitigated in accordance with this mitigation measure. If avoidance of sensitive vegetation communities is not feasible due, for example, to physical or safety constraints, the Applicant shall restore temporarily impacted areas to pre-construction conditions following construction (or emergency repairs) and shall permanently block off all public access to them, and/or shall purchase/dedicate suitable habitat for preservation to off-set permanently impacted areas. Restoration of some vegetation communities in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, the mitigation shall consist of offsite acquisition and preservation of the vegetation community instead. Any area that can be preserved as intact or restored habitat, or if it contains any species (plant or animal) that require project-related compensatory mitigation will qualify as offsite mitigation lands. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years (or less if the restoration meets all success criteria). Restoration in ABDSP shall be maintained and monitored for a minimum of five years. The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat. Any restoration efforts would be subject to a Habitat Restoration Plan approved by the CPUC, BLM, Wildlife Agencies, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). Mitigation ratios and mitigation acreages for construction within authorized limits are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). The mitigation ratios also apply to impacts from emergency repairs. In cases where the impacts to sensitive vegetation communities occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (B-1a) All limits of construction shall be delineated with orange construction fencing. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates. To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-1a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio (5.5:1 in FTHL MA). Restoration of the unauthorized impacts shall be credited at a 1:1 ratio (i.e., mitigated by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

— (B-1a) Areas to be restored shall include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Where onsite restoration is planned, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Habitat Restoration Plan, for restoring temporarily impacted sensitive vegetation communities, to be approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. This Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Hydroseeding, drill seeding, or an otherwise proven restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration).

The Habitat Restoration Plan shall incorporate Desert Bioregion Revegetation/Restoration Guidance measures for restoration of temporary impacts to desert scrub and dune habitats. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

The Habitat Restoration Plan shall also incorporate the measures identified in the May 25, 2006 Memorandum of Understanding among Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the Environmental Protection Agency (Edison Electric Institute, et al., 2006) where applicable. The MOU discusses vegetation management along ROWs for electrical transmission and distribution facilities on federal lands. The major provisions of the MOU include reducing soil erosion and water quality impacts; promoting local ecotypes in revegetation projects; planting native species and protecting rare species; and reducing the introduction of non-native, invasive or noxious plant species to the ROWs. The MOU can be viewed online at http://www.eei.org/industry_issues/environment/land/vegetation_management/EEI_MOU_FINAL_5-25-06.pdf.

The following habitat restoration requirements are not included in the MOU described above. The restoration of habitat shall be maintained and monitored for five years after installation by an experienced, licensed Habitat Restoration Contractor, or until established success criteria identified in the Restoration Plan (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance and monitoring for restoration in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Maintenance and monitoring shall be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For areas where habitat restoration cannot meet mitigation requirements, as determined by the Habitat Restoration Specialist in coordination with CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies, offsite purchase and dedication of habitat shall be provided at the mitigation ratios provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives) or as otherwise required by the Wildlife Agencies, ABDSP, or USDA Forest Service (supersedes the mitigation ratios in BIO-APM-1).

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-1a) Tree Mitigation. Mitigation for loss of native trees or native tree trimming shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (i.e., planting) trees on land that would not be subject to vegetation clearing (either in the Applicant's ROW and/or on land acquired and preserved). Any land to be used for this mitigation shall be approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For habitat acquisition and preservation, the mitigation ratios shall follow those in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). For example, removal of coast live oak trees (that occur in coast live oak woodland) shall require mitigation at a 3:1 ratio based on the permanent impact to the summed acreage of all individual coast live oak trees impacted. Therefore, if the total acreage of all individual coast live oak trees in coast live oak woodland impacted is 10 acres, then 30 acres of coast live oak woodland shall be acquired and preserved. For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no mitigation shall be required.
	— (B-1a) For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed. Native trees that are removed shall be replaced in-kind (by species) as follows. • Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1 • Trees between five and 12 inches DBH shall be replaced at 5:1 • Trees between 12 and 36 inches shall be replaced at 10:1 • Trees greater than 36 inches shall be replaced at 20:1 • Native trees that are trimmed shall be replaced in-kind (by species) as follows. • Trees less than 12 inches DBH shall be replaced at 2:1 • Trees greater than 12 inches DBH shall be replaced at 5:1 All restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for National Forest land restoration), and the Wildlife Agencies.
	— (B-1a) Mitigation Parcels/Habitat Management Plans. All offsite mitigation parcels shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for impacts to ABDSP), and USDA Forest Service (for alternatives with impacts to National Forest lands) and must be acquired or their acquisition must be assured before the line is energized. To demonstrate that such parcels shall be acquired, SDG&E shall submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan shall be submitted to the CPUC, BLM, the Wildlife Agencies, State Parks (for impacts in ABDSP) and USDA Forest Service (for impacts on National Forest Lands) for review and approval, and shall include, but shall not be limited to: legal descriptions and maps of all parcels to be acquired; schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (e.g., performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-1a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any vegetation disturbing activities. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) • Baseline biological data for all mitigation parcels • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to National Forest lands) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All areas disturbed by construction activities.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. CPUC/BLM biological monitor shall confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— B-1c: Conduct biological monitoring. Monitoring shall be provided by a qualified biologist approved by the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the APMs and mitigation measures are being met by being present during construction activities including all initial grubbing and clearing of vegetation. Additionally, a qualified biologist employed by SDG&E shall be present during maintenance involving ROW repair requiring ground disturbance (i.e., grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). Biological monitoring of these maintenance activities is to prevent impacts to vegetation communities or wildlife habitat not within the permanent project impact footprint or to record and report unauthorized impacts outside the footprint to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure the unauthorized impacts are mitigated in accordance with Mitigation Measure B-1a. The qualified biologist shall conduct monitoring for any area subject to disturbance from construction and the maintenance activities listed above (or access roads used during maintenance activities in the case of vernal pools/water-holding basins; see Mitigation Measure B1b). The qualified biologist shall perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies, depending on the sensitivity of the resources. The qualified biologist shall send weekly monitoring reports to the CPUC and BLM and shall record any reduction or increase in construction impacts so that mitigation requirements can be revised accordingly. The final impact/mitigation calculations shall be submitted to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies for review and approval. The qualified biologist shall send annual monitoring reports of maintenance activities to the CPUC, BLM, State Parks (for monitoring of maintenance activities in ABDSP), and USDA Forest Service (for alternatives that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were unauthorized impacts that require mitigation. The Applicant, its contractors and subcontractors, and their respective project personnel, shall refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (e.g., Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations.
	— (B-1c) The qualified biologist shall have the authority to issue stop work orders if any part of the mitigation measures or APMs are being violated. The qualified biologist shall immediately notify the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), the Wildlife Agencies, and SDG&E of any significant events, including impacts outside the construction zone or maintenance impacts outside the authorized permanent impact footprints if they are discovered during construction or monitoring of maintenance activities. Reinitiation of work following a stop work order shall only occur when the CPUC, BLM, State Parks (for impacts in ABDSP), USDA Forest Service (for alternatives with impacts on National Forest lands), and the Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts shall be made, and that any additional protection measures they deem necessary shall be undertaken.
Location	Entire project area.
Monitoring/Reporting Action	CPUC/BLM biological monitor shall oversee monitoring and ensure compliance with APMs and mitigation measures. The biological monitor shall submit weekly monitoring reports to SDG&E during construction. The biological monitor shall submit weekly reports to the CPUC and BLM during construction and throughout the maintenance period. Reports shall include a summary of activities and tracking of the APM and mitigation measure requirements. The biological monitor shall submit a final report of impact/mitigation calculations to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies.
Effectiveness Criteria	Successful avoidance of unforeseen impacts and compliance with APMs and mitigation measures.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP land), and USDA Forest Service (for USFS land).
Timing	Pre- and during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	B-1l: SDG&E shall continue to work with the USDA Forest Service to minimize impacts to the RCA between Structures 184 and 187. SDG&E shall continue to work with the USDA Forest Service to adjust the siting of project features to minimize impacts to the RCA located between Structures 184 and 187 of the BCD South Option. SDG&E shall continue to coordinate with the USDA Forest Service until the impacts to this RCA are fully resolved to the satisfaction of the USDA Forest Service.
Location	RCA located between Structures 184 and 187 of the BCD South Option.
Monitoring/Reporting Action	Upon final approval of the USDA Forest Service, SDG&E shall send the engineering changes made to project features between Structures 184 and 187 of the BCD South Option to the CPUC and BLM prior to the start of construction.
Effectiveness Criteria	Minimization of impacts to the RCA to the satisfaction of the USDA Forest Service.
Responsible Agency	CPUC, BLM, and USDA Forest Service
Timing	Pre-construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-2a: Provide restoration/compensation for impacted jurisdictional areas. Impacts to areas under the jurisdiction of the ACOE, Regional Water Boards, State Water Board, and CDFG shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible (including for emergency repairs), the Applicant shall provide the necessary mitigation required as part of wetland permitting by creation/restoration/preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation in ABDSP), USDA Forest Service (for alternatives with mitigation on National Forest lands), ACOE, Regional Water Boards, State Water Board, and CDFG as part of the wetland permitting process. It is anticipated that the sites would be in close proximity to the impacts or in the same watershed. A jurisdictional delineation and impact assessment shall be prepared based on the final alignment and final engineering plans when they are complete. Mitigation ratios would range from 1:1 up to 4:1 and would depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. The width of wetland buffers would also depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. Recommended mitigation ratios for vegetation communities that generally occur in jurisdictional areas are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). It is anticipated that at least a 1:1 ratio of the mitigation would include creation of jurisdictional habitat so there would be no net loss of jurisdictional habitat. For example, permanent impacts to emergent wetland would require a 2:1 mitigation ratio. Half (or 1:1) of the mitigation acreage would have to consist of created emergent wetland in an appropriate location to be preserved, and the other half (1:1) would require acquisition and preservation of already-existing emergent wetland (or other wetland community acceptable to the permitting agencies — ACOE, Regional Water Boards, State Water Board, and CDFG). It is also anticipated that a 1:1 ratio would be required for impacts to jurisdictional non-wetland Waters of the U.S. in the form of wetland enhancement, restoration, or creation as determined in consultation with the permitting agencies. Wetland permits shall be obtained from the ACOE, Regional Water Boards, State Water Board, and CDFG prior to initiating construction in jurisdictional areas.
	— (B-2a) All limits of construction shall be delineated with orange construction fencing and/or silt fencing. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete. If silt fencing is used to delineate the limits of construction or as part of implementation of erosion control BMPs, the silt fencing may be left in place longer than 30 days if erosion control is still necessary. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-2a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio, unless otherwise directed by the ACOE, Regional Water Boards, State Water Board, and CDFG: restoration of the unauthorized impacts shall be credited at a 1:1 ratio; the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.
	— (B-2a) The Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). The Habitat Restoration Specialist shall prepare and implement a Wetland Mitigation Plan to be approved in writing by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP mitigation), and USDA Forest Service (for alternatives with mitigation on National Forest lands). The Applicant shall work with the above-listed agencies until a plan is approved by all. The mitigation of habitat shall be maintained and monitored for five years after installation, or until established success criteria (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met, to assess progress and identify potential problems with the mitigation. Maintenance and monitoring in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the mitigation. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP restoration), and USDA Forest Service (for alternatives with restoration on National Forest lands).
	— (B-2a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact jurisdictional areas. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All locations with impacts to jurisdictional areas.
Monitoring/Reporting Action	BLM, CPUC, and wetland permitting agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans. BLM/CPUC biological monitor to confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Responsible Agency	BLM, CPUC, USFWS, CDFG, ACOE, RWQCB, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-3a: Prepare and implement a Weed Control Plan. The Applicant shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where the Applicant owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC), or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding governmental agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, the Applicant shall work with the landowners to obtain authorization of the weed control treatment that is required. State Parks shall have review and approval authority over the Weed Control Plan for ROW within or adjacent to the boundaries of ABDSP. Developed land shall be excluded from weed control.
	— (B-3a) The Weed Control Plan shall include the following: • A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured) as well as at all ancillary facilities associated with the project for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner or State Parks (for ROW within or adjacent to ABDSP) as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [Bromus tectorum], Saharan mustard [Brassica tournefortii] and medusa head [Taeniatherum caput-medusae]). These populations shall be mapped and described according to density and area covered. These plant species shall be treated (where access and permission can be secured) prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, or the tribal government, as appropriate. A pre-construction weed inventory shall also be conducted by surveying areas that will be directly impacted by the project for weed populations that are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006) or are weed species of concern to State Parks (for ROW within or adjacent to ABDSP). These plant species shall be treated prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC and State Parks (for treatment in ROW within ABDSP).
	— (B-3a) Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC, or the tribal government, as appropriate, with the goal of controlling populations before they start producing seeds.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-3a) For the lifespan of the project (i.e., as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows. • From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required in the survey areas described above. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC. • During project construction and operation/maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office, or the tribal government, as appropriate. • During project construction and operation/maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) at an offsite washing facility (e.g., a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed at an offsite washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. In addition, vehicles, tools, and equipment shall be washed at an offsite washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). Finally, vehicles, tools, and equipment used for maintenance shall be washed at an offsite washing facility immediately before each maintenance event. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort shall be made to use wash facilities that use recycled water. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies, State Parks (for weeds in ABDSP), tribal governments (for weeds on tribal lands), and biological monitor for inspection at any time and shall be submitted to the CPUC on a monthly basis during construction and submitted annually to the CPUC during operation/maintenance.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor to confirm preparation and implementation of a weed control plan.
Effectiveness Criteria	Weed control plan prepared and successfully implemented.
Responsible Agency	BLM, CPUC, and ROW land-holding agencies (BLM, State Parks for ABDSP, USDA Forest Services for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. A qualified biologist shall survey for special status plants in the spring of a year with adequate rainfall prior to initiating construction activities in a given area. If a survey can not be conducted due to inadequate rainfall, then SDG&E shall consult with the Wildlife Agencies, State Parks (for impacts in ABDSP), and the USFS (for impacts on National Forest lands) to determine if construction may begin in the absence of survey data and what mitigation would be required, or whether construction would not be allowed until such data is collected. A report of special status plants observed shall be prepared and submitted for approval by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies prior to activities which may impact the plant resources.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-5a) All special status plant populations shall be staked or flagged by a qualified biologist approved by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete.
	— (B-5a) Impacts to federal or State listed plant species shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through salvage and relocation (salvage and relocation for plants in ABDSP shall be determined in consultation with, and approval of, State Parks) via a restoration program and/or offsite acquisition and preservation of habitat containing the plant at a 2:1 ratio. Avoidance may not be feasible due to physical or safety constraints. The CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies shall decide whether the Applicant can restore rare plant populations or shall acquire habitat with rare plant populations off site (locations to be approved by the CPUC, BLM, State Parks [for activities in ABDSP], USDA Forest Service [for alternatives with activities on National Forest lands], and the Wildlife Agencies). A qualified biologist shall prepare a Restoration Plan that shall indicate where restoration would take place. The restoration plan shall also identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service (for alternatives with restoration on National Forest lands) until a plan is approved by all. Impacts to moderately sensitive plant species (i.e., BLM Sensitive, USDA Forest Service Sensitive, CNPS List 1 and 2 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock) or relocation to temporarily disturbed areas (reseeding and relocation of plants in ABDSP shall be determined in consultation with, and approval of, State Parks). Avoidance may not be feasible due to physical or safety constraints. Mitigation Measure B-1a would also provide habitat-based mitigation for these impacts.
	— (B-5a) Where reseeding or salvage and relocation is required, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Restoration Plan for reseeding or salvaging and relocating special status plant species to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies in writing prior to impacting the plant resources. The Applicant shall work with the above-listed agencies until a plan is approved by all. The reseeding or relocation of plants shall be maintained and monitored for five years after installation, or until established success criteria are met, to assess progress and identify potential problems with the mitigation. The reseeding or relocation of plants in ABDSP shall be maintained and monitored for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional seeding, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-5a) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact special status plant resources. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) offsite mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures, and confirm that habitat restoration plans are implemented.
Effectiveness Criteria	Successful avoidance or restoration/relocation of sensitive plants, purchase of appropriate mitigation lands, and provision of long-term habitat management for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP), and USDA Forest Service (for USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy. Mitigation for impacts to the FTHL shall follow all applicable measures in the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003). This mitigation includes, but is not limited to, locating impacts outside of MAs, delineating work limits, using existing roads, biological monitoring, and worker education.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-7b) According to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), compensation for FTHL habitat impacts could involve purchase of FTHL habitat and/or monetary compensation as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee. Impacts shall be mitigated at a 1:1 ratio for habitat outside a MA. Furthermore, mitigation inside a MA shall be at a 3.5:1 ratio for temporary impacts (2.5:1 for disturbed habitat, developed land, or agriculture) and a 5.5:1 ratio for permanent impacts (4.5:1 for disturbed habitat, developed land, or agriculture) . For the Proposed Project, the required mitigation for FTHL impacts (if offsite acquisition is the method of compensation) is 403.48 acres. On-site restoration requirements for the Project would be 232.84 acres. Any FTHL habitat acquired shall be approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP)
	— (B-7b) A Habitat Management Plan shall be prepared by a biologist approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) for all acquired FTHL habitat. The Habitat Management Plan must be approved in writing by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the FTHL or its habitat. The Applicant shall work with the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired FTHL habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) FTHL habitat approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); • Baseline biological data for all acquired FTHL habitat; • Designation of a land management entity approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	FTHL MAs and where potential FTHL habitat occurs.
Monitoring/Reporting Action	BLM and CPUC shall ensure that required purchase of mitigation land and provision of long-term management occurs. BLM/CPUC biological monitor shall ensure that applicable measures in the FTHL Rangewide Management Strategy are implemented.
Effectiveness Criteria	Direct impacts to the flat-tailed horned lizard are minimized. Compensatory mitigation for impacts to FTHL is implemented, including purchase of habitat and provision of long-term management for mitigation sites.
Responsible Agency	BLM, CPUC, and Flat-Tailed Horned Lizard Interagency Coordinating Committee.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat. With regard to timing of activities, construction and maintenance activities (including the use of helicopters) in bighorn sheep critical habitat shall be limited to outside the lambing season and the period of greatest water need, or a minimum ceiling of 1,500 feet for helicopter flights shall be maintained. The lambing season is January 1 through June 30. The period of greatest water need is May through September. Construction and maintenance activities in PBS critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.
	— (B-7c) To help reconnect PBS subpopulations and at least partially offset impacts to the overall population of PBS caused by the project, the Applicant shall: • fund the design and construction of an overpass (for sheep) or tunnel (for vehicles) to facilitate PBS movement across a highway at a location determined by the USFWS (in coordination with State Parks and CDFG. Tunnel or overpass design must be approved by the Wildlife Agencies. • fund removal of tamarisk and fences for the life of the project, and install and maintain water sources at locations determined by the USFWS (in coordination with State Parks and CDFG) • fund a minimum 10-year-long program to monitor the effects of the project on PBS behavior, movements, and dispersal in the project corridor (ten years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program would be implemented by the Wildlife Agencies and State Parks following construction.
	— (B-7c) Furthermore, the Applicant shall provide compensation for direct loss of critical habitat at a 5:1 ratio for permanent impacts and at a 3:1 ratio (including a combination of onsite restoration and offsite purchase) for temporary impacts with PBS critical habitat or other habitat acceptable to the Wildlife Agencies, BLM, and State Parks (for critical habitat in ABDSP). Impacts to PBS critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. For the Proposed Project, the required mitigation for PBS impacts includes offsite purchase of 525.7 acres and onsite restoration of 111.81acres. The determination of impact acreage shall be based on the definition of critical habitat in effect as of the time of publication of the Final EIR/EIS.
	— (B-7c) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and State Parks for all acquired PBS habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) PBS or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired PBS habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) PBS habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) • Baseline biological data for all acquired PBS habitat • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where bighorn sheep or designated bighorn sheep critical habitat occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and bighorn sheep impact minimization measures. BLM and CPUC shall ensure that funding is provided for bighorn sheep studies and crossing mitigation; and that habitat acquisition and long-term management of mitigation sites is implemented.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Effectiveness Criteria	Successful avoidance/minimization of bighorn sheep impacts, and implementation of funding for studies and a wildlife crossing, habitat acquisition and long-term management for mitigation parcels.
Responsible Agency	BLM, CPUC, USFWS, CDFG, and State Parks.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/compensation strategies. A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. In addition, the burrowing owl shall be looked for opportunistically as part of other surveys and monitoring required during project construction. If the burrowing owl is absent, then no mitigation is required.
	— (B-7d) If the burrowing owl is present, no disturbance shall occur within 50 meters (approximately 160 ft) of occupied burrows from September 1 through January 31 or within 75 meters (approximately 250 ft) of occupied burrows from February 1 through August 31 (CDFG, 1995).
	— (B-7d) During construction, any pipe or similar construction material that is stored on site for one or more nights shall be inspected for burrowing owls by a qualified biologist before the material is moved, buried, or capped
	— (B-7d) Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters from the impact zone and that are within or contiguous to a minimum of 6.5 acres of preserved (or acquired and preserved if not already preserved) foraging habitat for each relocated owl (single owl or owl pair). Passive relocation is accomplished by first creating two artificial burrows in contiguous, preserved foraging habitat (if no natural burrows exist) for each occupied burrow that would be impacted; and second, installing one-way doors on occupied burrow entrances so owls can leave the burrow but not re-enter it. Following passive relocation, the area of impact and the preserved foraging habitat with alternate burrows are surveyed daily for one week to confirm owl use of alternate burrows before excavation of burrows in the impact zone. All passive relocation shall be conducted by a biologist approved by the CDFG. If the alternate burrows are not used by the relocated owls, then the Applicant shall work with the CDFG to provide alternate mitigation for burrowing owls. If the alternate burrows are used, no other mitigation shall be required. If it is not possible to preserve contiguous habitat on which to provide alternate burrows (e.g., on private land), and occupied owl burrows would be directly impacted, then the owls shall be passively relocated without the creation of alternate burrows prior to construction (relocation should only be implemented during the non-breeding season [September 1 through January 31]). The loss of occupied owl habitat shall be mitigated by acquiring and preserving other occupied habitat elsewhere (as explained below) per the Staff Report on Burrowing Owl Mitigation (CDFG, 1995) and the Burrowing Owl Survey Protocol and Mitigation Guidelines (The Burrowing Owl Consortium, 1993), or as otherwise determined in consultation with the CDFG.
	— (B-7d) Impacted occupied habitat shall be mitigated by 1) acquiring and preserving occupied habitat at a rate of 1.5 times 6.5 acres (or 9.75 acres) per pair or single bird impacted, or 2) acquiring and preserving unoccupied habitat contiguous with currently occupied habitat at a rate of two times 6.5 acres (or 13 acres) per pair or single bird impacted, or 3) acquiring and preserving suitable unoccupied habitat at a rate of three times 6.5 acres (or 19.5 acres) per pair or single bird impacted. All acquired habitat shall be acceptable to the CDFG and shall be protected and managed for the burrowing owl in perpetuity.
	— (B-7d) The survey required within 30 days prior to the initiation of construction will determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond and whether or not the mitigation needs to be revised.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-7d) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, CDFG, and State Parks (for land in ABDSP) for all acquired burrowing owl habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the burrowing owl or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired burrowing owl habitat. The Habitat Management Plan shall include, but shall not be limited to: — Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) burrowing owl habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); — Baseline biological data for all acquired burrowing owl habitat; — Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; — A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; — Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and — Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where occupied burrowing owl habitat occurs.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures. If necessary, BLM and CPUC shall approve habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Avoidance of occupied burrows and surrounding foraging area, successful passive relocation, and/or replacement of occupied habitat that is managed in perpetuity.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All grading or brushing taking place within riparian habitats of the least Bell's vireo or southwestern willow flycatcher during construction shall be conducted from September 16 (October 1 in ABDSP) through March 14, which is outside the least Bell's vireo and southwestern willow flycatcher breeding seasons.
	— (B-7e) When conducting all other construction activities during the breeding season of March 15 through September 15 (September 30 in ABDSP) within 500 feet (USFWS, 2007b) of habitat in which least Bell's vireos and/or southwestern willow flycatchers are known to occur or have potential to occur, a biologist permitted by the USFWS shall survey for least Bell's vireos and southwestern willow flycatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-7e) If least Bell's vireos or southwestern willow flycatchers are present, a permitted biologist shall survey for nesting vireos and flycatchers approximately once per week within 500 feet of the construction area (USFWS, 2007b), for the duration of the activity in that area during the breeding season.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-7e) If/when an active nest is located, a 300-foot no-construction buffer zone (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. No construction shall take place within this buffer until the nest is no longer active unless there are physical or safety constraints. If construction must take place within the buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied vireo/flycatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies, State Parks (for activities in ABDSP), and USDA Forest Service (for activities on National Forest lands) to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The permitted biologist shall monitor the nest daily until either activities are no longer within 300 feet of the nest, or the fledglings become independent of their nest.
	— (B-7e) Mitigation for the loss of least Bell's vireo- or southwestern willow flycatcher-occupied habitat (or designated critical habitat for the flycatcher) shall be implemented as follows. Permanent impacts to occupied habitat and/or designated critical habitat shall include offsite acquisition and preservation of occupied habitat or designated critical habitat at a 3:1 ratio. Temporary impacts to occupied habitat or designated critical habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied habitat and/or designated critical habitat. Impacts to least Bell's vireo or southwestern willow flycatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If a USFWS protocol, pre-construction survey, conducted in an area where presence of the vireo or flycatcher was assumed in this analysis (see Appendix 8B) determines that the species is absent, then the mitigation shall be reduced accordingly. Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-7e) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the least Bell's vireo or southwestern willow flycatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired vireo or flycatcher habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) least Bell's vireo or southwestern willow flycatcher habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all least Bell's vireo or southwestern willow flycatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the vireo or flycatcher occur or have potential to occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to nesting vireos and flycatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-7h: Implement appropriate avoidance/minimization strategies for eagle nests. No construction or maintenance activities shall occur within 4,000 feet of an eagle nest during the eagle breeding season (December through June).
Location	Within 4,000 feet of eagle nests
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with restrictions before and during construction. A qualified biologist shall ensure compliance during maintenance.
Effectiveness Criteria	Successful avoidance of indirect impacts to eagle nests.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/compensation strategies. A biologist permitted by the USFWS shall determine suitable habitat areas (i.e., non-excluded areas per the 2002 USFWS protocol; USFWS, 2002b) within any designated USFWS QCB survey area (e.g., Survey Area 2) that would be impacted by project construction.
	— (B-7i)A pre-construction, USFWS protocol presence/absence survey for the adult QCB shall be conducted within all suitable habitat for this species in the construction zone within any designated USFWS QCB survey area. The survey shall be conducted in a year where the QCB is readily observed at USFWS QCB-monitored reference sites to determine what areas are occupied by the QCB (i.e., any suitable habitat within 1 km of a current QCB sighting is considered occupied) and what areas are not occupied. The USFWS permitted biologist shall record the precise locations of QCB larval host plants within the construction zone (and 10 meters beyond) using GPS technology. If the protocol pre-construction survey is conclusive for determining absence of the QCB, then areas without the butterfly would not require mitigation.
	— (B-7i) If the protocol pre-construction survey is not conclusive for determining QCB absence (due to limited detectability per the 2002 protocol, for example), or if a survey is not conducted, then all suitable habitat areas would be considered potentially occupied and would require mitigation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15) and stays at least 10 meters away from all host plant locations, then no mitigation is required (USFWS, 2007d). If construction occurs between October 16 and May 31 or within 10 meters of host plant locations, or within designated critical habitat, then (1) temporary impacts to the habitat shall be mitigated through onsite restoration of temporarily disturbed areas and offsite acquisition and preservation of an equal sized area of QCB-occupied habitat (a 2:1 mitigation ratio) and (2) permanent impacts shall be mitigated through offsite acquisition and preservation of QCB-occupied habitat (or QCB-designated critical habitat for impacts to designated critical habitat) at a 2:1 ratio (i.e., two acres acquired for each acre lost). Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation land to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). A USFWS permitted biologist shall be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same mitigation shall apply where the protocol pre-construction survey was conclusive for determining that the QCB is present and where construction would occur in designated critical habitat. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If host plant mapping is not possible during the pre-construction survey (e.g., drought prevents plant germination), then all suitable habitat (i.e., non-excluded habitat per the 2002 protocol) shall be considered occupied by the QCB and mitigated under the assumption that the QCB is present.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-7i) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the QCB or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired QCB habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) QCB habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all QCB habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Where suitable Quino checkerspot butterfly habitat occurs.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and Quino checkerspot avoidance/minimization/mitigation measures. If required, BLM and CPUC shall approve habitat acquisition plans and long-term management plans.
Effectiveness Criteria	Successful avoidance of impacts to the Quino checkerspot or impacts as allowed by the USFWS, and if necessary, implementation of mitigation land acquisition.
Responsible Agency	BLM, CPUC, and USFWS.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/ compensation strategies. A pre-construction, USFWS protocol survey shall be conducted for the toad in the construction zone (by a biologist permitted by the USFWS to handle the toad) where absence of the species has not been proven to conclusively define the impacts to occupied habitat. In the absence of this survey data, the mitigation acreages required below shall stand. Where the pre-construction survey determines the species is absent, the mitigation shall be reduced accordingly.
	(— B-7j) The removal of toad riparian breeding habitat shall occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	(— B-7j) Where the toad is present (or assumed to be present if no pre-construction survey is conducted), the construction zone shall be fenced with exclusion fencing to prevent toad access to it. The fencing shall be a silt-screen type barrier comprised of a minimum 24-inch high fence with the remainder (minimum 12 inches) anchored firmly against the ground. The fence may be buried if necessary to exclude toad access. The fence locations shall be identified by a USFWS permitted biologist and adjusted as necessary. Exclusion fencing shall be monitored daily by a qualified biologist (see Mitigation Measure B-1c) and maintained in its original condition by construction personnel for the entire length of the construction period in toad habitat. Pre- and post-exclusion fencing surveys within the construction zone shall be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. Prior to construction commencement, a minimum of three surveys shall be conducted by this biologist following installation of the fencing and prior to construction activities. One of these clearance surveys must take place no more than 24 hours prior to activity commencement. These surveys shall be conducted during appropriate climatic conditions and during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If conditions are not appropriate for arroyo toad movement during surveys, the biologist may attempt to elicit a response from the toads during nights (i.e., at least one hour after sunset), provided that temperatures are above 50°F, by spraying the project area with water to simulate a rain event. After the three clearance surveys outlined above have been completed, daily surveys shall be conducted each morning prior to the continuation of construction or maintenance activity. Any toads found shall be relocated to appropriate similar habitat outside project impact areas.
	(— B-7j) Mitigation for the loss of arroyo toad-occupied habitat shall be implemented as follows. Permanent impacts to occupied, arroyo toad breeding habitat shall include offsite acquisition and preservation of occupied arroyo toad breeding habitat at a 3:1 ratio. Permanent impacts to occupied, upland burrowing habitat shall include offsite acquisition and preservation of occupied, upland burrowing habitat at a 2:1 ratio. Temporary impacts to occupied breeding habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied, upland burrowing habitat shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied, upland burrowing habitat. Any acquired arroyo toad habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
	(— B-7j) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the arroyo toad or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired arroyo toad habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) arroyo toad habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all arroyo toad habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the arroyo toad occurs or has potential to occur.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to arroyo toads are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All brushing or grading taking place within occupied habitat of the coastal California gnatcatcher (defined as within 500 feet of any gnatcatcher sightings [USFWS, 2007b]) during construction shall be conducted from September 1 through February 14, which is outside the coastal California gnatcatcher breeding season.
	(— B-7l) When conducting all other construction activities during the coastal California gnatcatcher breeding season of February 15 through August 30, within habitat in which coastal California gnatcatchers are known to occur or have potential to occur, the following avoidance measures shall apply. A USFWS permitted biologist shall survey for coastal California gnatcatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If coastal California gnatcatchers are present, but not nesting, a USFWS permitted biologist shall survey for nesting coastal California gnatcatchers approximately once per week within 500 feet of the construction area for the duration of the activity in that area during the breeding season.
	(— B-7l) If/when an active nest is located, a 300-foot no-construction buffer (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction shall take place within this buffer until the nest is no longer active. However, if construction must take place within the 300-foot buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting coastal California gnatcatchers and the activities, and working in other areas until the young have fledged.
	(— B-7l) Mitigation for the loss of coastal California gnatcatcher-occupied habitat shall be implemented as follows. Permanent impacts to occupied habitat shall include offsite acquisition and preservation of occupied habitat at a 2:1 ratio. Temporary impacts to occupied habitat shall be mitigated at a 2:1 ratio and shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied habitat. Mitigation for the loss of unoccupied designated critical habitat for the gnatcatcher shall be implemented as follows. Permanent impacts to unoccupied designated critical habitat shall include offsite acquisition and preservation of designated critical habitat at a 2:1 ratio. Temporary impacts to unoccupied designated critical habitat shall include 1:1 onsite restoration. Impacts to coastal California gnatcatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. Any acquired coastal California gnatcatcher habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	(— B-7l) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the coastal California gnatcatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired coastal California gnatcatcher. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) coastal California gnatcatcher habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all coastal California gnatcatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Occupied gnatcatcher habitat.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to coastal California gnatcatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-8a: Conduct pre-construction surveys and monitoring for breeding birds. All vegetation clearing, except tree trimming or removal, shall take place between August 16 and January 14 (i.e., outside of the general avian breeding season of January 15 through August 15). Tree removal or trimming shall take place between September 16 and December 31 (i.e., outside the raptor breeding season of January 1 through September 15).
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) cannot occur completely outside the general avian breeding season, then pre-construction surveys for non-listed bird species' nests shall be conducted by a qualified biologist within 100 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 15 and August 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) including the use of helicopters cannot occur completely outside the raptor breeding season, then pre-construction surveys for active raptor nests shall be conducted by a qualified biologist within 500 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 1 and September 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (B-8a) If no active nests are observed, construction may proceed. If active nests are found, work may proceed provided that construction activity is 1) located at least 500 feet from raptor nests (USFWS, 2007b), 2) located at least 160 to 250 feet from occupied burrowing owl burrows (CDFG, 1995; see Mitigation Measure B-7d), 3) located at least 300 feet from listed bird species nests (see Mitigation Measure B-7e and B-7l), 4) located at least 100 feet from non-listed bird species nests, and 5) noise levels do not exceed 60 dB(A)hourly Leq at the edge of nesting territories (American Institute of Physics, 2005) as determined by a qualified biologist in coordination with a qualified acoustician. There may be a reduction of these buffer zones depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. In the case of raptors (except the burrowing owl), the noise level restriction stated above does not apply (USFWS, 2007b). Otherwise, if the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for construction in ABDSP), and USDA Forest Service (for alternatives with construction on National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring to ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-9a: Survey for bat nursery colonies. A CDFG-approved biologist shall conduct a habitat assessment for bat nursery colonies prior to any construction activity. Then, the approved biologist shall conduct a survey for bat nursery colonies or signs of such colonies prior to construction. Direct impacts to a nursery colony site shall not be allowed, and approach of, or entrance to, an active nursery colony site shall be prohibited. Before any blasting or drilling in the vicinity of a nursery colony site, the CDFG-approved biologist shall work with the construction crew to devise and implement methods to minimize potential indirect impacts to the nursery colony site from falling rock or substantial vibration (while a nursery colony is active). The methods shall include an option to halt any construction activity that would cause falling rock, substantial vibration impacts, or any other construction-related impact (including lighting used for night work) to a nursery colony as determined by the approved biologist, until the colony is inactive. Should falling rock block the entrance to a nursery colony site, the contractor shall work with the approved biologist to re-open an entrance to the site.
Location	Areas with potential to support bat nursery colonies (typically caves or rock crevices in the desert).
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure avoidance of impacts to bat nursery colonies.
Effectiveness Criteria	Successful avoidance of impacts to bat nursery colonies.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— B-10a: Utilize collision-reducing techniques in installation of transmission lines. The Applicant shall install the transmission lines utilizing Avian Power Line Interaction Committee standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994" (APLIC, 1994) as follows. • Placement of towers and lines shall not be located above existing towers and lines, topographic features, or tree lines to the maximum extent practicable. Power lines should be clustered in the vertical and horizontal planes aligned with existing geographic features or tree lines, and located parallel (rather than perpendicular) to prevailing wind patterns to the maximum degree feasible. • Additionally, overhead lines that are located in highly utilized avian flight paths shall be marked utilizing fixed mount Firefly Flapper/Diverters, swan flight diverter coils, or other diversion devices, if proven more effective, as to be visible to birds and to reduce avian collision with power lines.
	— (B-10a) Where such markers are installed, the Applicant shall fund a study to determine the effectiveness of the markers as a collision prevention measure since there are few, if any, studies that show if such markers work, especially on transmission lines (CEC, 2007). The Applicant shall develop a draft study protocol and submit it to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review. The Applicant shall continue to work with these agencies until approval of a final study protocol is obtained. If the study shows the markers to be ineffective, the Applicant shall coordinate with the Wildlife Agencies and State Parks (for markers in ABDSP) to develop alternate collision protection measures.
	— (B-10a) The Applicant shall implement an avian reporting system for documenting bird mortalities to help identify problem areas. The reporting system shall follow the format in Appendix C of "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006" (APLIC, 2006) or a similar format. The Applicant shall submit a draft reporting protocol and reporting system to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review and approval. The Applicant shall continue to work with these agencies until approval of a final reporting protocol and reporting system is obtained. The Applicant shall develop and implement methods to reduce mortalities in identified problem areas. The methods shall be approved by the Wildlife Agencies, State Parks (for problem areas in ABDSP), CPUC, and BLM prior to implementation. Bird mortality shall continue to be documented in the problem areas per the avian reporting system to determine the effectiveness of the mortality reduction methods and to determine if new methods need to be developed.
Location	Highly utilized avian flight paths
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure installation of markers. BLM and CPUC shall ensure that the Applicant funds and implements a study to document bird mortalities.
Effectiveness Criteria	Markers installed, bird mortality study implemented, and corrective measures taken.
Responsible Agency	CPUC, BLM, State Parks (for ABDSP), USFWS and CDFG
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-11a: Prepare and implement a Raven Control Plan. The Applicant shall prepare and implement a Raven Control Plan where it occurs in FTHL habitat inside and outside FTHL MAs. The raven control plan shall include the use of raven perching/nesting deterrents (such as those manufactured by Prommel Enterprises, Inc. [www.ZENAdesign.com], Mission Environmental [www.missionenviro.co.za], or Kaddas Enterprises, Inc. [www.kaddas.com] and/or shall describe the procedure for obtaining a permit from the USFWS Law Enforcement Division to legally remove ravens. The plan shall identify the purpose of conducting raven con egar; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; and describe procedures for documenting the activities on an annual basis. The Applicant shall obtain approval of this plan from the USFWS prior to the start of construction. The Applicant shall work with the USFWS until approval of a plan is obtained.
Location	FTHL habitat inside and outside FTHL Mas, and where desert tortoise has potential to occur, outside ABDSP.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall verify that SDG&E submitted a raven control plan and received approval from USFWS prior to construction, and that the plan is implemented after construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Effectiveness Criteria	A raven control plan is submitted by SDG&E, approved by USFWS, and implemented.
Responsible Agency	BLM, CPUC, and USFWS Law Enforcement Division.
Timing	Pre- and post construction.
Status	
Review / Approval Status	
BIO-APM-1	SDG&E would perform any detailed on-the-ground protocol surveys with regard to specific sensitive plant or wildlife species whose habitat would be impacted by the project based on final design in accordance with federal or State regulations or statutes. SDG&E would submit results of these surveys to the USFWS and CDFG ~~and consult on reasonable and feasible mitigation measures for potential impacts, prior to any ground disturbing activities in a particular area. Mitigation would prioritize avoidance as the primary means to address impacts. If avoidance is not feasible, then relocation/restoration would be implemented. Where relocation/restoration is not feasible or deemed not to fully address impacts, then mitigation though SDG&E's NCCP mitigation credits or if necessary compensation via another on- or offsite purchase or dedication of habitat at a ratio of 2:1 for impacts inside preserves and 1:1 for impacts outside of preserves would be identified and implemented~~. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-2	Prior to construction, all SDG&E's contractors, subcontractors and project personnel would receive training regarding the appropriate work practices necessary to effectively implement the biological APMs and to comply with the applicable environmental laws and regulations including appropriate wildlife avoidance, and impact minimization procedures, the importance of these resources and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources. (SDG&E)
Location	Entire project area.
Timing	Pre-construction.
Status	
Review / Approval Status	
BIO-APM-3	Except when not feasible due to physical or safety constraints, all Project vehicle movement would be restricted to existing and constructed roads as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads. ~~New access road construction for the project would be allowed year-round. However, when feasible, every effort would be made to avoid constructing roads during the nesting season. When it is not feasible to keep vehicles on existing access roads or to avoid constructing new access roads during the nesting, breeding, or flight season, SDG&E would perform a site survey, or more as appropriate, in the area where the work is to occur. This survey would be performed to determine presence or absence of endangered nesting birds, or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable mitigation measures to avoid or minimize for potential impacts, prior to vehicle use off existing access roads or the construction of new access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys otherwise required by BIO-APM-1.~~ Parking or driving underneath oak trees is not allowed in order to protect root structures. In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities which could interfere with plant photosynthesis, a 15-mile-per-hour speed limit shall be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

BIO-APM-4	The area limits of Project construction and survey activities would be predetermined based on temporary and permanent disturbance areas noted on final design engineering drawings with activity restricted to and confined within those limits. Survey personnel shall keep survey vehicles on existing roads. During Project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat would require prior approval from the project biological resource monitor in conformance with the APMs. Hiking off roads or paths for survey data collection is allowed year-round as long as other APMs are met. ~~Stringing of new wire and reconductoring for the project would be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on Project access roads. Where stringing requires that conductor drag on the brush or ground or vehicles leave Project access roads, SDG&E would perform a site survey (or more as appropriate) to determine presence/absence of endangered nesting birds or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable and feasible mitigation measures for potential impacts prior to dragging wire on the ground or through brush or taking vehicles off Project access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats are encountered in the field. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-7	Littering is not allowed. Project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris would remain in the right-of-way following completion of construction. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-8	Prior to construction, plant population boundaries designated as sensitive ~~by USFWS or CDFG and other resources designated sensitive by SDG&E and resource agencies~~ would be clearly delineated. ~~with clearly visible flagging or fencing, which shall remain in place for the duration of construction.~~ Flagged areas would be avoided to the extent practicable during construction activities in that area. ~~Where these areas cannot be avoided, focused surveys for covered plant species shall be performed in conformance with BIO-APM-1, and the responsible resource agency(s) would be consulted for appropriate mitigation and/or revegetation measures prior to disturbance. Notification of presence of any covered plant species to be removed in the work area would occur within ten (10) working days prior to Project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS nor CDFG has removed such plant(s) within ten (10) working days following written notice, SDG&E may proceed with work and cause a take of such plant(s), if minimization measures are not implemented.~~ (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-10	No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms shall be prohibited in all project areas except for those used by security personnel. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
BIO-APM-11	Feeding of wildlife is not allowed. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-12	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-13	Plant or wildlife species may not be collected for pets or any other reason. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-16	Environmentally sensitive tree trimming locations for the project would be identified in SDG&E's existing vegetation management ~~tree trim~~ database utilized by ~~tree~~ trim contractors. ~~The biological field construction monitor shall be contacted prior to~~ Trimming ~~in environmentally sensitive areas Whenever feasible, trees in environmentally sensitive areas, such as areas of riparian or native scrub vegetation,~~ would be scheduled ~~for trimming~~ during non-sensitive (i.e., outside breeding or nesting) times. ~~Where trees cannot be trimmed during non-sensitive times, SDG&E would perform a site survey, or more as appropriate, to determine presence or absence of endangered nesting bird species in riparian or native scrub vegetation. SDG&E would submit results of this survey to the USFWS and CDFG and consult on mitigation measures for potential impacts, prior to tree trimming in environmentally sensitive areas. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ Where riparian areas with overstory vegetation are crossed, tree removal (i.e., clear-cut) widths would be varied where feasible to minimize visual landscape contrast and to maintain habitat diversity at established wildlife corridor edges. Where tree removal widths cannot be varied, SDG&E would consult with the USFWS and CDFG to develop alternative tree removal options that could reasonably maintain edge diversity. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

BIO-APM-18	In areas designated as sensitive by SDG&E or the resource agencies, to the extent feasible structures and access roads would be designed to minimize impacts to sensitive features. These areas of sensitive features include but are not limited to high-value wildlife habitats, sensitive vegetation communities, and high value plant habitats, and/or to allow conductors to clearly span the features, within limits of standard structure design. If the sensitive features cannot be completely avoided, structures and access roads would be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in high value wildlife habitats, SDG&E would perform a site survey to determine presence or absence of endangered species in sensitive habitats. SDG&E would submit results of this survey to the USFWS and consult on mitigation measures for potential impacts, prior to constructing structures or access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. Where it is not feasible for access roads to avoid sensitive water resource features, such as streambed crossings, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, roads constructed parallel to streambeds would be limited to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. (SDG&E)
Location	Entire project area where sensitive features are present.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-19	Restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM under Section 7 of the Endangered Species Act (ESA) would be implemented and complied with as specified in the Biological Opinion (BO) of the USFWS. The Section 7 process would be used to obtain an incidental take authorization through a compensation-based mitigation program for permanent impacts to occupied sensitive plant and animal habitat at a ratio of 1:1 or 2:1 based on site-specific studies, as outlined in BIO-APM-1. The Section 7 process may include consideration of SDG&E's existing NCCP mitigation credits as compensation for project impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-21	Structures shall be constructed to conform to "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc. 1981), to minimize impacts to raptors. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-27	1. Prior to construction, SDG&E shall remove all existing raptor nests from structures that would be affected by project construction. 2. Removal of nests shall occur outside the raptor breeding season (January to July). 3. If it is necessary to remove an existing raptor nest during the breeding season, a qualified biologist shall survey the nest prior to removal to determine if the nest is active. A nest would be considered active if it contains eggs or fledglings. If the nest does not contain eggs or nestlings and is inactive, it shall be removed promptly. If a nest is determined to be active, the nest shall not be removed and the biologist shall monitor the nest to ensure nesting activities/breeding activities are not disrupted. If the biological monitor determines that project activities are disturbing or disrupting nesting activities, the monitor shall make feasible recommendations to reduce the noise and/or disturbance in the vicinity of the nest. (SDG&E)

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-28	Potential roost trees that must be removed will be surveyed and identified in the field for application of the following procedures: *Before felling the tree:* 1. Trees should be removed under the warmest possible conditions. 2. Peel any sections of the exfoliating bark off the tree gently and search for any roosting bats underneath. 3. Create noise and vibrations on the tree itself. Noise and vibrations include: a. Running chain saw and making shallow cuts in the trunk (where bark has been peeled off). b. Striking the tree base with fallen limbs or tools such as hammers. *Felling the tree:* 4. Disturbance should be near-continuous for ten minutes, and then another ten minutes should pass, before the tree is felled. 5. When cutting sections of the bole, if any hollows or cavities (such as woodpecker holes) are discovered, be especially careful to check for the presence of bats in those areas. Cut slowly and carefully at all times. If possible, section bole near cavities to focus noise and vibrations, and open hollows by sectioning off a side. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-1a: Reduce visibility of construction activities and equipment. Substation construction sites and all staging and material and equipment storage areas including storage sites for excavated materials, and helicopter fly yards shall be appropriately located away from areas of high public visibility. If visible from nearby roads, residences, public gathering areas, or recreational areas, facilities, or trails, construction sites and staging areas and fly yards shall be visually screened using temporary screening fencing. Fencing will be of an appropriate design and color for each specific location. Additionally, construction in areas visible from recreation facilities and areas during holidays and periods of heavy recreational use shall be avoided.
	— (V-1a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the BLM and CPUC for review and approval at least 60 days prior to the start of construction. Where the project crosses lands administered by other public agencies (e.g., Forest Service, Anza-Borrego Desert State Park), construction plans shall also be submitted to those agencies for review and approval within the same 60-day timeframe.
Location	Mitigation Measure V-1a applies to all sites and all routes.
Monitoring / Reporting Action	CPUC and BLM to verify in the field during construction and following construction
Effectiveness Criteria	Project construction sites (static), construction yards, and staging areas will be screened during construction and all construction areas will appear in their original or improved condition following construction.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— V-1b: Reduce construction night lighting impacts. SDG&E shall design and install all lighting at construction and storage yards and staging areas and fly yards such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-1b) SDG&E shall submit a Construction Lighting Mitigation Plan to the BLM (only if on BLM lands), Forest Service (only if on National Forest lands), Anza-Borrego Desert State Park (for Park lands) and CPUC (for all areas) for review and approval at least 90 days prior to the start of construction or the ordering of any exterior lighting fixtures or components, whichever comes first. SDG&E shall not order any exterior lighting fixtures or components until the Construction Lighting Mitigation Plan is approved by the reviewing agency. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied
Location	Mitigation Measure V-1b applies to all static sites.
Monitoring / Reporting Action	CPUC and BLM to review and approve the Construction Lighting Mitigation Plan prior to construction and to monitor implementation in the field during construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2a: Reduce in-line views of land scars. Construct access or spur roads at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. Contour grading should be used where possible to better blend graded surfaces with existing terrain.
	— (V-2a) All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following: • Definition of access roads with sensitive viewing areas from which visibility of access roads is a concern. • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design. • "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover. • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each access road (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route).
	— (V-2a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC and BLM, as well as the Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring / Reporting Action	CPUC and BLM to review construction plans prior to start of construction and verify compliance during construction.
Effectiveness Criteria	In-line views of land scars from grading will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2b: Reduce visual contrast from unnatural vegetation lines. In those areas where views of land scars are unavoidable, the boundaries of disturbed areas shall be aggressively revegetated to create a less distinct and more natural-appearing line to reduce visual contrast. Furthermore, all graded roads and areas not required for on-going operation, maintenance, or access shall be returned to pre-construction conditions. In those cases where potential public access is opened by construction routes, SDG&E shall create barriers or fences to prevent public access and patrol construction routes to prevent vandalized access and litter clean-up until all vegetation removed returns to its pre-project state. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
	— (V-2b) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of unnatural vegetation lines will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2c: Reduce color contrast of land scars on non-Forest lands. For non-USFS-administered land areas where views of land scars from sensitive public viewing locations are unavoidable, disturbed soils shall be treated with Eonite or similar treatments to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings (Eonite and Permeon are commercially available chemical treatments that "age" or oxidize rock and are used specifically for coloring concrete or rock surfaces to tone down glare and contrast and simulate naturally occurring desert varnish). SDG&E will consult with the Authorized Officer (as determined by the CPUC and BLM as appropriate) on a site-by-site basis for the use of Eonite.
	— (V-2c) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-2d: Construction by helicopter. In those areas where long-term land-scarring and vegetation clearance impacts would be visible to sensitive public viewing locations, or where construction would occur on slopes over 15 percent, SDG&E will consult with the Authorized Officer and appropriate land management agency, on a site-by-site basis regarding the use of helicopter construction techniques and the prohibition of access and spur roads. Agency consultations must be conducted and approvals received at least 120 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public or where construction would occur on slopes over 15 percent.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line (USFS Scenery Conservation Plan). CPUC and USFS to review Scenery Conservation Plan at least 120 days prior to start of construction and verify implementation following construction.
Location	Locations of all land scars and vegetation clearance on USFS – administered lands.
Monitoring / Reporting Action	CPUC and USFS to review Scenery Conservation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, USFS
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	V-3a: Reduce visual contrast of towers and conductors. The following design measures shall be applied to all new structure locations, conductors, and re-conductored spans, in order to reduce the degree of visual contrast caused by the new towers and conductors:
	• All new conductors and re-conductored spans are to be non-specular in design in order to reduce conductor visibility and visual contrast.
	• All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Sensitive viewing locations have been defined by Cleveland National Forest as campgrounds, trailheads, trails, wilderness areas, backcountry roads, heavily traveled roads, and overlooks. Access roads of concern are those that would be visible as they directly approach existing or proposed towers in a straight line from locations immediately downhill of the structures. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following:
	  • Definition of towers with sensitive viewing areas from which visibility of access roads is a concern.
	  • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design.
	  • "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
	  • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each tower (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route.

Location	Applies to all tower locations and route segments.
Monitoring / Reporting Action	CPUC and BLM to review Project Design Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— V-7a: Reduce visual contrast associated with ancillary facilities. SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The Surface Treatment Plan shall include: • Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture • A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation) • Two sets of brochures and/or color chips for each proposed color • A detailed schedule for completion of the treatment • A procedure to ensure proper treatment maintenance for the life of the project.
	— (V-7a) SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC. Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Surface Treatment Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-7b: Screen ancillary facilities. SDG&E shall provide a Screening Plan for screening vegetation, walls, and fences that reduces visibility of ancillary facilities (except Imperial Valley Substation) and helps the facility blend in with the landscape. The use of berms to facilitate project screening may also be incorporated into the Plan. SDG&E shall submit the Plan to the BLM and CPUC for review and approval at least 90 days prior to installing the landscape screening. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The plan shall include but not necessarily be limited to: • An 11" x 17" color simulation of the proposed landscaping at 5 years • A plan view to scale depicting the project and the location of screening elements • A detailed list of any plants to be used; their size and age at planting; the expected time to maturity, and the expected height at five years and at maturity
	— (V-7b) SDG&E shall complete installation of the screening prior to the start of project operation. SDG&E shall notify the BLM and CPUC within seven days after completing installation of the screening, that the screening components are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Screening Plan prior to start of construction and verify implementation following construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-21a: Reduce night lighting impacts. SDG&E shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-21) SDG&E shall submit a Lighting Mitigation Plan to the CPUC for review and approval at least 90 days prior to ordering any permanent exterior lighting fixtures or components. SDG&E shall not order any exterior lighting fixtures or components until the Lighting Mitigation Plan is approved by the CPUC. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.
Location	Applies to all permanent ancillary facilities including substations, switchyards, series capacitor banks, and optical repeater stations.
Monitoring / Reporting Action	CPUC and BLM to review Lighting Mitigation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	V-45a Prepare and implement Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify specific actions that will minimize the project's visible disturbance to the naturally established scenery and to establish final direction to best achieve the spirit and intent of the Scenic Integrity Objectives of the Cleveland National Forest Land and Resource Management Plan. To achieve the greatest consistency with the Scenic Integrity Objectives, the project shall detail and integrate the following design recommendations into the Scenery Conservation Plan: • Power Line and Support Towers. Transmission lines shall be nonspecular (nonreflective) and neutral in coloration. Support towers shall be custom-colored with a flat, non-reflective finish, to visually blend with native vegetation colors to appear as visually transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape. • Distance Zones. The Applicant shall consult with the Forest Service on tower design for any approved route on Forest lands and implement tower styles in accordance with agency direction. In general, the USFS requires that support towers within approximately one mile of sensitive primary viewpoints and without a backdrop be a monopole design with a simple, clean and less industrial appearance and support towers viewed beyond one mile from sensitive viewpoints or only at distance be lattice towers. • Vegetation Clearing. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line. • Roads. No new access or spur roads, or improvements (reconstruction/expansion) to existing roads are to be constructed in the following areas: (1) where ground slopes exceed 15%, or (2) on Forest lands subject to a HIGH Scenic Integrity Objective (SIO) where the new access or spur road would be visible from primary travel (paved) roads or the Pacific Crest National Scenic Trail, regardless of ground slope. Existing roads needing reconstruction/expansion on other areas of the forest shall be configured to minimize the creation of cut/fill slopes. Where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species. • Structures. All structures and structural elements, that may be constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character. • Evaluation of Effects. The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives as viewed from sensitive viewsheds. • Off-Site Mitigation. Where project features create unavoidable and permanent negative scenery effects that are inconsistent with CNF Plan Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas in new viewsheds agreeable to the Forest shall be purchased and assigned to the Forest for its stewardship.
Location	Applies to all tower locations, facilities, and route segments within Cleveland National Forest Lands.
Monitoring / Reporting Action	CNF to review Scenery Conservation Plan within one year after license issuance, or prior to any ground disturbing activities.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CNF
Timing	Pre-, during and post construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures. In order to reduce the structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures, SDG&E shall reconsider the location of the transition structures and attempt to lower their height by either relocating the next tower to shorten the span, or by moving the transition structures further downslope. This measure shall be implemented by SDG&E's submittal of a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the transition structures, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Chocolate Canyon Option.
Monitoring / Reporting Action	CPUC to review and approve SDG&E's fine-tuning of the location of the transition structures and final construction plants 120 days prior to start of construction.
Effectiveness Criteria	The visibility of the Chocolate Canyon Option transition structures will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-68a: Eliminate skylining of ridgeline towers and conductors. In order to eliminate the skylining of ridgeline towers and conductors, the ridgeline towers shall be relocated to elevations sufficiently low on the ridge to eliminate structure skylining when viewed from Moreno Boulevard, SR67, and residences on the slopes west of SR67. SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Interstate 8 Alternative.
Monitoring / Reporting Action	CPUC to review and approve SDG&E final construction plans at least 120 days prior to the start of construction.
Effectiveness Criteria	Structure skylining when viewed from Moreno Boulevard, SR67, will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-1	At highway, canyon, and trail crossings, structures shall be placed at the maximum feasible distance from the crossing to reduce visual impacts as long as other significant resources are not negatively affected. (SDG&E)
Location	Entire project area along highway, canyon, and trail crossing.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-3	Where the line parallels existing transmission lines, the spacing of structures shall match the existing transmission structures, where feasible, to minimize visual effects. (SDG&E)
Location	Entire project area where the line parallels existing transmission lines (e.g. MP I8-0 to MP I8-35)
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

VR-APM-4	No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-5	Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence where possible. SDG&E will consult with affected property owners on structure siting to reduce land use and visual impacts. (SDG&E)
Location	Entire project area near residences.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-6	In scenic view areas as designated by land management agencies, structures would be placed to avoid sensitive features and/or allow conductor to clearly span the features, within limits of standard design where possible. (SDG&E)
Location	Entire project area in scenic view areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— L-1a: Prepare Construction Notification Plan. Forty-five days prior to construction, SDG&E shall prepare and submit a Construction Notification Plan to the CPUC and the BLM for approval. The Plan shall identify the procedures SDG&E will use to inform property and business owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. The plan shall address at a minimum the following components: • Public notice mailer. A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, or require a detour to access existing residential properties, retail and commercial businesses, wilderness and recreation facilities, and public facilities (e.g., schools and memorial parks). The notice shall state the type of construction activities that will be conducted, and the location and duration of construction, including all helicopter activities. SDG&E shall mail the notice to all residents or property owners within 1,000 feet of the right-of-way, any property owners or tenants that could be impacted by construction activities and specific public agencies with facilities that could be impacted by construction. If construction delays of more than seven days occur, an additional notice shall be prepared and distributed.
	— (L-1a) • Newspaper advertisements. Fifteen days prior to construction, within a route segment, notices shall be placed in local newspapers and bulletins, including Spanish language newspapers and bulletins. The notice shall state when and where construction will occur and provide information on the public liaison person and hotline identified below. If construction is delayed for more than seven days, an additional round of newspaper notices shall be placed to discuss the status and schedule of construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (L-1a) • Public venue notices. Thirty days prior to construction, notice of construction shall be posted at public venues such as trail crossings, rest stops, desert centers, resource management offices (e.g., Bureau of Land Management field offices, Anza-Borrego Desert State Park offices and campgrounds, Cleveland National Forest Ranger Stations), and other public venues to inform residents and visitors to the purpose and schedule of construction activities. For public trail closures, SDG&E shall post information on the trail detour at applicable resource management offices and post the notice on the trail within two miles of the detour. For recreation facilities, the notice shall be posted along the access routes to known recreational destinations that would be restricted, blocked, or detoured and shall provide information on alternative recreation areas that may be used during the closure of these facilities.
	— (L-1a) • Public liaison person and toll-free information hotline. SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring property owners about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and shall develop procedures for responding to callers. Procedures for handling and responding to calls shall be addressed in the Construction Notification Plan.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E submits Construction Notification Plan, which identifies complete notification and public inquiry process.
Effectiveness Criteria	Residents, landowners and others potentially impacted are informed of construction activities; procedures are established and documented for taking and responding to construction comments and concerns.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	L-1c: Coordinate with MCAS Miramar. At least 90 days before construction, SDG&E shall provide all required project engineering details to MCAS Miramar for review and approval. Information provided shall include access roads to be used, expanded, or added. Information shall also include completed and authorized FAR Part 77 evaluations (Form 7460-1) for all objects exceeding the Outer Horizontal Surface (978 Ft AMSL) at MCAS Miramar. SDG&E shall provide the CPUC and BLM with evidence of its coordination with MCAS Miramar at least 60 days prior to the start of construction. When any towers are to be removed on MCAS Miramar, all portions of the towers/poles shall be removed. Cutting poles and leaving buried portions is not acceptable on MCAS Miramar lands.
Location	Construction activity within MCAS Miramar.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E coordinates with MCAS Miramar.
Effectiveness Criteria	SDG&E submits documentation of its coordination with MCAS Miramar.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— L-2b: Revise project elements to minimize land use conflicts. At least 90 days prior to completing final transmission line design for the approved route, SDG&E shall notify landowners of parcels through which the alignment would pass regarding the specific location of the ROW, individual towers, staging areas, pull sites, access roads, or other facilities associated with the project that would occur on the subject property or within 1,000 feet of the property. The notified parties shall be provided at least 30 days in which to identify conflicts with any existing structures or planned development on the subject property and to work with SDG&E to identify potential reroutes of the alignment that would be mutually acceptable to SDG&E and the landowner. Property owners whose land may be divided into potentially uneconomic parcels shall be afforded this same opportunity, even if development plans have not been established. SDG&E shall endeavor to accommodate these reroutes only to the extent that they are reasonable and feasible, do not create a substantial increase in cost, and do not create adverse impacts to resources or to other properties that would be greater in magnitude than impacts that would occur from construction and operation of the alignment as originally planned.
	— (L-2b) At or before the time property owners are notified and based on SDG&E's own review of the alignment and facilities, SDG&E shall provide CPUC and BLM a written report identifying properties that are suspected of having a land use conflict as described above. This report shall identify and characterize existing buildings within the ROW and residences or occupied structures within or adjacent to the ROW, with which the alignment or other permanent facilities may conflict.
	— (L-2b) SDG&E shall provide a written report to the CPUC and BLM providing evidence of the notice provided to landowners and copies of any responses to the notice within 30 days of the notice closing date for responses. SDG&E shall also identify in the documentation submitted to CPUC and BLM whether reroutes recommended by the landowner or SDG&E can be accommodated. Where they cannot be accommodated, the reasons shall be provided. SDG&E shall provide information sufficient for the CPUC and BLM to determine that the reroute creates no more adverse impact than the originally planned alignment location. SDG&E shall include environmental information consistent with that required for a Variance (as defined in Section I, Mitigation Monitoring). Where a reroute is proposed, the CPUC and BLM will review and agree to accept or reject individual reroutes. CPUC and BLM also may recommend compromise reroutes for any of the parcels for which responses were provided to SDG&E in a timely fashion.
	— (L-2b) The following specific modifications shall be developed by SDG&E, following the procedures defined above: Interstate 8 Alternative: MP I8-87 through I8-89.5, High Meadow Ranch. The initial alignment shall be shifted approximately 200 feet to the west, downslope, in order to minimize visual effects of the towers on the development. See Figure Ap.11C-56 for map of this area. Interstate 8 Alternative: MP I8-92 to I8-92.7, Private home. The alignment shall be shifted to the east side of Highway 67, to a point just south of the Preserve parking lot, where the alignment would cross Highway 67 to join the Proposed Project route. See Figure Ap.11C-57 for map of this area. Star Valley Option Revision: SDG&E shall work with affected landowners to refine the route in order to minimize effects on private properties along Star Valley Road.
Location	Along Interstate 8 Alternative and other Alternatives along the SWPL corridor
Monitoring / Reporting Action	Confirm receipt of notice and results prior to final design
Effectiveness Criteria	Provision of a report indicating contents of notice, distribution of notice, and any responses and their resolution.
Responsible Agency	CPUC and BLM
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-1	SDG&E will provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and will appoint a public affairs officer to address public concerns or questions. (SDG&E)
Location	Entire project area where residences are within 300 feet.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-2	Place new transmission structures more than 330 feet from an existing residence to the extent feasible. (SDG&E)
Location	Entire project area near existing residences.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-4	To facilitate access to properties obstructed by construction activities, SDG&E will notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-5	To remedy encroachment and safety conflicts with irrigation canals and flood management structures during construction, SDG&E will coordinate construction activities with appropriate water management representatives. (SDG&E)
Location	Entire project area along irrigation canals and flood management structures.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-6	The limits of construction activities within and outside the ROW will typically be predetermined, with activity restricted to and confined within those limits. The ROW boundary and limits of construction activity inside and outside the ROW will be flagged in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-7	To the extent feasible, project facilities would be installed along the edges or borders of private property, open space parks, and recreation areas. When it is not feasible to locate project facilities along property borders, SDG&E would consult with affected property owners to identify facility locations that create the least potential impact to property and are mutually acceptable to property owners to the extent feasible. SDG&E would pay just compensation to affected property owners based upon the impact to the property caused by the facility locations identified by SDG&E. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-8	SDG&E will continue its current coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans. (SDG&E)
Location	San Diego and Imperial Counties and the City of San Diego
Timing	Pre- and during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
LU-APM-9	SDG&E would obtain all necessary and/or appropriate ministerial land use permits. (SDG&E)
Location	Entire project area.
Timing	Pre-construction.
Status	
Review / Approval Status	
LU-APM-10	SDG&E will match structure locations with existing transmission facilities where feasible and appropriate. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area. No less than 60 days prior to construction, SDG&E shall coordinate construction activities and the project construction schedule with the authorized officer for the recreation areas listed below. SDG&E shall schedule construction activities to avoid heavy recreational use periods in coordination with and at the discretion of the authorized officer. SDG&E shall locate construction equipment to avoid temporary preclusion of recreation areas in accordance with the recommendation of the authorized officer. SDG&E shall document its coordination efforts with the authorized officer and provide this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • BLM Dunaway Camp • Juan Bautista de Anza National Historic Trail (County of San Diego Regional Trail) • Trans-County Trail (County of San Diego Regional Trail) • Pacific Crest National Scenic Trail (County of San Diego Regional Trail) • California Riding and Hiking Trail (County of San Diego Regional Trail) • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in or adjacent to the recreation areas listed above.
Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers for the listed recreation areas.
Effectiveness Criteria	Construction activities are scheduled to avoid heavy recreational use periods; construction equipment is located to avoid temporary preclusion of recreation areas.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	WR-1b: Provide temporary detours for trail users. No less than 60 days prior to construction, SDG&E shall coordinate with the authorized officer of the trails listed below to establish temporary detours of the trails to avoid construction area hazards, if the trail is deemed unsafe to use during construction. Should new trail segments be constructed as detours during construction, the temporary new trail segments would be sited to avoid sensitive resources, in coordination with the authorized officer of the trail or recreation area, and would be restored to pre-construction condition by SDG&E when SRPL construction is complete, if required by the authorized officer of the trail or recreation area. SDG&E shall post a public notice of the temporary trail closure and information on the trail detour. SDG&E shall document its coordination efforts with the authorized officer and submit this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • Juan Bautista de Anza National Historic Trail • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Mission Trails Regional Park (Fortuna, Rim, and Quarry Loop Trails)
Location	Construction activity in or adjacent to the trails listed above.
Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed trails.
Effectiveness Criteria	Temporary detours of the trails are established to avoid construction area hazards; temporary new trail segments are sited to avoid sensitive resources and restored to pre-construction condition when construction is complete; public is notified of trail closures and detours.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	WR-1c: Coordinate with local agencies to identify alternative recreation areas. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local parks and recreational facilities listed below at least 60 days before construction in order to identify alternative recreation facilities that may be used by the public during construction. SDG&E shall post a public notice at recreation facilities that are to be closed or where access would be limited during project construction. SDG&E shall document its coordination efforts with the parks and recreation departments and provide this documentation to the CPUC, BLM, and all affected park jurisdictions 30 days prior to construction. • BLM Dunaway Camp • Juan Bautista de Anza National Historic Trail • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed parks and recreational facilities.
Effectiveness Criteria	Alternative recreation facilities are identified for use by public during construction; public notice is posted at recreation facilities that are closed or have limited access during construction.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation. SDG&E shall relocate the overhead 500 kV transmission line along the southern boundary of JAM properties as shown in Figure E.2.1-b to shorten the route and minimize effects on BLM land, Forest land, and private property. This reroute and its ground-disturbing components shall avoid Back Country Non-Motorized land use zones of the Cleveland National Forest, while also minimizing towers and disturbance on private property. SDG&E shall submit a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the BCD Alternative Revision, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	BCD Alternative Revision
Monitoring / Reporting Action	Memo and final construction plans to CPUC
Effectiveness Criteria	A reroute is developed that minimizes impacts to Back Country Non-Motorized zones and towers/disturbance on private lands
Responsible Agency	CPUC; BLM; USFS
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area. Where the Proposed Project crosses the recreation areas listed below, SDG&E shall coordinate with the authorized officer for the recreation area to determine specific tower site and spur road locations in order to minimize impacts to recreational resources. If it is not feasible to site structures outside of a park/preserve, compensation shall be required for permanent impacts (i.e., structure footings, access roads not dually used as trails) to park/preserve land at a 1:1 ratio. However, this mitigation measure is superseded by biological resource Mitigation Measure B-1a, which specifies restoration and compensation ratios for affected vegetation. In cases where the impacts to recreational resources occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (WR-3a) In consultation with the authorized officer of the trail or recreation area, access roads shall not be located on trails (e.g. , PCT, Trans-County Trail) unless the authorized officer determines that the construction of new access roads would result in greater impacts than modifying the trail for use as an access road. If it is not feasible to site transmission structures off of a trail, SDG&E shall provide full funding for relocation of trail segments, including planning and trail construction, at location(s) identified by the authorized officer of the trail or recreation area. Trail segment relocation shall maintain the connectivity of regional and community trails.
	— (WR-3a) This coordination shall occur no less than 60 days prior to the start of construction. SDG&E shall document its coordination with the authorized officer and shall submit this documentation to the CPUC, BLM, and ABDSP, at least 30 days prior to project construction. • Juan Bautista de Anza National Historic Trail • Cleveland National Forest • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • San Vicente Highlands Open Space Preserve
Location	Central Link; Anza-Borrego Link; Inland Valley Link
Monitoring / Reporting Action	CPUC, BLM, and ABDSP verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed recreation areas.
Effectiveness Criteria	Tower sites and spur road locations minimize impacts to recreation resources; roads are not located on trails unless there would be greater impacts from doing otherwise.
Responsible Agency	CPUC, BLM, and ABDSP.
Timing	Pre- and during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
R-APM-2a	Advance notice of restriction of conflicts with access routes to recreational use areas will be provided. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2c	SDG&E will coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department and the California State Parks Department (for ABDSP), respectively, before construction begins in these areas. (SDG&E)
Location	Entire project area near parklands and trail systems.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2e	Signs advising recreation users of construction activities and directing them to alternative trails or bikeways will be posted on both sides of all trail intersections or as determined through SDG&E's coordination with the respective jurisdictional agencies. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-3a	Construction-related traffic shall be restricted to routes approved by the authorized agencies. New access roads or cross-county vehicle travel will not be permitted on ABDSP or state lands unless prior written approval is given by the authorized ABDSP officer. Authorized roads used by the project shall be rehabilitated when construction activities are complete as coordinated with California State Parks. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	AG-1a: Avoid interference with agricultural operations. The Applicant shall coordinate with property owners and tenants to ensure that project construction will be conducted so as to avoid or minimize interference with agricultural operations. Agricultural operations include, but are not limited to, the use of farm vehicles and equipment, access to property; water delivery, drainage, and irrigation. This shall occur sixty (60) days prior to the start of project construction.
Location	Locations where the project could interfere with agricultural operations
Monitoring / Reporting Action	CPUC/BLM monitors verify that signed agreements between SDG&E and affected landowners have been submitted, and ensure that construction schedules occur during time periods agreed upon in the agreement and that agreed upon restoration occurs.
Effectiveness Criteria	Affected landowners are in agreement with construction activities
Responsible Agency	CPUC, BLM Offices
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	AG-1c: Coordinate with grazing operators. SDG&E shall coordinate with grazing operators to ensure that agricultural productivity and animal welfare are maintained both during and after construction to the maximum extent feasible. Coordination efforts will address issues including, but not necessarily limited to: • Interference with access to water (e.g., provide alternate methods for livestock access to water) • Impairment of cattle movements (e.g., provide alternate routes; reconfigure fencing/gates) • Removal and replacement of fencing (e.g., during construction install temporary fencing/barriers, as appropriate, and following construction restore equal or better fencing to that which was removed or damaged) • Impacts to facilities such as corrals and watering structures, as well as related effects such as ingress/egress, and management activities (e.g., replacement of damaged/removed facilities in kind; provide alternate access) This shall occur Sixty (60) days prior to the start of project construction and Thirty (30) days after construction on each property.
Location	Locations where the project could interfere with grazing operations
Monitoring / Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Coordination has been conducted with appropriate landowners or tenants and reasonable procedures to implement the mitigation measure have been agreed to by all parties.
Responsible Agency	CPUC, BLM Offices
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	AG-3b: Consult with and inform aerial applicators. The Applicant shall consult with landowners and the County Farm Bureaus to determine which aerial applicators operate in the county. The Applicant shall provide written notification to all aerial applicators working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected. The Applicant shall also provide all aerial applicators, the County Farm Bureaus, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to agricultural lands. This shall occur Sixty (60) days prior to erection of any structure that could affect aerial applicator operations.
Location	Locations where changes to the existing environment could result in interference with dairy operations.
Monitoring / Reporting Action	Verify coordination has taken place and actions called for in Mitigation Measure AG-3b have been implemented.
Effectiveness Criteria	Communications have been provided to all aerial applicators operating in affected areas.
Responsible Agency	CPUC, BLM
Timing	Pre-construction.
Status	
Review / Approval Status	
LU-APM-3	1. Farmers will be compensated for losses of crops along ROW based upon a professional appraisal. 2. Construction activities in croplands will be scheduled to minimize or avoid planting, growing, and harvesting seasons to the extent feasible. (SDG&E)
Location	Entire project area near agriculture lands.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— C-1a: Inventory and evaluate cultural resources in Final Area of Potential Effect (APE). Prior to construction and all other surface disturbing activities, the Applicant shall have conducted and submitted for approval by the BLM and CPUC an inventory of cultural resources within the project's final Areas of Potential Effect.* This survey shall supplement inventories conducted for the EIS/EIR and shall satisfy Section 106 requirements for inventory of historic properties within all Areas of Potential Effect. The nature and extent of this inventory shall be determined by the BLM and CPUC in consultation with the appropriate State Historic Preservation Officer (SHPO) and other land-managing agencies (e.g., Anza-Borrego Desert State Park, U.S. Forest Service, Bureau of Indian Affairs, etc.) and shall be based upon project engineering specifications and in accordance with the Secretary of the Interior's Standards and Guidelines (Secretary's Standards) (36 CFR 61). (* Area of Potential Effect is the horizontal and vertical extent of anticipated impacts that could affect historic properties. This includes direct impacts (physical disturbance from any project activity during or after construction) and indirect impacts, such as noise, vibration, visual intrusion, or erosion.)
	— (C-1a) A report documenting results of this inventory shall be filed with appropriate State repositories and local governments. As part of the inventory report, the Applicant shall evaluate the significance of all potentially affected cultural resources on the basis of surface observations Evaluations shall be conducted by professionals meeting the Secretary's Standards and in accordance with those Standards to provide recommendations with regard to their eligibility for the NRHP, CRHR, or local registers. Preliminary determinations of NRHP eligibility will be made by the BLM, in consultation with the CPUC and other appropriate agencies and local governments, and the SHPO.
	— (C-1a) As part of the inventory, the Applicant shall conduct field surveys of sufficient nature and extent to identify cultural resources that would be affected by tower pad construction, reconductoring activities, trenching for underground transmission lines, access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, new tower sites, and any other projected areas of potential ground disturbance outside of the previously surveyed potential impact areas. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded resource locations. The selected right-of-way and tower locations shall be staked prior to the cultural resource field surveys.
Location	All locations within potential ground-disturbing activities.
Monitoring / Reporting Action	BLM, CPUC, ABDSP, and USFS, where applicable, to review inventory findings and eligibility evaluation.
Effectiveness Criteria	Identification and preliminary evaluation of all resources within areas of potential ground disturbance.
Responsible Agency	BLM and CPUC; ABDSP and USFS where applicable.
Timing	Pre-construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1b: Avoid and protect potentially significant resources. Where feasible, potentially register-eligible resources and register-eligible resources shall be protected from direct project impacts by project redesign; complete avoidance of impacts to such resources shall be the preferred protection strategy. On the basis of preliminary National Register of Historic Places (NRHP) eligibility assessments (Mitigation Measure C-1a) or previous determinations of resource eligibility, the BLM and CPUC, in consultation with the SHPO, may request the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-1b) Where the BLM and CPUC, in consultation with the Applicant, decide that potentially NRHP- and/or CRHR-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies to evaluate the resources' NRHP- and/or CRHR-eligibility and to recommend further mitigative treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the CPUC and the SHPO and shall be based upon final project engineering specifications. Evaluations shall be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
	— (C-1b) All potentially NRHP- and/or CRHR-eligible resources (as determined by the BLM and CPUC, in consultation with the SHPO) that will not be affected by direct impacts, but are within 50 feet of direct impact areas shall be designated as Environmentally Sensitive Areas (ESAs) to ensure that construction activities do not encroach on site peripheries. Protective fencing, or other markers (after approval by CPUC/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of a Historic Properties Treatment Plan and implemented by the Applicant to ensure the effectiveness of ESA protection (as detailed in Mitigation Measure C-1e).
Location	All locations within ground-disturbing activities with potentially NRHP-eligible resources.
Monitoring / Reporting Action	• BLM and CPUC review final construction drawings and rationale for necessity of impacting potentially NRHP-eligible resources. • BLM and CPUC review NRHP-eligibility recommendations. BLM forwards NRHP-eligibility determinations to appropriate SHPO. • BLM and CPUC verify location and protective measures of all ESAs.
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1c: Develop and implement Historic Properties Treatment Plan. Upon approval of the inventory report and the National Register of Historic Places (NRHP)-eligibility and CRHR-eligibility evaluations consistent with Mitigation Measures C-1a (Inventory and evaluate cultural resources in Final APE) and C-1b (Avoid and protect potentially significant resources), the Applicant shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) for register-eligible cultural resources to avoid or mitigate identified potential impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations, as explicated in Section D.7.8. Avoidance, recordation, and data recovery will be used as mitigation alternatives; avoidance and protection shall be the preferred strategy. The HPTP shall be submitted to the BLM and CPUC for review and approval.
	— (C-1c) As part of the HPTP, the Applicant shall prepare a research design and a scope of work for evaluation of cultural resources and for data recovery or additional treatment of NRHP- and/or CRHR-eligible sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where burials, cremations, or sacred features are discovered that cannot be avoided (see Mitigation Measure C-2).
	— (C-1c) The HPTP shall define and map all known NRHP- and/or CRHR-eligible properties in or within 50 feet of all project APEs and shall identify the cultural values that contribute to their NRHP- and/or CRHR-eligibility. The HPTP shall also detail how NRHP- and/or CRHR-eligible properties shall be marked and protected as ESAs (in accordance with Mitigation Measure C-1b) during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-1c) The HPTP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried register-eligible cultural resources, including burials, cremations, or sacred features. This sensitivity evaluation shall be conducted by an archaeologist who meets the Secretary's Standards and who takes into account geomorphic setting and surrounding distributions of archaeological deposits. The HPTP shall detail provisions for monitoring construction in these high-sensitivity areas for proper implementation of Mitigation Measures C-1e and C-3a. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing register-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the HPTP shall detail the methods, the consultation procedures, and the timelines for assessing register-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM and CPUC, other appropriate agencies and local governments, appropriate Native Americans, and the SHPO prior to implementation.
	— (C-1c) The HPTP shall also identify all historic built environment resources (structures, roads, dams, etc.) that would be affected indirectly by visual intrusion of the Proposed Project on qualities that contribute to their register eligibility. Although the current analysis has assessed the potential for indirect visual impacts to previously recorded historic built environment resources within 0.5 miles of the Proposed Project and Alternatives, the HPTP shall include an identification effort focused on identifying any such resources that may not have been previously recorded. The scope of this identification effort shall be in accordance with 36 CFR 800, which requires a reasonable effort to identify potentially NRHP-eligible resources that would be adversely affected by indirect project impacts. The HPTP shall also detail the treatment for each affected resource that will minimize those long-term visual impacts (as detailed in Mitigation Measure C-6a).
	— (C-1c) The HPTP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary's Standards (per 36 CFR 61).
Location	All locations within ground-disturbing activities with potentially NRHP-eligible resources.
Monitoring / Reporting Action	• BLM and CPUC review and approve HPTP. • BLM conduct required Native American consultation. • BLM draft and negotiate appropriate agreement document for appropriate signatures (BLM, SHPOs, Advisory Council on Historic Preservation, Native American Tribes).
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1d: Conduct data recovery to reduce adverse effects. If NRHP- and/or CRHR-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP- and/or CRHR-eligibility. For sites eligible under Criterion (d), significant data would be recovered through excavation and analysis.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-1d) For properties eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC.
	— (C-1d) Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories, local governments, and other appropriate agencies. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate, to ensure that impacts to known significant archaeological deposits are adequately mitigated. Field closure report prior to construction within 100 ft of affected resource. Final report of data-recovery investigations within one year of completion of fieldwork.
Location	Within 100 ft of resources identified in HPTP that require data-recovery mitigation.
Monitoring / Reporting Action	• BLM and CPUC review and approve field closure report of data-recovery fieldwork. • BLM and CPUC review and approve final report of data recovery, curation of artifacts and data, and dissemination of final report.
Effectiveness Criteria	Data-recovery investigations, curation, and reporting fulfill all requirements of the agreement document promulgated with the Advisory Council.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1f: Train construction personnel. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-1f) The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources. • The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.
Location	Entire project.
Monitoring / Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	• Cultural resources are not adversely affected by construction activities. • All infractions are corrected.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1g Avoid and protect Old Highway 80 (P-37-024023). A portion of the Interstate 8 Alternative would be constructed underground within Alpine Boulevard; from approximately MP 74.3 to MP 80 of this underground segment, Alpine Boulevard is also Old Highway 80. Construction impacts to contributing elements of this resource shall be minimized by avoidance of highway segments that retain integrity, as well as associated historic road signs and monuments located on the shoulder. If avoidance is not possible, affected segments shall be formally evaluated to assess their contribution to the NRHP eligibility of the resource as a whole. Additional protective measures are required to reduce adverse effects include formal documentation (i.e., HABS/HAER), and interpretive signage.
Location	From approximately MP I8-74.3 to MP I8-80 of the Interstate 8 Alternative.
Monitoring / Reporting Action	• CPUC and BLM review assessment of NRHP eligibility. • CPUC and BLM verify implementation of protective measures and/or interpretive signage
Effectiveness Criteria	• Cultural resources are not adversely affected by construction activities.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-2a: Properly treat human remains. All locations of known Native American human remains shall be avoided through project design and shall be protected by designation as ESAs. If the approved project route will affect sites known to contain human remains that cannot be avoided in their entirety during construction, the Applicant shall contact the California Native American Heritage Commission (NAHC). The NAHC will identify the Most Likely Descendant (MLD), within 48 hours, who will specify the preferred course of treatment in the event that additional human remains are discovered. The Applicant shall also contact the BLM (lead federal agency for the Proposed Project) and any additional land management agencies if the site is located on public lands administered by a State or federal agency other than the BLM. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains (see Section D.7.7). The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-2a) If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.
	— (C-2a) Although subject to the recommendations of the MLD, it is likely that the human remains would be respectfully removed by the MLD and/or qualified archaeologists and reinterred in an area not subject to impacts from the Proposed Project. The reinterment location may be identified as a nearby locale within SDG&E ROW, or an off-site location may be selected. The Applicant shall assist and support the MLD in identifying, acquiring, and protecting the reinterment location.
Location	Entire project.
Monitoring / Reporting Action	• Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC conduct and document consultation with appropriate Native American tribes and agencies. • BLM and CPUC document final disposition or treatment of Native American human remains.
Effectiveness Criteria	Adverse effects to human remains are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.
Timing	Pre- or during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-3a: Monitor construction in areas of high sensitivity for buried resources. The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the Historic Properties Treatment Plan (HPTP) as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains. These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CPUC. Monitoring shall be conducted in accordance with procedures detailed in Mitigation Measure C-1e
	— (C-3a) Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist shall consult with the BLM or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.
Location	Areas of high sensitivity for buried resources per HPTP.
Monitoring / Reporting Action	• BLM, and CPUC, as well as ABDSP and USFS, as appropriate, review and approve monthly monitoring reports. • Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC receive and act on reports of failure of ESAs to protect cultural resources.
Effectiveness Criteria	Adverse effects to buried archaeological resources are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	C-4a: Complete consultation with Native American and other Traditional Groups. The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the approved project on Traditional Cultural Properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
Location	Entire Project.
Monitoring / Reporting Action	• Signature of agreement documents for treatment of TCPs. • Written documentation and approval by BLM and CPUC of completion of required treatment.
Effectiveness Criteria	TCPs and other resources of Native American concern are treated in accordance with agreements that are made during consultation.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties. The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP- and/or CRHR)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for NRHP- and/or CRHR-eligible properties within the transmission line corridor that will experience operational and access impacts as a result of the Proposed Project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting NRHP- and/or CRHR-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to NRHP- and/or CRHR-eligible properties. The plan shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies for review and approval at least 30 days prior to project operation.
	— (C-5a) Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies within one month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM, CPUC, or other land-managing agency, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (C-5a) If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP- and/or CRHR)-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM, CPUC, or other appropriate land-managing agency become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement additional protective measures, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such measures may include, but not be limited to refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection. 30 days prior to and during project operation. During operation, annually for 5 years. Thereafter, on a schedule determined by BLM and CPUC and/or immediately upon discovery of adverse changes to NRHP or CRHR-eligible property.
Location	All locations identified in long-term protection plan.
Monitoring / Reporting Action	BLM and CPUC review and approval of long-term protection plan; compliance with reporting and monitoring provisions in the approved protection plan. Following construction, annual site monitoring; immediate notification to BLM and CPUC of adverse changes.
Effectiveness Criteria	Known cultural resources are not affected by long-term project operation and adverse changes to NRHP and CRHR-eligible properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	C-6a: Reduce adverse visual intrusions to historic built environment properties. All known historic built environment resources located within 0.5 miles of the Proposed Project shall be inventoried and subjected to a visual analysis to assess which resources would be subject to potential indirect visual intrusions resulting from the project. This inventory will supplement the analysis of built environment resources conducted for the EIS/EIR, and shall meet the requirements of Section 106 to inventory historic properties that could be adversely affected by the Proposed Project. The Applicant shall inventory potentially register-eligible built environment resources within an Area of Potential Indirect Effect established by the BLM and CPUC. A qualified (Secretary of the Interior Standards) professional shall assess the potential for visual intrusions on the qualities that qualify any historic properties within the APE for register eligibility. The results of this inventory shall be included in the HPTP. If any historic properties are identified that would be adversely affected by visual intrusions from the Proposed Project, the HPTP shall also specify mitigation measures that would be implemented to reduce adverse effects, such as screening the visual intrusion with vegetation, moving project towers to less conspicuous locations, if technically feasible, or altering towers to reduce any identified adverse effects. Selection of appropriate and effective treatments shall consider technical feasibility of the measures and potential impacts on other sensitive resources or land uses.
Location	All locations identified in HPTP. Mitigation Measures C-6b and V-3a in Anza-Borrego Link.
Monitoring / Reporting Action	BLM and CPUC review and approval of HPTP; compliance with reporting and monitoring provisions in the approved protection plan.
Effectiveness Criteria	Known historic built environment properties are not affected by construction and long-term project operation and adverse changes to NRHP and CRHR-eligible historic built environment properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	C-6e: Reduce adverse visual intrusions to portions of Old Highway 80. Visual intrusion by the aboveground portion of this alternative, on portions of Old Highway 80 that retain integrity of setting shall be minimized by a combination of minimizing tower height and screening. . In addition, since segments of Old Highway 80 would be crossed by the overhead portion of the alternative, compensatory mitigation including new signage shall be employed. If this alternative is constructed, as part of the Historic Properties Treatment Plan (Mitigation Measure C-1c) SDG&E shall include a protection plan for Old Highway 80 that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options.
Location	On portions of Old Highway 80 along the Interstate 8 Alternative.
Monitoring / Reporting Action	CPUC and BLM to review and comment on protection plan for Old Highway 80 submitted as part of the Historic Properties Treatment Plan (see Mitigation Measure C-1c).
Effectiveness Criteria	Adverse changes to visual qualities along Old Highway 80 are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	C-6f: Reduce adverse visual intrusions to the Desert View Tower viewshed. Visual intrusion to the Desert View Tower viewshed, caused by the aboveground portion of this alternative shall be minimized by a combination of minimizing tower height, screening, and painting towers to match the surroundings. Specific measures to minimize visual effects to the Desert View Tower shall be developed in consultation with the owner of this resource. If this alternative is constructed, SDG&E shall develop a protection plan for the Desert View Tower viewshed that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options. The report shall be provided to the CPUC and BLM for review and approval at least 60 days before the start of construction.
Location	Desert View Tower viewshed
Monitoring / Reporting Action	BLM and CPUC review and approve protection plan for Desert View Tower viewshed.
Effectiveness Criteria	Adverse changes to visual qualities of the Desert View Tower viewshed are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Status	
Review / Approval Status	
CR-APM-1	Prior to construction, construction personnel shall be instructed on the protection and avoidance of cultural resources. To assist in this effort, the construction contract will address state and federal laws regarding antiquities, fossils, and plants and wildlife, including the collection and removal, as well as the importance of these resources and the purpose and necessity of protecting them. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-2	Archeological sites that are eligible or potentially eligible for the National Register will be flagged in the field and spanned or otherwise avoided through routing during construction activities to the extent feasible. Impact avoidance and APMs for cultural resources developed in consultation with appropriate land managing and regulatory (e.g., park personnel and State Historic Preservation Office) and other interested parties will be implemented prior to and during construction. (SDG&E)
Location	Entire project area.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-3	Any previously unidentified cultural resource (historic or prehistoric site or object) discovered by SDG&E or any person working on its behalf during construction on public or park land shall be immediately reported to the appropriate land manager or authorized park officer within 24 hours of discovery. Operations in the immediate area of the discovery shall be suspended until authorization to proceed is issued by the appropriate land manager or authorized park officer. An evaluation of the discovery will be made by the appropriate land manager, authorized park officer or SDG&E in consultation with the former to determine appropriate actions to prevent the loss of significant cultural or scientific values. SDG&E shall be responsible for the cost of evaluation. SDG&E will develop a treatment plan to mitigate the impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-4	SDG&E will conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995 – Weeks and Grimmer). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-5	SDG&E will use the following as guidance in the implementation of the project: 1. Preservation in-place is the preferred manner of mitigating impacts to archaeological sites. Preservation in-place maintains the relationship between the artifacts and the archaeological context to the extent feasible. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. 2. Preservation in-place may be accomplished by, but is not limited to, the following: a. planning construction to avoid archaeological sites; or b. incorporation of sites within parks, green space, or other open space; or c. deeding the site into a permanent conservation easement. 3. When data recovery through excavation is the only feasible mitigation, a data recovery plan which makes provisions for adequately recovering the scientifically consequential information from and about the historical resources shall be prepared and adopted prior to any excavation being undertaken. Such study shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5, Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be appropriate. 4. Data recovery shall not be required for an historical resource if the lead agency through discussion and consultation with Indian Tribes, professional archaeologists and SHPO determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

CR-APM-6	1. Historic property will be avoided and fenced or barricaded for protection. 2. Contributing portions and sensitive features of the historic property will be avoided and fenced or barricaded for protection. 3. If historic property cannot be avoided, an approved plan for recordation, relocation, or data recovery will be implemented. Recordation of buildings or structures may include Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) documentation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-7	1. Erosion, sedimentation, or indirect displacement that could indirectly deteriorate historic property will be controlled by limitation of activities near property, stabilization of sediments or structures, and erosion control. 2. Protective measures will be implemented to minimize erosion and prevent invasion by aggressive weeds near historic property. 3. Control measures will be implemented to minimize vibration, dust, or fumes affecting property. 4. Protective barriers or materials will be used to minimize the effects of vibration, dust, fumes, or changes in vegetation. 5. Buildings or structures will be stabilized or rehabilitated to minimize deterioration that might be accelerated by construction or operations. 6. If deterioration cannot be avoided, SDG&E will implement an approved plan for recordation, relocation, or data recovery. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-8	1. In addition to the historic property itself, those elements of the landscape that are essential to the historic setting of the property will be avoided and protected to the extent feasible. 2. The location, appearance, or operational procedures of the undertaking will be modified to minimize intrusion on the historic setting (e.g., qualifications on height, color, emissions, or operational noise levels). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-9	1. Permanent fencing or barriers will be installed, or access to the historic property will be controlled as deemed appropriate by the relevant agencies. 2. Use of access for construction or operation will be restricted. 3. Construction and maintenance personnel will be instructed in protection of sensitive properties. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
CR-APM-10	1. Project structures will be located so that conductors span linear historic property to the extent feasible. 2. Pipelines or conductors, placed underground, will bore under linear property to avoid disturbance or intrusion. (SDG&E)

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-11	SDG&E would implement its standard practices for cultural and paleontological resources on private lands (see Appendix D). (SDG&E)
Location	Entire project area on private lands.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-12	SDG&E will conduct cultural surveys for staging areas that have not yet been identified. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	PAL-1a: Inventory and evaluate paleontological resources in Final APE. Prior to construction, the Applicant shall conduct and submit to CPUC, BLM, and other involved land-managing agencies for approval an inventory of significant paleontological resources within the affected area based on field surveys of areas identified as marginal through high or undetermined paleontological sensitivity potential.
Location	All locations of marginal, moderate, and high paleontological sensitivity within the Final APE where ground-disturbing activities are anticipated.
Monitoring / Reporting Action	BLM and CPUC to review inventory and sensitivity findings.
Effectiveness Criteria	Identification and preliminary evaluation of all resources within potentially ground-disturbing activities.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	PAL-1b: Develop Paleontological Monitoring and Treatment Plan. Following completion and approval of the paleontological resources inventory and prior to construction, the Applicant shall prepare and submit to CPUC, BLM, and other involved land-managing agencies for approval a Paleontological Monitoring Treatment Plan (Plan). The plan shall be designed by a Qualified Paleontologist and shall be based on Society of Vertebrate Paleontology (SVP) guidelines and meet all regulatory requirements. The qualified paleontologist shall have a Master's Degree or Ph.D. in paleontology, and shall have knowledge of the local paleontology and is familiar with paleontological procedures and techniques. The Plan shall identify construction impact areas of moderate to high sensitivity for encountering significant resources and the depths at which those resources are likely to be encountered. The Plan shall outline a coordination strategy to ensure that a qualified paleontological monitor will conduct full-time monitoring of all ground disturbance in sediments determined to have a moderate to high sensitivity. Sediments of low, marginal, and undetermined sensitivity shall be monitored on a part-time basis (as determined by the Qualified Paleontologist) Sediments with zero sensitivity will not require paleontological monitoring. The Qualified Monitor shall have a BA in Geology or Paleontology and a minimum of one year of monitoring experience in local sediments. The Plan shall detail the significance criteria to be used to determine which resources will be avoided or recovered for their data potential. The Plan shall also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting. The Plan shall specify that all paleontological work undertaken by the Applicant on public land shall be carried out by qualified paleontologists with the appropriate current permits, including, but not limited to a Paleontological Resources Use Permit (for work on public lands administered by BLM) and a Paleontological Collecting Permit (for work on lands administered by California Department of Parks and Recreation). Notices to proceed will be issued by the BLM, CPUC, and other agencies with jurisdiction, following approval of the Paleontological Monitoring and Treatment Plan.
Location	Entire project.
Monitoring / Reporting Action	BLM and CPUC review and approve treatment plan.
Effectiveness Criteria	BLM and CPUC approval of treatment plan.
Responsible Agency	BLM and CPUC.
Timing	Pre-construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	PAL-1e: Train construction personnel. Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained regarding the recognition of possible subsurface paleontological resources and protection of all paleontological resources during construction. The Applicant shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) ESAs include areas determined to be paleontologically sensitive as defined on the paleontological sensitivity maps for the project, and must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of protected fossils on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing subsurface paleontological resources, their responsibility to avoid and protect all such resources, and the penalties for collection, vandalism, or inadvertent destruction of paleontological resources. • The Applicant shall provide a background briefing for supervisory personnel describing the potential for exposing paleontological resources, the location of any potential ESAs, and procedures and notifications required in the event of discoveries by project personnel or paleontological monitors. Supervisory personnel shall enforce restrictions on collection or disturbance of fossils. • Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be diverted and the Applicant's paleontologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's paleontologist will notify the BLM, CPUC, and other appropriate land managers and proceed with data recovery in accordance with the approved Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).
Location	Entire project.
Monitoring / Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	Paleontological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
GEO-APM-9	If paleontological resources are encountered, appropriate field mitigation efforts would be implemented to protect the resources. For example, if significant resources are discovered, such as vertebrate fossils, construction would be stopped in the immediate area of the find while SDG&E and its designated paleontologist determine the appropriate method and schedule to recover or protect the resource. However, work may continue in areas outside the immediate area of the find with the approval of the paleontologist. When it is not feasible to avoid paleontological sites, SDG&E would consult with the appropriate federal, state, and resource agencies and specialists to either develop alternative construction techniques to avoid paleontological resources or develop appropriate APMs. Appropriate mitigation field measures may include actions such as protection-in-place by covering with earthen fill, removal and cataloguing, and/or removal and relocation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— N-1a: Implement Best Management Practices for construction noise. SDG&E shall comply with local noise rules, standards, and/or ordinances by implementing the following noise-suppression techniques and variance standards set by local authorities. SDG&E shall apply for and obtain a variance for construction activities that must occur outside of the daytime hours allowed by local ordinances or within 200 feet of noise-sensitive receptors forty-five days prior to construction.
	— (N-1a)At a minimum, SDG&E shall employ the following noise-suppression techniques to avoid possible violations of local rules, standards, and ordinances: • Confine construction noise to daytime, weekday hours (e.g., 7:00 a.m. to 7:00 p.m.) or an alternative schedule established by the local jurisdiction or land use manager • On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer • Install temporary sound walls or acoustic blankets to shield adjacent residences. These sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts • Route construction traffic away from residences and schools, where feasible • Minimize unnecessary construction vehicle use and idling time. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: certain equipment, such as large diesel-powered vehicles, require extended idling for warm-up and repetitive construction tasks.)
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E applies for and obtains local variance and implements Best Management Practices.
Effectiveness Criteria	Best Management Practices implemented.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	N-2a: Avoid blasting where damage to structures could occur. Blasting shall be managed with a plan for each site. The plan shall include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. Blasting shall not be allowed where damage to vulnerable structures could occur, and a rock anchoring or mini-pile system shall be used if adjacent structures could be damaged as a result of blasting or any construction method used as an alternative to blasting. If any structure is inadvertently adversely affected by construction vibration, the structure shall be restored to conditions equivalent to those prior to blasting. SDG&E shall then fairly compensate the owner of any damaged structure for lost use. Forty-five days prior to construction for blasting plan.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E submits blasting plan, which identifies complete inspection and restoration process.
Effectiveness Criteria	Structures inspected and restored.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

NOI-APM-1	Provide notice prior to construction by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. SDG&E would identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents, about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person would be included in the above notices. SDG&E would also establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	T-1a: Restrict lane closures. SDG&E shall restrict all necessary lane closures or obstructions on major roadways associated with overhead or underground construction activities to off-peak periods in congested areas to reduce traffic delays. Lane closures must not occur between 6:00 and 9:30 a.m. and between 3:30 and 6:30 p.m., unless otherwise directed in writing by the responsible public agency issuing the encroachment permit.
Location	All areas requiring road or lane closure.
Monitoring / Reporting Action	Review plan for road or lane closure to make sure that it is outside periods of peak traffic volume
Effectiveness Criteria	Road or lane closures shall not be executed during periods of peak traffic volume. Only reasonable interference with traffic flow.
Responsible Agency	CPUC, BLM and affected agencies responsible for streets/highways and traffic
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-4a: Ensure pedestrian and bicycle circulation and safety. Where construction will result in temporary closures of sidewalks and other pedestrian facilities, SDG&E shall provide temporary pedestrian access, through detours or safe areas along the construction zone. Where construction activity will result in bike route or bike path closures, appropriate detours and signs shall be provided.
Location	All locations where closures of sidewalks and other pedestrian facilities are expected during construction of the project
Monitoring / Reporting Action	Review and approve Construction Transportation Management Plan prepared by SDG&E for identified affected pedestrian facilities and the alternative facilities or detours that will be provided
Effectiveness Criteria	No interference with pedestrian/bicycle circulation or provision of detours
Responsible Agency	CPUC, BLM and the local jurisdictions
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-7a: Notify public of potential short-term elimination of parking spaces. As required in Mitigation Measure L-1a, prior to any construction activity on major roadways, SDG&E shall notify the public of the potential for parking spaces to be temporarily eliminated and where temporary parking spaces will be relocated through multiple media such as local newspapers and on-site postings. The elimination and relocation of parking spaces must be in conformance with the requirements of agencies responsible for parking management.
Location	All locations where construction could significantly impact parking spaces.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Monitoring / Reporting Action	Copies of public notices; evidence of coordination with affected jurisdiction
Effectiveness Criteria	Alternative parking spaces are provided, if required
Responsible Agency	Imperial and San Diego Counties and local municipalities
Timing	Pre- and during construction in affected jurisdiction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-9a: Prepare Construction Transportation Management Plan. SDG&E shall prepare a Construction Transportation Management Plan (CTMP) to address traffic and transportation issues related to project construction. The CTMP shall describe alternate traffic routes, timing of worker commutes and material deliveries, the need for lane and road closures, the use of helicopters, plans for construction worker parking and transportation to work sites, methods for keeping roadways clean, and other methods for reducing adverse construction-related traffic impacts on regional and local roadways. The plan must comply with the requirements of the respective county and must be submitted to the respective counties and Caltrans for approval prior to commencing construction activities.
Location	All locations where construction could significantly impact regional and local roadways.
Monitoring / Reporting Action	Review Construction Transportation Management Plan
Effectiveness Criteria	Traffic flows are generally maintained without severe congestion
Responsible Agency	CPUC, BLM, and the applicable local jurisdictions
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-11b: Consult with and inform U.S. Customs and Border Patrol. The Applicant shall consult with U.S. Customs and Border Patrol to determine where border patrol aircraft operate in the county. Prior to construction, the Applicant shall provide written notification to all border patrol aircraft working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected. The Applicant shall also provide all border patrol aircraft, the U.S. Customs and Border Patrol, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to the U.S./Mexico border within the San Diego and Imperial Counties.
Location	Within the area of border patrol aircraft operations along the Interstate 8 Alternative and Modified Route D Alternative
Monitoring / Reporting Action	Evidence of notification and submittal of aerial photos and/or topographic maps to U.S. Customs and Border Patrol
Effectiveness Criteria	Evidence of notification and sharing of information about the location of the new lines and towers.
Responsible Agency	CPUC, U.S. Customs and Border Patrol
Timing	Pre-construction
Status	
Review / Approval Status	
T-APM-2a	Required permits for temporary lane closures will be obtained from the County of Imperial, County of San Diego, CALTRANS, and California State Parks (if applicable). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

T-APM-2b	Detour plans will be submitted to the counties, CALTRANS, and/or California State Parks as part of the permit requirements. Within the ABDSP, a Right-of-Entry permit is required for any construction and maintenance activities that would occur outside of existing easements, including access roads (would not need ROE for access road maintenance if practical rights of ingress and egress are granted in easements). SDG&E will provide California State Parks a request in writing for maintenance or other earth-disturbing activities. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-4a	SDG&E shall coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles. The counties and cities will then notify respective police, fire, ambulance and paramedic services. SDG&E shall notify counties and cities of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-5a	SDG&E will consult with the Imperial County Office of Education, Borrego Springs Unified School District, Warner Unified School District, Julian Union School District, and the Julian Union High School District at least one month prior to construction to coordinate construction activities adjacent to school bus stops. If necessary, school bus stops will be temporarily relocated or buses will be rerouted until construction in the vicinity is complete. SDG&E will also consult with Imperial Valley Transit and the Metropolitan Transit System at least one month prior to construction to reduce potential interruption of transit services.
Location	Entire project area within school districts.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-8a	Required permits for entering railroad right-of-way will be obtained from Union Pacific Railroad, San Diego & Arizona Eastern Railroad and the U.S. Gypsum Mine. (SDG&E)
Location	Along railroad right-of-way.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-9a	Eligible and Officially Designated Scenic Highways are located within Imperial and San Diego Counties. The California Public Utilities Code Section 320 requires that all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway be undergrounded where feasible. SDG&E will bury all new or relocated utilities where feasible to avoid possible revocation of SR78 as an Officially Designated Scenic Highway within the ABDSP. (SDG&E)
Location	Entire project area along eligible and designated Scenic Highways.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	P-1a: Implement Environmental Monitoring Program. An environmental monitoring program will be implemented by SDG&E or its contractors to ensure that the plans defined in HS-APM-1 (personnel trained in proper use and safety procedures for the chemicals used), HS-APM-2 (personnel trained in refueling of vehicles), HS-APM-3 (preparation of environmental safety plans including spill prevention and response plan), HS-APM-8 (SDG&E's and/or General Contractor environmental/health and safety personnel), and HS-APM-10 (storage and disposal of hazardous and solid waste) are followed throughout the period of construction. SDG&E will designate an Environmental Field Representative who will be on site to observe and document adherence to the plan for all construction spreads.
Location	All locations along the proposed and alternative routes.
Monitoring / Reporting Action	Review documentation of training
Effectiveness Criteria	Training and monitoring programs educate project staff and workers regarding all regulatory plan requirements.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— P-2a: Test for residual pesticides/herbicides on currently or historically farmed land. In areas where the land has been or is currently being farmed, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any contamination. The sampling and testing plan shall be prepared in consultation with the County Agricultural Commission, and conducted by an appropriate California licensed professional and sent to a California Certified laboratory. Samples shall be tested at a California Certified Laboratory. A report documenting the areas proposed for sampling, and the process used for sampling, testing shall be submitted to the CPUC and BLM for review and approval at least 60 days before construction. Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPUC and BLM (if on BLM land) 30 days prior to construction.
	— (P-2a) Excavated materials containing elevated levels of pesticide or herbicide will require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures will be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California (DTSC or RWQCB) and the appropriate County (San Diego or Imperial) shall be contacted by SDG&E or its contractor to plan handling, treatment, and/or disposal options.
Location	All proposed and alternative route segments that are within or immediately adjacent to agricultural uses.
Monitoring / Reporting Action	Observe construction sites and activities for compliance
Effectiveness Criteria	Excavated soils containing pesticides and herbicides are properly handled and disposed of.
Responsible Agency	CPUC, BLM, appropriate local and State regulatory agencies.
Timing	Pre-construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	P-7a: Evaluate contaminated sites. SDG&E shall implement the following steps, at locations where excavation or significant ground disturbance will occur; all steps be completed at least 60 days prior to project construction, to prevent mobilization of contaminants and exposure of workers and the public: • Step 1. Investigate the site to determine whether it has a record of hazardous material contamination which would affect construction activities. This investigation should be performed as a Phase I–Environmental Site Assessment (Phase I ESA). If contamination is found that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2. • Step 2. Perform a characterization study of the site to determine the nature and extent of the contamination present at the location before construction activities proceed within the project ROW near the suspect site. • Step 3. Determine the need for further investigation and/or remediation of the soil or groundwater conditions at or near the contaminated site, i.e., within areas of ground disturbance for the Proposed Project. (For example, if there would be little or no contact with contaminated materials, industrial cleanup levels would likely be applicable. If site activities would involve human contact with the contaminated materials, such as would be the case with excavation of contaminated materials during project construction, then Step 4 shall be completed. If no human contact is anticipated, then no further mitigation would be required for the location.) • Step 4. If it is determined that disturbance or excavation of soils or groundwater with contamination would accompany construction at the site, undertake a Phase II Environmental Site Investigation (Phase II ESI) involving sampling and further characterization of potentially contaminated areas with the project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, mitigate health and safety risk according San Diego County CUPA or RWQCB regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.
Location	All proposed and alternative route segments that have identified contaminated sites with 0.25 miles of the alignment.
Monitoring / Reporting Action	Review Phase I and Phase II reports, and any other site characterization reports generated.
Effectiveness Criteria	Sites with environmental contaminants are avoided or if crossed, excavated soils containing contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM, and RWQCB or local CUPA.
Timing	Pre-construction
Status	
Review / Approval Status	
HS-APM-1	All personnel involved in using hazardous materials shall be trained in the proper use and safety procedures for the chemical and provided with the necessary Personal Protection Equipment (PPE). A Hazardous Communication (HAZCOM) Plan with Material Safety Data Sheets on all hazardous materials used for the project shall be developed. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-2	Only personnel trained in refueling vehicles would be allowed to perform this operation. All refueling operation shall be in designated areas or preformed by assigned vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

HS-APM-3	All applicable environmental safety plans associated with hazardous materials shall be developed for the project. These plans include but are not necessary limited to Hazardous Material Business (HMB) Plan; HAZCOM Plan; Spill Response Plan; 90-days temporary storage and disposal (TSD) facility permit; and Spill Prevention Control and Countermeasure (SPCC) Plan (only if storage is over 1,350 gallons at one location). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-4	SDG&E will develop a site specific blasting plan blasting of tower footing is required. A California licensed Blasting Contractor shall be used for all blasting operation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-5	All Government Code §65962.5 sites or other known contamination sites along the transmission line ROW or such sites that would affect construction work shall be investigated to determine potential impacts to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-6	An Unexploded Ordinance (UXO) investigation of known and potential areas used by the military along the ROW shall be undertaken by a trained contractor. If UXO are found, they shall be removed by trained personnel. (SDG&E)
Location	Entire project area in areas of known or potential UXO use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-7	All personnel involved in excavation and grading or for ROW clearing shall be trained to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-8	SDG&E will assign Environmental Field Representative and/or General Contractor assigned Health & Safety Office to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-9	SDG&E will contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport. (SDG&E)
Location	Entire project area within 2 miles of an airport.
Timing	Pre- and during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
HS-APM-10	All hazardous waste and solid waste shall be stored and disposed of in accordance with federal, State, and local regulations. Whenever feasible, hazardous material minimization methods shall be employed and all hazardous materials recycled. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-11	SDG&E will develop project-specific Fire Prevention and Response Plan (FPRP), which will be developed and reviewed by pertinent regulatory authorities. A project Fire Marshal shall be assigned to enforce all provisions of the FPRP as well as performing all other duties related to fire prevention activities for the Proposed Project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-12	A Traffic Control Plan (TCP) shall be developed that addresses all roadway crossings that would be used by the project and could interfere with emergency vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-14	All construction workers shall undergo environmental training regarding potential exposure in accordance with federal, State, or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-15	If during excavation soil or groundwater contamination is suspected (e.g., unusual soil discoloration or strong odor), the contractor or subcontractor shall immediately stop work and notify the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-16	If soil or groundwater contamination is suspected, work near the immediate excavation site shall be terminated, the work area cordoned off, and appropriate health and safety procedures implemented for the location by the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. Preliminary samples of the soil, groundwater, or material shall be taken by an OSHA trained individual. These samples shall be sent to a California Certified Laboratory for characterization. Work outside the immediate excavation site may continue as determined by the General Contractor's assigned Health and Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
HS-APM-17	If the sample testing determines that contamination is not present, work would be allowed to proceed at the immediate excavation site. However, if contamination is found above regulatory limits, the regulatory agency (e.g., RWQCB or CUPA) responsible for responding to and for providing environmental oversight of the region shall be notified in accordance with State or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	PS-1a: Limit the conductor surface electric gradient. As part of the design and construction process for the Proposed Project, the Applicant shall limit the conductor surface electric gradient in accordance with the IEEE Radio Noise Design Guide.
Location	Along the overhead route segment
Monitoring / Reporting Action	Review construction design plans to ensure consistency with IEEE Radio Noise Design Guide.
Effectiveness Criteria	The potential for magnetic field interference of electronic equipment is reduced.
Responsible Agency	CPUC
Timing	Pre-construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	PS-2a: Implement grounding measures. As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.
Location	Along the entire transmission line route
Monitoring / Reporting Action	Review documentation provided; verify that necessary grounding measures are installed.
Effectiveness Criteria	The potential for impacts associated with induced currents and voltages on objects near the energized transmission line are reduced.
Responsible Agency	CPUC
Timing	During construction and post construction pre-energizing the line.
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	AQ-1a: Suppress dust at all work or staging areas and on public roads. SDG&E shall: (a) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; (b) pre-water sites for 48 hours in advance of clearing; (c) reduce the amount of disturbed area where possible; (d) all dirt stock-pole areas should be sprayed daily as needed; (e) cover loads in haul trucks or maintain at least six inches of free-board when traveling on public roads; (f) pre-moisten, prior to transport, import and export dirt, sand, or loose materials; (g) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets; (h) plant vegetative ground cover in disturbed areas as soon as possible following construction; (i) apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days); and (j) prepare and file 30 days in advance of construction with the ICAPCD, SDAPCD, BLM, and CPUC a Dust Control Plan that describes how these measures would be implemented and monitored at all locations of the project. The Dust Control Plan shall identify nearby sensitive receptors, such as land uses that include children, the elderly, the acutely ill and the chronically ill, and specify the means of minimizing impacts to these populations (for example, by locating equipment and staging areas away from sensitive receptors).
Location	All areas including work areas and staging areas.
Monitoring / Reporting Action	Review Dust Control Plan. Verify local air district concurrence with the Plan. Inspect activities for dust control.
Effectiveness Criteria	Dust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measures.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-1h: Obtain NOx and particulate matter emission offsets. SDG&E shall obtain and hold for the duration of construction NOx emission reduction credits or fund incentive programs approved by ICAPCD and SDAPCD at sufficient levels to offset the construction emissions of NOx that exceed the ozone nonattainment area federal General Conformity Rule applicability threshold. SDG&E shall secure 99 tons per year of NOx reductions and 276 tons per year of particulate matter reductions in Imperial County, and SDG&E shall secure 212 tons per year of NOx reductions in San Diego County to satisfy this requirement. The emission reduction credits or incentive program shall comply with ICAPCD and SDAPCD rules and regulations, and the credits or reductions shall be obtained by SDG&E prior to commencing construction.
Location	All areas.
Monitoring / Reporting Action	As required in General Conformity Final Analysis as Approved by BLM.
Effectiveness Criteria	NOx and particulate matter emissions fully offset.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the duration of project construction sufficient carbon credits to fully offset construction-phase greenhouse gas emissions. During construction SDG&E shall report to the CPUC quarterly the status of efforts to create reductions or obtain banked credits and the quantity of construction-phase greenhouse gas emissions offset by credits. At a minimum, SDG&E shall create or obtain and hold carbon credits to offset 55,000 tons of carbon dioxide emissions for each of the two years of construction. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.
Location	All areas.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Monitoring / Reporting Action	Review SDG&E holdings of carbon credits.
Effectiveness Criteria	Greenhouse gas emissions fully offset.
Responsible Agency	CPUC and BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-4c: Avoid sulfur hexafluoride emissions. SDG&E shall identify sulfur hexafluoride (SF_6) leaks and establish a strategy for replacing leaking equipment to reduce SF_6 leaks. To accomplish this, SDG&E shall develop and maintain a record of SF_6 purchases, an SF_6 leak detection and repair program using laser imaging leak detection and monitoring no less frequently than quarterly, an SF_6 recycling program, and an employee education and training program for avoiding or eliminating SF_6 emissions caused by the Proposed Project. The SF_6 leak detection and repair program shall be provided to the CPUC and BLM 90 days prior to project construction. Prior to construction, SDG&E shall also become a Partner in the U.S. EPA's SF_6 Emissions Reduction Partnership for Electric Power Systems. SDG&E shall also report SF_6 emissions from the Proposed Project to the California Climate Action Registry according to CCAR methodologies or alternate methodology approved by the California Air Resources Board. To develop a complete GHG inventory, SDG&E shall follow established methodologies to report indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project.
Location	All areas.
Monitoring / Reporting Action	Review strategies for replacing leaking equipment, leak detection and repair, recycling, and education.
Effectiveness Criteria	SF_6 emissions are avoided.
Responsible Agency	CPUC and BLM
Timing	Pre- and post construction
Status	
Review / Approval Status	
AQ-APM-1	For activities in Imperial County, the project will comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). A Dust Control Plan for construction activities would be filed with the ICAPCD. (SDG&E)
Location	Entire project area in Imperial County.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-2	1. Prohibit construction grading on days when the wind gusts exceed 25 mph to the extent feasible to control fugitive dust. 2. All trucks hauling soil and other loose material will be covered or maintain at least two feet of freeboard. 3. Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E. 4. Vehicle speeds will be limited to 15 mph on unpaved (no gravel or similar surfacing material) roads. 5. Unpaved roads will be treated by watering as necessary. 6. Soil stabilizers will be applied to inactive construction areas on an as-needed basis. 7. Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered or treated with soil binders, as necessary. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
AQ-APM-3	To minimize mud and dust from being transported onto paved roadway surfaces, pave, gravel, use rattle plates or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface. SDG&E will implement this measure where applicable and not conflicting with other requirements. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-4	If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the project's construction schedule. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-5	To the extent feasible, unnecessary construction vehicle and idling time will be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as a part of pre-construction conferences. Those briefings will include discussion of a "common sense" to vehicle use. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season. Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.
Location	All new substations
Monitoring / Reporting Action	Subdivision grading and drainage plan prepared by Applicant and approved by CPUC and RWQCB prior to construction. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the project is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	H-1a (CC): Construct during the dry season. All construction of the Chocolate Canyon Option shall occur during the dry season months. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains. Implement the City of San Diego Source Water Protection Guidelines for New Development (2004) that describes procedures for minimizing the adverse water quality effect of new development near water supply reservoirs such as El Capitan. These guidelines specify best management practice procedures to be used by the development, which would include the Chocolate Canyon Option.
Location	Chocolate Canyon Option
Monitoring / Reporting Action	Construction of Chocolate Canyon Option occurs only during dry season months. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the Chocolate Canyon Option is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	— H-1k: Comply with Forest Service conditions. Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with: • The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this project by the State Water Resources Control Board or Army Corps of Engineers.
	— (H-1k) • Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed. • At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.
	— (H-1k) • The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

	— (H-1k) • During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project. The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: 1. A description of the actual site conditions 2. Detailed descriptions, design drawings, and specific topographic locations of all control measures 3. Measures to divert runoff away from disturbed land surfaces 4. Measures to collect and filter runoff over disturbed land surfaces 5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources 6. Measures to dissipate energy and prevent erosion 7. A monitoring and maintenance schedule. Upon Commission approval, the Licensee shall implement the plan.
	— (H-1k) • Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.
	— (H-1k) The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources.
	— (H-1k) Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare and execute an agreement with the U.S. Forest Service prior to construction. Compliance with the agreement to be verified through monitoring by the Forest service and CPUC during construction.
Effectiveness Criteria	Compliance with the executed agreement.
Responsible Agency	CPUC and U.S. Forest Service
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan. A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare a site-specific SWPPP and sediment-control plan to be reviewed and approved by the Forest Service and CPUC prior to construction. CPUC and Forest Service to verify compliance through construction monitoring.
Effectiveness Criteria	Compliance with approved SWPPP and sediment-control plan.
Responsible Agency	CPUC and U.S. Forest Service.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-4b: Avoid blasting where damage to groundwater wells or springs could occur. Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earthworking method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.
Location	Entire project above designated groundwater basins
Monitoring / Reporting Action	Applicant to prepare a blasting plan, including well survey.
Effectiveness Criteria	Avoidance of blasting where damage to wells or springs could occur, and use of rock anchoring or mini-pile system in its place
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-5a: Install substation runoff control. The pad for new substations shall be constructed with a pervious and/or high-roughness (for example gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.
Location	New substations.
Monitoring / Reporting Action	Applicant to provide CPUC with a drainage plan for new substations showing compliance with this mitigation measure. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	No increase in runoff from new substations.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property. A determination of towers requiring scour protection under WQ-APM 10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.
Location	Stream crossings entire project.
Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which towers may reasonably be subject to erosion during the life of the project. The report shall also provide plans for protection from scour, as well as an engineering demonstration that the tower and associated structures will not induce erosion onto adjacent property. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	Towers to withstand scour with no adverse effect on adjacent property.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation. SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.
Location	Entire project.
Monitoring / Reporting Action	Applicant to provide CPUC with a Hazardous Substance Control and Emergency Response Plan for project operations, for review and approval, prior to completion of construction. This plan to include monitoring and reporting protocols and responsibilities.
Effectiveness Criteria	Implementation of a Hazardous Substance Control and Emergency Response Plan for project operations.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	H-8a: Bury power line below 100-year scour depth. At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction. Engineering evaluation, and associated scour protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction. Compliance to be ensured during construction.
Location	Underground stream crossings
Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which crossings may be subject to scour. The report shall also provide plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion. CPUC to review and approve the report, then monitor to verify compliance during construction.
Effectiveness Criteria	Underground crossings to be protected from scour.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
WQ-APM-2	To the extent feasible, structures shall be placed so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-3	Specific sites as identified by authorized agencies (e.g., fragile watersheds) where construction equipment and vehicles are not allowed shall be clearly marked on-site before any construction or surface disturbing activities begin. Construction personnel shall be trained to recognize these markers and understand the equipment movement restrictions involved. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

WQ-APM-4	1. Adequate distance from stream banks and beds will be maintained during construction activities. 2. Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams. 3. Surface water, riparian areas and floodplains will be spanned where feasible. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented. 5. Storm Water Best Management Practices (BMPs) for construction will be implemented per the requirements of the project's SWPPP. 6. Silt fencing, straw mulch, straw bale check dams would be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures. 7. The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction, operation and maintenance. 8. Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands and floodplains. 9. Structures will not be placed in streambeds or drainage channels to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-5	Any stream crossings will be constructed at low flow periods and, if necessary, a site-specific mitigation and restoration plan would be developed. (SDG&E)
Location	Entire project area along stream crossings.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-6	1. Designated surface water protection areas (source water) will be avoided. 2. There will be no diversions, detention, retention or consumption of surface waters for the project. 3. Prior to construction, interviews would take place with affected landowners regarding location of water supply wells located on their property. 4. SDG&E will negotiate with affected landowner to provide alternative water supplies in the event a supply well or springs dry up directly caused by project activities. Negotiation shall be by either a remedial cash payment to the landowner or by SDG&E contracting for the drilling of a replacement well. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

WQ-APM-8	1. In no case will groundwater removed during construction be discharged to surface waters or storm drains without first obtaining any required permits. 2. If dewatering is necessary, the water will be contained and sampled to determine if contaminants requiring special disposal procedures are present. 3. If the water tests sufficiently clean and land application is determined feasible per applicable SWRCB and RWQCB requirements, the water would be directed to relatively flat upland areas for evaporation and infiltration back to the water table, used for dust control, or used as makeup for a construction process (e.g., concrete production). 4. Water determined to be unsuitable for land application or construction use would be disposed of in another appropriate manner, such as treatment and discharge to a sanitary sewer system in accordance with applicable permit requirements or hauled offsite to an approved disposal facility. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-9	Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-10	At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth shall be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project. (SDG&E)
Location	Entire project area at locations that would cross below or pass adjacent to streams.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-11	Groundwater levels along the underground portion of the project will be tested by drilling pilot borings. The location, distribution, or frequency of such tests shall be determined to give adequate representation of the conditions. Locations where groundwater depth is less than eight feet below ground surface shall be identified prior to excavation activities and avoided, where possible. Avoidance is especially recommended where shallow groundwater flow direction is not parallel to the orientation of the alignment. Where avoidance is not possible, SDG&E shall consider constructing underground facilities in a shallower excavation, depending upon requirements of the underground method or existing underground facilities and other practical concerns. SDG&E shall document results of test drilling in a letter report to the CPUC construction starts and shall propose specific measures to minimize the impact on groundwater. (SDG&E)
Location	Entire project area along underground portions of the project.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-13	Hazardous materials will not be disposed of onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for trash. Petroleum products and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. In the event of a release of hazardous materials to the ground, it will be promptly cleaned up in accordance with applicable regulations. (SDG&E)

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-14	Secure any required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-15	To the extent feasible, where the construction of access roads would disturb sensitive features such as streambeds, the route of the access road would be adjusted to avoid such impacts. Whenever practicable, construction and maintenance traffic would use existing roads or cross-country access routes (including the ROW) which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes will be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the appropriate agency or landowner before use. Where it is not feasible for access roads to avoid streambed crossings, such crossings would be built at right angles to the streambeds whenever feasible. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in such a manner that minimizes potential adverse impacts on waters of the U.S. or waters of the state. Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and SWRCB/RWQCB. (SDG&E)
Location	Entire project area along access roads.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval with the ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geo-textile matting should be considered in the CDFG/ACOE consultation process. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	G-2a: Protect desert pavement. Grading for new access roads or work areas in areas covered by desert pavement shall be avoided or minimized. If avoidance of these areas is not possible, the desert pavement surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats on the surface. A plan for identification and avoidance or protection of sensitive desert pavement shall be prepared and submitted to the CPUC and BLM for review and approval at least 60 days prior to start of construction.
Location	All project locations where desert pavement occurs.
Monitoring / Reporting Action	Review plan and ensure that it is implemented in the field.
Effectiveness Criteria	Construction activities do not damage desert pavement.
Responsible Agency	CPUC, BLM, USFWS
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design. The design-level geotechnical studies to be performed by the Applicant shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and ASTM standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where permanent project structures will be installed.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by problematic soils.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-4a: Reduce effects of groundshaking. The design-level geotechnical investigations performed by the Applicant shall include site-specific seismic analyses to evaluate the peak ground accelerations for design of project components. Based on these findings, project structure designs shall be modified/strengthened, as deemed appropriate by the project engineer, if the anticipated seismic forces (high calculated peak vertical and horizontal ground accelerations due to severe groundshaking) are found to be greater than anticipated wind load stresses on project structures. Study results and proposed design modifications shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where seismically induced groundshaking would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	G-4b: Conduct geotechnical investigations for liquefaction. Because seismically induced liquefaction-related ground failure has the potential to damage or destroy project components, the design-level geotechnical investigations to be performed by the Applicant shall include investigations designed to assess the potential for liquefaction to affect the approved project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts. Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the project designs as deemed appropriate by the project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project areas where liquefaction would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-5a: Minimize project structures within active fault zones. Prior to final project design SDG&E shall perform a geologic/geotechnical study to confirm the location of mapped traces of active and potentially active faults crossed by the project route. For crossings of active faults, the project design shall be planned so as not to locate towers or other project structures on the traces of active faults and in addition project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and BLM in a report submitted for review and approval at least 60 days prior to the start of construction.
Location	All Project locations that would cross active faults.
Monitoring / Reporting Action	Review report. Ensure that that the recommendations of the report are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by surface fault rupture.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	G-6a: Conduct geotechnical surveys for landslides and protect against slope instability. The design-level geotechnical surveys conducted by the Applicant shall perform slope stability analyses in areas in areas of planned grading and excavation that cross and are immediately adjacent to hills and mountains. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as grading for access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Proposed Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction, and to minimize potential for damage to project facilities. These design measures shall include, but are not limited to, retaining walls, visquene, removal of unstable materials, and avoidance of highly unstable areas. SDG&E shall document compliance with this measure prior to the final project design by submitting a report to the CPUC for review and approval at least 60 days before construction. The report shall document the investigations and detail the specific support and protection measures that will be implemented.
Location	All Project locations where slope instability would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by slope instability.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-9a: Coordinate with quarry operations. SDG&E shall coordinate with operations and management personnel, and with BLM, to determine status of and plans for active quarries adjacent to or crossed by project alignments. SDG&E shall develop a plan to avoid or minimize interference with mining operations in conjunction with mine/quarry operators prior to construction, and submit it for review and approval to the BLM and CPUC. If mine operators are out of compliance with BLM lease requirements, SDG&E shall coordinate with all parties to resolve the situation and shall demonstrate compliance with this measure prior to the start of construction by submitting the plan to the CPUC and BLM for review at least 60 days prior to the start of construction. If active mining areas require a reroute of the existing SWPL or the Interstate 8 Alternative route, SDG&E shall provide a detailed map documenting proposed new tower and access road location(s), as well as a summary of environmental impacts that would occur (biological and cultural resources surveys must be completed).
Location	All Project locations that would cross active and potentially active quarries, specifically the Interstate 8 Alternative.
Monitoring / Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Project does not interfere with mining operations.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-1	No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable. (SDG&E)
Location	Entire project area along existing access roads.
Timing	Pre- and during construction

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Status	
Review / Approval Status	
GEO-APM-2	1. Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance. 2. In agricultural areas, topsoil would be left in roughened condition. 3. When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity. 4. Disturbed areas will be returned to their pre-construction contours and allowed to re-vegetate naturally, or will be reseeded with an appropriate seed mixture if necessary. 5. Affected landowners having property directly impacted by the project will be compensated to disc or till soil upon construction completion. 6. Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-3	Structure placement in areas of high shrink/swell potential will be avoided where possible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-4	Structures will be placed in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock, etc. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-5	Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Maintenance of cut and fill slopes created by project construction activities would consist primarily of erosion repair. Where re-vegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix would be done on slopes. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

GEO-APM-6	In areas where ground disturbance is substantial or where re-contouring is required (e.g., marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and re-vegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or re-contouring shall be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor. To limit impact to existing vegetation, appropriately sized equipment (e.g., bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-8	During construction, SDG&E would remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage to those structures and would position structures to span over potential landslide areas to the greatest extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	S-2a: Notify public of utility service interruption. Prior to construction in which a utility service interruption is known to be unavoidable, SDG&E shall notify members of the public affected by the planned outage by mail of the impending interruption, and shall post flyers informing the public of the service interruption in neighborhoods affected by the planned outage. Copies of notices and dates of public notification shall be provided to the CPUC and BLM.
Location	Locations where existing utility services would have planned interruption of services.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E posted notices/flyers and that copies have been submitted to the CPUC and the BLM.
Effectiveness Criteria	Residents and landowners are informed of planned outages.
Responsible Agency	CPUC; BLM.
Timing	Pre-construction
Status	
Review / Approval Status	
MITIGATION MEASURE	S-2b: Protect underground utilities. Prior to construction of the underground transmission line, SDG&E shall submit to the CPUC and BLM written documentation, including evidence of review by the appropriate jurisdictions, including the following: • Construction plans designed to protect existing utilities and showing the dimensions and location of the finalized alignment • Records that the Applicant provided the plans to affected jurisdiction for review, revision and final approval • Evidence that the project meets all necessary local requirements • Evidence of compliance with design standards • Copies of any necessary permits, agreements, or conditions of approval • Records of any discretionary decisions made by the appropriate agencies.
Location	Along the entire route, especially during underground construction where existing utility services would potentially be disrupted or a collocation accident would potentially occur.

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Monitoring / Reporting Action	CPUC/BLM shall monitor to verify that SDG&E provides the CPUC with documentation
Effectiveness Criteria	Minimal disruption of existing utilities
Responsible Agency	CPUC; BLM
Timing	Pre-construction
Status	
Review / Approval Status	
MITIGATION MEASURE	S-3b: Use reclaimed water. To the extent feasible, SDG&E shall coordinate with local water districts in advance in order to efficiently obtain reclaimed or potable water for delivery to the construction sites and to meet any restrictions imposed by them. The Applicant shall provide a letter describing the availability of reclaimed water and efforts made to obtain it for use during construction to the CPUC and BLM a minimum of 60 days prior to the start of construction.
Location	All project locations
Monitoring / Reporting Action	CPUC/BLM shall monitor to verify that SDG&E provides the CPUC with documentation
Effectiveness Criteria	Use of reclaimed water (recommended but not required for implementation)
Responsible Agency	CPUC; BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
PSU-APM-1	SDG&E has and will continue to coordinate with all utility providers with facilities located within or adjacent to the Proposed Project to ensure that design does not conflict with other facilities. In the event of a conflict, the project will be aligned vertically and/or horizontally as appropriate to avoid other utilities and provide adequate operational and safety buffering. Alternately, the other existing facilities may be relocated. Long-term operations and maintenance of the project will be negotiated through easement, purchased right-of-way, franchise agreement, or joint use agreement. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
PSU-APM-2	Underground Service Alert would be notified a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
PSU-APM-3	SDG&E will coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	— F-1a: Develop and implement a Construction Fire Prevention Plan. SDG&E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&E shall fully implement the Plan during all construction and maintenance activities.
	— (F-1a) All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan implementation responsibility shall remain with SDG&E.
	— (F-1a) At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) in Appendix 3D, and the elements listed below: • During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies. • During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF. • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies will review SDG&E's Construction Fire Prevention Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

MITIGATION MEASURE	F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007). The draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) are presented in Appendix 3D. The Amended Plan shall, at a minimum, include all of the provisions of the Final Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, U.S. Forest Service, and ABDSP, and shall submit the Plan (with agency comments incorporated) for review and approval by Cal Fire at least 90 days prior to energizing the Proposed Project.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP will review and comment and CAL FIRE will approve the SDG&E Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP
Timing	Post construction, pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	F-1d: Remove hazards from the work area. The Applicant shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor SDG&E work areas.
Effectiveness Criteria	Work areas remain clear of brush and dead and decaying vegetation
Responsible Agency	CPUC; BLM
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-3a: Contribute to Powerline Firefighting Mitigation Fund.. The Applicant shall contribute an annual sum to local, State, and federal fire protection districts in the project vicinity through the mechanism of a new Powerline Firefighting Mitigation Fund, which shall be organized and carried out by SDG&E, and shall be subject to the oversight of the CPUC for the life of the Fund. Funding shall be used toward fire prevention measures and protection equipment and services, as appropriate to each jurisdiction. An increase in funding for fire prevention and suppression services and equipment will increase the probability of a fire being successfully contained, especially during normal weather conditions, and will therefore partially mitigate the significant barrier the transmission line poses to firefighting operations. The annual sum shall be based on an equivalent fuelbreak mitigation (presented as Mitigation Measure F-3a in the Draft EIR/EIS), which is an alternative means of partially mitigating the significant effect that the presence of the transmission line on firefighting operations, but which would be jurisdictionally infeasible. This shall be $1,000 per acre for the first year plus $250 per acre for each subsequent year for the life of the project (in 2008 United States Dollars), based on the number of miles of Wildfire Containment Conflict listed in Table D.15-26 (see below). Should CAL FIRE wish to take over administrative authority for the Powerline Firefighting Mitigation Fund, an administrative transfer shall not be in violation of Mitigation Measure F-3a.
Location	Fund contribution based on miles of Wildfire Containment Conflict

Table G-1. Mitigation Measures and Applicant Proposed Measures – Pre-Construction

Monitoring / Reporting Action	SDG&E provides proof of annual payment. CPUC, BLM, and U.S. Forest Service will ensure SDG&E contributes annually to the fund and shall have oversight for the life of the fund. The funds shall be used toward fire prevention measures and protection equipment and services.
Effectiveness Criteria	Annual sum is paid to Powerline Firefighting Mitigation Fund.
Responsible Agency	CPUC; BLM, U.S. Forest Service
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-3b: Prepare and implement a Multi-agency Fire Prevention MOU. A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The MOU shall be adopted prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall stipulate the mechanism for defensible space grants distribution (Mitigation Measure F-1e). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted. A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that MOU is created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate.
Effectiveness Criteria	MOU is drafted, agreed upon, and reviewed every five (5) years
Responsible Agency	CPUC; BLM
Timing	Pre-, during, and post construction.
Status	
Review / Approval Status	

Attachment H

During-Construction Mitigation Measures

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, e.g., **— (A-1a)**. A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Several of the biological resources APMs have been updated to show changes (in underline/~~strikeout~~) that were originally incorporated into Appendix 8N of the Final EIR/EIS. These changes are included in the following table, and throughout the MMCRP.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— B-1a: Provide restoration/compensation for impacted sensitive vegetation communities. Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible, and disturbance of vegetation and soils shall be minimized. Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist (see Mitigation Measure B-1c). The construction mats shall not be left on the ground for more than three weeks. Use of construction mats shall be considered a temporary impact to vegetation and shall be mitigated in accordance with this mitigation measure. If avoidance of sensitive vegetation communities is not feasible due, for example, to physical or safety constraints, the Applicant shall restore temporarily impacted areas to pre-construction conditions following construction (or emergency repairs) and shall permanently block off all public access to them, and/or shall purchase/dedicate suitable habitat for preservation to off-set permanently impacted areas. Restoration of some vegetation communities in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, the mitigation shall consist of offsite acquisition and preservation of the vegetation community instead. Any area that can be preserved as intact or restored habitat, or if it contains any species (plant or animal) that require project-related compensatory mitigation will qualify as offsite mitigation lands. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years (or less if the restoration meets all success criteria). Restoration in ABDSP shall be maintained and monitored for a minimum of five years. The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat. Any restoration efforts would be subject to a Habitat Restoration Plan approved by the CPUC, BLM, Wildlife Agencies, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). Mitigation ratios and mitigation acreages for construction within authorized limits are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). The mitigation ratios also apply to impacts from emergency repairs. In cases where the impacts to sensitive vegetation communities occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (B-1a) All limits of construction shall be delineated with orange construction fencing. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates. To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-1a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio (5.5:1 in FTHL MA). Restoration of the unauthorized impacts shall be credited at a 1:1 ratio (i.e., mitigated by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

— (B-1a) Areas to be restored shall include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Where onsite restoration is planned, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Habitat Restoration Plan, for restoring temporarily impacted sensitive vegetation communities, to be approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. This Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Hydroseeding, drill seeding, or an otherwise proven restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration).

The Habitat Restoration Plan shall incorporate Desert Bioregion Revegetation/Restoration Guidance measures for restoration of temporary impacts to desert scrub and dune habitats. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

The Habitat Restoration Plan shall also incorporate the measures identified in the May 25, 2006 Memorandum of Understanding among Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the Environmental Protection Agency (Edison Electric Institute, et al., 2006) where applicable. The MOU discusses vegetation management along ROWs for electrical transmission and distribution facilities on federal lands. The major provisions of the MOU include reducing soil erosion and water quality impacts; promoting local ecotypes in revegetation projects; planting native species and protecting rare species; and reducing the introduction of non-native, invasive or noxious plant species to the ROWs. The MOU can be viewed online at http://www.eei.org/industry_issues/environment/land/vegetation_management/EEI_MOU_FINAL_5-25-06.pdf.

The following habitat restoration requirements are not included in the MOU described above. The restoration of habitat shall be maintained and monitored for five years after installation by an experienced, licensed Habitat Restoration Contractor, or until established success criteria identified in the Restoration Plan (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance and monitoring for restoration in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Maintenance and monitoring shall be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For areas where habitat restoration cannot meet mitigation requirements, as determined by the Habitat Restoration Specialist in coordination with CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies, offsite purchase and dedication of habitat shall be provided at the mitigation ratios provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives) or as otherwise required by the Wildlife Agencies, ABDSP, or USDA Forest Service (supersedes the mitigation ratios in BIO-APM-1).

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-1a) Tree Mitigation. Mitigation for loss of native trees or native tree trimming shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (i.e., planting) trees on land that would not be subject to vegetation clearing (either in the Applicant's ROW and/or on land acquired and preserved). Any land to be used for this mitigation shall be approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For habitat acquisition and preservation, the mitigation ratios shall follow those in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). For example, removal of coast live oak trees (that occur in coast live oak woodland) shall require mitigation at a 3:1 ratio based on the permanent impact to the summed acreage of all individual coast live oak trees impacted. Therefore, if the total acreage of all individual coast live oak trees in coast live oak woodland impacted is 10 acres, then 30 acres of coast live oak woodland shall be acquired and preserved. For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no mitigation shall be required.
	— (B-1a) For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed. Native trees that are removed shall be replaced in-kind (by species) as follows. • Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1 • Trees between five and 12 inches DBH shall be replaced at 5:1 • Trees between 12 and 36 inches shall be replaced at 10:1 • Trees greater than 36 inches shall be replaced at 20:1 • Native trees that are trimmed shall be replaced in-kind (by species) as follows. • Trees less than 12 inches DBH shall be replaced at 2:1 • Trees greater than 12 inches DBH shall be replaced at 5:1 All restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for National Forest land restoration), and the Wildlife Agencies.
	— (B-1a) Mitigation Parcels/Habitat Management Plans. All offsite mitigation parcels shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for impacts to ABDSP), and USDA Forest Service (for alternatives with impacts to National Forest lands) and must be acquired or their acquisition must be assured before the line is energized. To demonstrate that such parcels shall be acquired, SDG&E shall submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan shall be submitted to the CPUC, BLM, the Wildlife Agencies, State Parks (for impacts in ABDSP) and USDA Forest Service (for impacts on National Forest Lands) for review and approval, and shall include, but shall not be limited to: legal descriptions and maps of all parcels to be acquired; schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (e.g., performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-1a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any vegetation disturbing activities. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) • Baseline biological data for all mitigation parcels • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to National Forest lands) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All areas disturbed by construction activities.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. CPUC/BLM biological monitor shall confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— B-1c: Conduct biological monitoring. Monitoring shall be provided by a qualified biologist approved by the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the APMs and mitigation measures are being met by being present during construction activities including all initial grubbing and clearing of vegetation. Additionally, a qualified biologist employed by SDG&E shall be present during maintenance involving ROW repair requiring ground disturbance (i.e., grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). Biological monitoring of these maintenance activities is to prevent impacts to vegetation communities or wildlife habitat not within the permanent project impact footprint or to record and report unauthorized impacts outside the footprint to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure the unauthorized impacts are mitigated in accordance with Mitigation Measure B-1a. The qualified biologist shall conduct monitoring for any area subject to disturbance from construction and the maintenance activities listed above (or access roads used during maintenance activities in the case of vernal pools/water-holding basins; see Mitigation Measure B1b). The qualified biologist shall perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies, depending on the sensitivity of the resources. The qualified biologist shall send weekly monitoring reports to the CPUC and BLM and shall record any reduction or increase in construction impacts so that mitigation requirements can be revised accordingly. The final impact/mitigation calculations shall be submitted to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies for review and approval. The qualified biologist shall send annual monitoring reports of maintenance activities to the CPUC, BLM, State Parks (for monitoring of maintenance activities in ABDSP), and USDA Forest Service (for alternatives that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were unauthorized impacts that require mitigation. The Applicant, its contractors and subcontractors, and their respective project personnel, shall refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (e.g., Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations.
	— (B-1c) The qualified biologist shall have the authority to issue stop work orders if any part of the mitigation measures or APMs are being violated. The qualified biologist shall immediately notify the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), the Wildlife Agencies, and SDG&E of any significant events, including impacts outside the construction zone or maintenance impacts outside the authorized permanent impact footprints if they are discovered during construction or monitoring of maintenance activities. Reinitiation of work following a stop work order shall only occur when the CPUC, BLM, State Parks (for impacts in ABDSP), USDA Forest Service (for alternatives with impacts on National Forest lands), and the Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts shall be made, and that any additional protection measures they deem necessary shall be undertaken.
Location	Entire project area.
Monitoring/Reporting Action	CPUC/BLM biological monitor shall oversee monitoring and ensure compliance with APMs and mitigation measures. The biological monitor shall submit weekly monitoring reports to SDG&E during construction. The biological monitor shall submit weekly reports to the CPUC and BLM during construction and throughout the maintenance period. Reports shall include a summary of activities and tracking of the APM and mitigation measure requirements. The biological monitor shall submit a final report of impact/mitigation calculations to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies.
Effectiveness Criteria	Successful avoidance of unforeseen impacts and compliance with APMs and mitigation measures.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP land), and USDA Forest Service (for USFS land).
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	B-1k: Re-seed disturbed areas after a transmission line–caused fire. Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the Proposed Project or a constructed alternative, the Applicant shall re-seed all natural areas — both public and private — that are burned as a result of the project-caused fire. Re-seeding shall be required for areas that have been burned due to the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan shall be developed with input from Cal Fire, the U.S. Forest Service, BLM, and CPUC, based on a native seed mix. Seeds shall be raked into the soil to avoid seed predation, and re-seeding shall be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. The Applicant shall provide a written report documenting all re-seeding activities to the CPUC. The Applicant shall make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort shall be submitted to the CPUC upon request. Specific re-seeding requirements stipulated in this mitigation measure shall be subject to approval and modification by any public landowning agency.
Location	Areas burned as a result of a project-caused fire and that have also been burned at least once in the preceding 10-year period.
Monitoring/Reporting Action	CPUC/BLM shall oversee the development of re-seeding plan and shall collect written documentation of all re-seeding activities from the Applicant.
Effectiveness Criteria	Re-seeding occurs per re-seeding plan requirements.
Responsible Agency	CPUC, BLM, and USDA Forest Service
Timing	During and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-2a: Provide restoration/compensation for impacted jurisdictional areas. Impacts to areas under the jurisdiction of the ACOE, Regional Water Boards, State Water Board, and CDFG shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible (including for emergency repairs), the Applicant shall provide the necessary mitigation required as part of wetland permitting by creation/restoration/preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation in ABDSP), USDA Forest Service (for alternatives with mitigation on National Forest lands), ACOE, Regional Water Boards, State Water Board, and CDFG as part of the wetland permitting process. It is anticipated that the sites would be in close proximity to the impacts or in the same watershed. A jurisdictional delineation and impact assessment shall be prepared based on the final alignment and final engineering plans when they are complete. Mitigation ratios would range from 1:1 up to 4:1 and would depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. The width of wetland buffers would also depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. Recommended mitigation ratios for vegetation communities that generally occur in jurisdictional areas are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). It is anticipated that at least a 1:1 ratio of the mitigation would include creation of jurisdictional habitat so there would be no net loss of jurisdictional habitat. For example, permanent impacts to emergent wetland would require a 2:1 mitigation ratio. Half (or 1:1) of the mitigation acreage would have to consist of created emergent wetland in an appropriate location to be preserved, and the other half (1:1) would require acquisition and preservation of already-existing emergent wetland (or other wetland community acceptable to the permitting agencies — ACOE, Regional Water Boards, State Water Board, and CDFG). It is also anticipated that a 1:1 ratio would be required for impacts to jurisdictional non-wetland Waters of the U.S. in the form of wetland enhancement, restoration, or creation as determined in consultation with the permitting agencies. Wetland permits shall be obtained from the ACOE, Regional Water Boards, State Water Board, and CDFG prior to initiating construction in jurisdictional areas.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-2a) All limits of construction shall be delineated with orange construction fencing and/or silt fencing. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete. If silt fencing is used to delineate the limits of construction or as part of implementation of erosion control BMPs, the silt fencing may be left in place longer than 30 days if erosion control is still necessary. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.
	— (B-2a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio, unless otherwise directed by the ACOE, Regional Water Boards, State Water Board, and CDFG: restoration of the unauthorized impacts shall be credited at a 1:1 ratio; the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.
	— (B-2a) The Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). The Habitat Restoration Specialist shall prepare and implement a Wetland Mitigation Plan to be approved in writing by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP mitigation), and USDA Forest Service (for alternatives with mitigation on National Forest lands). The Applicant shall work with the above-listed agencies until a plan is approved by all. The mitigation of habitat shall be maintained and monitored for five years after installation, or until established success criteria (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met, to assess progress and identify potential problems with the mitigation. Maintenance and monitoring in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the mitigation. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP restoration), and USDA Forest Service (for alternatives with restoration on National Forest lands).

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-2a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact jurisdictional areas. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All locations with impacts to jurisdictional areas.
Monitoring/Reporting Action	BLM, CPUC, and wetland permitting agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans. BLM/CPUC biological monitor to confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, ACOE, RWQCB, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-3a: Prepare and implement a Weed Control Plan. The Applicant shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where the Applicant owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC), or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding governmental agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, the Applicant shall work with the landowners to obtain authorization of the weed control treatment that is required. State Parks shall have review and approval authority over the Weed Control Plan for ROW within or adjacent to the boundaries of ABDSP. Developed land shall be excluded from weed control.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-3a) The Weed Control Plan shall include the following: • A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured) as well as at all ancillary facilities associated with the project for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner or State Parks (for ROW within or adjacent to ABDSP) as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [Bromus tectorum], Saharan mustard [Brassica tournefortii] and medusa head [Taeniatherum caput-medusae]). These populations shall be mapped and described according to density and area covered. These plant species shall be treated (where access and permission can be secured) prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, or the tribal government, as appropriate. A pre-construction weed inventory shall also be conducted by surveying areas that will be directly impacted by the project for weed populations that are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006) or are weed species of concern to State Parks (for ROW within or adjacent to ABDSP). These plant species shall be treated prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC and State Parks (for treatment in ROW within ABDSP).
	— (B-3a) Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC, or the tribal government, as appropriate, with the goal of controlling populations before they start producing seeds.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-3a) For the lifespan of the project (i.e., as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows. • From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required in the survey areas described above. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC. • During project construction and operation/maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office, or the tribal government, as appropriate. • During project construction and operation/maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) at an offsite washing facility (e.g., a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed at an offsite washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. In addition, vehicles, tools, and equipment shall be washed at an offsite washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). Finally, vehicles, tools, and equipment used for maintenance shall be washed at an offsite washing facility immediately before each maintenance event. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort shall be made to use wash facilities that use recycled water. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies, State Parks (for weeds in ABDSP), tribal governments (for weeds on tribal lands), and biological monitor for inspection at any time and shall be submitted to the CPUC on a monthly basis during construction and submitted annually to the CPUC during operation/maintenance.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor to confirm preparation and implementation of a weed control plan.
Effectiveness Criteria	Weed control plan prepared and successfully implemented.
Responsible Agency	BLM, CPUC, and ROW land-holding agencies (BLM, State Parks for ABDSP, USDA Forest Services for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. A qualified biologist shall survey for special status plants in the spring of a year with adequate rainfall prior to initiating construction activities in a given area. If a survey can not be conducted due to inadequate rainfall, then SDG&E shall consult with the Wildlife Agencies, State Parks (for impacts in ABDSP), and the USFS (for impacts on National Forest lands) to determine if construction may begin in the absence of survey data and what mitigation would be required, or whether construction would not be allowed until such data is collected. A report of special status plants observed shall be prepared and submitted for approval by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies prior to activities which may impact the plant resources.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-5a) All special status plant populations shall be staked or flagged by a qualified biologist approved by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete.
	— (B-5a) Impacts to federal or State listed plant species shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through salvage and relocation (salvage and relocation for plants in ABDSP shall be determined in consultation with, and approval of, State Parks) via a restoration program and/or offsite acquisition and preservation of habitat containing the plant at a 2:1 ratio. Avoidance may not be feasible due to physical or safety constraints. The CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies shall decide whether the Applicant can restore rare plant populations or shall acquire habitat with rare plant populations off site (locations to be approved by the CPUC, BLM, State Parks [for activities in ABDSP], USDA Forest Service [for alternatives with activities on National Forest lands], and the Wildlife Agencies). A qualified biologist shall prepare a Restoration Plan that shall indicate where restoration would take place. The restoration plan shall also identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service (for alternatives with restoration on National Forest lands) until a plan is approved by all. Impacts to moderately sensitive plant species (i.e., BLM Sensitive, USDA Forest Service Sensitive, CNPS List 1 and 2 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock) or relocation to temporarily disturbed areas (reseeding and relocation of plants in ABDSP shall be determined in consultation with, and approval of, State Parks). Avoidance may not be feasible due to physical or safety constraints. Mitigation Measure B-1a would also provide habitat-based mitigation for these impacts.
	— (B-5a) Where reseeding or salvage and relocation is required, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Restoration Plan for reseeding or salvaging and relocating special status plant species to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies in writing prior to impacting the plant resources. The Applicant shall work with the above-listed agencies until a plan is approved by all. The reseeding or relocation of plants shall be maintained and monitored for five years after installation, or until established success criteria are met, to assess progress and identify potential problems with the mitigation. The reseeding or relocation of plants in ABDSP shall be maintained and monitored for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional seeding, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-5a) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact special status plant resources. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) offsite mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures, and confirm that habitat restoration plans are implemented.
Effectiveness Criteria	Successful avoidance or restoration/relocation of sensitive plants, purchase of appropriate mitigation lands, and provision of long-term habitat management for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP), and USDA Forest Service (for USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	B-7a: Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals). BIO-APM-14 shall be modified to ensure that all steep-walled trenches or excavations used during construction shall be covered at all times except when being actively utilized. If the trenches or excavations cannot be covered, exclusion fencing (i.e., silt fencing) shall be installed around the trench or excavation, or it shall be covered to prevent entrapment of wildlife. Open trenches, or other excavations that could entrap wildlife shall be inspected by the qualified biologist (see Mitigation Measure B-1c) a minimum of three times per day and immediately before backfilling. Furthermore, employees and contractors shall look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment would be moved until the animal has left voluntarily or is removed by the qualified biologist. Should a dead or injured listed species be found in a trench or excavation or anywhere in the construction zone or along an access road, the qualified biologist shall contact the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies within 48 hours of the finding. The qualified biologist shall report the species found, the location of the finding, the cause of death (if known), and shall submit a photograph and any other pertinent information.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and mitigation measures.
Effectiveness Criteria	Steep-walled trenches or excavations are covered at all times except when being actively utilized, or exclusion fencing is installed around the trench or excavation.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP land), and USDA Forest Service (for USFS land).
Timing	During construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy. Mitigation for impacts to the FTHL shall follow all applicable measures in the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003). This mitigation includes, but is not limited to, locating impacts outside of MAs, delineating work limits, using existing roads, biological monitoring, and worker education.
	— (B-7b) According to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), compensation for FTHL habitat impacts could involve purchase of FTHL habitat and/or monetary compensation as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee. Impacts shall be mitigated at a 1:1 ratio for habitat outside a MA. Furthermore, mitigation inside a MA shall be at a 3.5:1 ratio for temporary impacts (2.5:1 for disturbed habitat, developed land, or agriculture) and a 5.5:1 ratio for permanent impacts (4.5:1 for disturbed habitat, developed land, or agriculture) . For the Proposed Project, the required mitigation for FTHL impacts (if offsite acquisition is the method of compensation) is 403.48 acres. On-site restoration requirements for the Project would be 232.84 acres. Any FTHL habitat acquired shall be approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP)

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7b) A Habitat Management Plan shall be prepared by a biologist approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) for all acquired FTHL habitat. The Habitat Management Plan must be approved in writing by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the FTHL or its habitat. The Applicant shall work with the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired FTHL habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) FTHL habitat approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); • Baseline biological data for all acquired FTHL habitat; • Designation of a land management entity approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	FTHL MAs and where potential FTHL habitat occurs.
Monitoring/Reporting Action	BLM and CPUC shall ensure that required purchase of mitigation land and provision of long-term management occurs. BLM/CPUC biological monitor shall ensure that applicable measures in the FTHL Rangewide Management Strategy are implemented.
Effectiveness Criteria	Direct impacts to the flat-tailed horned lizard are minimized. Compensatory mitigation for impacts to FTHL is implemented, including purchase of habitat and provision of long-term management for mitigation sites.
Responsible Agency	BLM, CPUC, and Flat-Tailed Horned Lizard Interagency Coordinating Committee.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat. With regard to timing of activities, construction and maintenance activities (including the use of helicopters) in bighorn sheep critical habitat shall be limited to outside the lambing season and the period of greatest water need, or a minimum ceiling of 1,500 feet for helicopter flights shall be maintained. The lambing season is January 1 through June 30. The period of greatest water need is May through September. Construction and maintenance activities in PBS critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7c) To help reconnect PBS subpopulations and at least partially offset impacts to the overall population of PBS caused by the project, the Applicant shall: • fund the design and construction of an overpass (for sheep) or tunnel (for vehicles) to facilitate PBS movement across a highway at a location determined by the USFWS (in coordination with State Parks and CDFG. Tunnel or overpass design must be approved by the Wildlife Agencies. • fund removal of tamarisk and fences for the life of the project, and install and maintain water sources at locations determined by the USFWS (in coordination with State Parks and CDFG) • fund a minimum 10-year-long program to monitor the effects of the project on PBS behavior, movements, and dispersal in the project corridor (ten years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program would be implemented by the Wildlife Agencies and State Parks following construction.
	— (B-7c) Furthermore, the Applicant shall provide compensation for direct loss of critical habitat at a 5:1 ratio for permanent impacts and at a 3:1 ratio (including a combination of onsite restoration and offsite purchase) for temporary impacts with PBS critical habitat or other habitat acceptable to the Wildlife Agencies, BLM, and State Parks (for critical habitat in ABDSP). Impacts to PBS critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. For the Proposed Project, the required mitigation for PBS impacts includes offsite purchase of 525.7 acres and onsite restoration of 111.81acres. The determination of impact acreage shall be based on the definition of critical habitat in effect as of the time of publication of the Final EIR/EIS.
	— (B-7c) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and State Parks for all acquired PBS habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) PBS or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired PBS habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) PBS habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) • Baseline biological data for all acquired PBS habitat • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where bighorn sheep or designated bighorn sheep critical habitat occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and bighorn sheep impact minimization measures. BLM and CPUC shall ensure that funding is provided for bighorn sheep studies and crossing mitigation; and that habitat acquisition and long-term management of mitigation sites is implemented.
Effectiveness Criteria	Successful avoidance/minimization of bighorn sheep impacts, and implementation of funding for studies and a wildlife crossing, habitat acquisition and long-term management for mitigation parcels.
Responsible Agency	BLM, CPUC, USFWS, CDFG, and State Parks.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/compensation strategies. A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. In addition, the burrowing owl shall be looked for opportunistically as part of other surveys and monitoring required during project construction. If the burrowing owl is absent, then no mitigation is required.
	— (B-7d) If the burrowing owl is present, no disturbance shall occur within 50 meters (approximately 160 ft) of occupied burrows from September 1 through January 31 or within 75 meters (approximately 250 ft) of occupied burrows from February 1 through August 31 (CDFG, 1995).
	— (B-7d) During construction, any pipe or similar construction material that is stored on site for one or more nights shall be inspected for burrowing owls by a qualified biologist before the material is moved, buried, or capped
	— (B-7d) Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters from the impact zone and that are within or contiguous to a minimum of 6.5 acres of preserved (or acquired and preserved if not already preserved) foraging habitat for each relocated owl (single owl or owl pair). Passive relocation is accomplished by first creating two artificial burrows in contiguous, preserved foraging habitat (if no natural burrows exist) for each occupied burrow that would be impacted; and second, installing one-way doors on occupied burrow entrances so owls can leave the burrow but not re-enter it. Following passive relocation, the area of impact and the preserved foraging habitat with alternate burrows are surveyed daily for one week to confirm owl use of alternate burrows before excavation of burrows in the impact zone. All passive relocation shall be conducted by a biologist approved by the CDFG. If the alternate burrows are not used by the relocated owls, then the Applicant shall work with the CDFG to provide alternate mitigation for burrowing owls. If the alternate burrows are used, no other mitigation shall be required. If it is not possible to preserve contiguous habitat on which to provide alternate burrows (e.g., on private land), and occupied owl burrows would be directly impacted, then the owls shall be passively relocated without the creation of alternate burrows prior to construction (relocation should only be implemented during the non-breeding season [September 1 through January 31]). The loss of occupied owl habitat shall be mitigated by acquiring and preserving other occupied habitat elsewhere (as explained below) per the Staff Report on Burrowing Owl Mitigation (CDFG, 1995) and the Burrowing Owl Survey Protocol and Mitigation Guidelines (The Burrowing Owl Consortium, 1993), or as otherwise determined in consultation with the CDFG.
	— (B-7d) Impacted occupied habitat shall be mitigated by 1) acquiring and preserving occupied habitat at a rate of 1.5 times 6.5 acres (or 9.75 acres) per pair or single bird impacted, or 2) acquiring and preserving unoccupied habitat contiguous with currently occupied habitat at a rate of two times 6.5 acres (or 13 acres) per pair or single bird impacted, or 3) acquiring and preserving suitable unoccupied habitat at a rate of three times 6.5 acres (or 19.5 acres) per pair or single bird impacted. All acquired habitat shall be acceptable to the CDFG and shall be protected and managed for the burrowing owl in perpetuity.
	— (B-7d) The survey required within 30 days prior to the initiation of construction will determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond and whether or not the mitigation needs to be revised.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7d) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, CDFG, and State Parks (for land in ABDSP) for all acquired burrowing owl habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the burrowing owl or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired burrowing owl habitat. The Habitat Management Plan shall include, but shall not be limited to: — Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) burrowing owl habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); — Baseline biological data for all acquired burrowing owl habitat; — Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; — A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; — Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and — Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where occupied burrowing owl habitat occurs.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures. If necessary, BLM and CPUC shall approve habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Avoidance of occupied burrows and surrounding foraging area, successful passive relocation, and/or replacement of occupied habitat that is managed in perpetuity.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All grading or brushing taking place within riparian habitats of the least Bell's vireo or southwestern willow flycatcher during construction shall be conducted from September 16 (October 1 in ABDSP) through March 14, which is outside the least Bell's vireo and southwestern willow flycatcher breeding seasons.
	— (B-7e) When conducting all other construction activities during the breeding season of March 15 through September 15 (September 30 in ABDSP) within 500 feet (USFWS, 2007b) of habitat in which least Bell's vireos and/or southwestern willow flycatchers are known to occur or have potential to occur, a biologist permitted by the USFWS shall survey for least Bell's vireos and southwestern willow flycatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-7e) If least Bell's vireos or southwestern willow flycatchers are present, a permitted biologist shall survey for nesting vireos and flycatchers approximately once per week within 500 feet of the construction area (USFWS, 2007b), for the duration of the activity in that area during the breeding season.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7e) If/when an active nest is located, a 300-foot no-construction buffer zone (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. No construction shall take place within this buffer until the nest is no longer active unless there are physical or safety constraints. If construction must take place within the buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied vireo/flycatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies, State Parks (for activities in ABDSP), and USDA Forest Service (for activities on National Forest lands) to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The permitted biologist shall monitor the nest daily until either activities are no longer within 300 feet of the nest, or the fledglings become independent of their nest.
	— (B-7e) Mitigation for the loss of least Bell's vireo- or southwestern willow flycatcher-occupied habitat (or designated critical habitat for the flycatcher) shall be implemented as follows. Permanent impacts to occupied habitat and/or designated critical habitat shall include offsite acquisition and preservation of occupied habitat or designated critical habitat at a 3:1 ratio. Temporary impacts to occupied habitat or designated critical habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied habitat and/or designated critical habitat. Impacts to least Bell's vireo or southwestern willow flycatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If a USFWS protocol, pre-construction survey, conducted in an area where presence of the vireo or flycatcher was assumed in this analysis (see Appendix 8B) determines that the species is absent, then the mitigation shall be reduced accordingly. Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7e) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the least Bell's vireo or southwestern willow flycatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired vireo or flycatcher habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) least Bell's vireo or southwestern willow flycatcher habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all least Bell's vireo or southwestern willow flycatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the vireo or flycatcher occur or have potential to occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to nesting vireos and flycatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-7h: Implement appropriate avoidance/minimization strategies for eagle nests. No construction or maintenance activities shall occur within 4,000 feet of an eagle nest during the eagle breeding season (December through June).
Location	Within 4,000 feet of eagle nests
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with restrictions before and during construction. A qualified biologist shall ensure compliance during maintenance.
Effectiveness Criteria	Successful avoidance of indirect impacts to eagle nests.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/compensation strategies. A biologist permitted by the USFWS shall determine suitable habitat areas (i.e., non-excluded areas per the 2002 USFWS protocol; USFWS, 2002b) within any designated USFWS QCB survey area (e.g., Survey Area 2) that would be impacted by project construction.
	— (B-7i)A pre-construction, USFWS protocol presence/absence survey for the adult QCB shall be conducted within all suitable habitat for this species in the construction zone within any designated USFWS QCB survey area. The survey shall be conducted in a year where the QCB is readily observed at USFWS QCB-monitored reference sites to determine what areas are occupied by the QCB (i.e., any suitable habitat within 1 km of a current QCB sighting is considered occupied) and what areas are not occupied. The USFWS permitted biologist shall record the precise locations of QCB larval host plants within the construction zone (and 10 meters beyond) using GPS technology. If the protocol pre-construction survey is conclusive for determining absence of the QCB, then areas without the butterfly would not require mitigation.
	— (B-7i) If the protocol pre-construction survey is not conclusive for determining QCB absence (due to limited detectability per the 2002 protocol, for example), or if a survey is not conducted, then all suitable habitat areas would be considered potentially occupied and would require mitigation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15) and stays at least 10 meters away from all host plant locations, then no mitigation is required (USFWS, 2007d). If construction occurs between October 16 and May 31 or within 10 meters of host plant locations, or within designated critical habitat, then (1) temporary impacts to the habitat shall be mitigated through onsite restoration of temporarily disturbed areas and offsite acquisition and preservation of an equal sized area of QCB-occupied habitat (a 2:1 mitigation ratio) and (2) permanent impacts shall be mitigated through offsite acquisition and preservation of QCB-occupied habitat (or QCB-designated critical habitat for impacts to designated critical habitat) at a 2:1 ratio (i.e., two acres acquired for each acre lost). Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation land to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). A USFWS permitted biologist shall be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same mitigation shall apply where the protocol pre-construction survey was conclusive for determining that the QCB is present and where construction would occur in designated critical habitat. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If host plant mapping is not possible during the pre-construction survey (e.g., drought prevents plant germination), then all suitable habitat (i.e., non-excluded habitat per the 2002 protocol) shall be considered occupied by the QCB and mitigated under the assumption that the QCB is present.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-7i) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the QCB or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired QCB habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) QCB habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all QCB habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Where suitable Quino checkerspot butterfly habitat occurs.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and Quino checkerspot avoidance/minimization/mitigation measures. If required, BLM and CPUC shall approve habitat acquisition plans and long-term management plans.
Effectiveness Criteria	Successful avoidance of impacts to the Quino checkerspot or impacts as allowed by the USFWS, and if necessary, implementation of mitigation land acquisition.
Responsible Agency	BLM, CPUC, and USFWS.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/ compensation strategies. A pre-construction, USFWS protocol survey shall be conducted for the toad in the construction zone (by a biologist permitted by the USFWS to handle the toad) where absence of the species has not been proven to conclusively define the impacts to occupied habitat. In the absence of this survey data, the mitigation acreages required below shall stand. Where the pre-construction survey determines the species is absent, the mitigation shall be reduced accordingly.
	(— B-7j) The removal of toad riparian breeding habitat shall occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	(— B-7j) Where the toad is present (or assumed to be present if no pre-construction survey is conducted), the construction zone shall be fenced with exclusion fencing to prevent toad access to it. The fencing shall be a silt-screen type barrier comprised of a minimum 24-inch high fence with the remainder (minimum 12 inches) anchored firmly against the ground. The fence may be buried if necessary to exclude toad access. The fence locations shall be identified by a USFWS permitted biologist and adjusted as necessary. Exclusion fencing shall be monitored daily by a qualified biologist (see Mitigation Measure B-1c) and maintained in its original condition by construction personnel for the entire length of the construction period in toad habitat. Pre- and post-exclusion fencing surveys within the construction zone shall be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. Prior to construction commencement, a minimum of three surveys shall be conducted by this biologist following installation of the fencing and prior to construction activities. One of these clearance surveys must take place no more than 24 hours prior to activity commencement. These surveys shall be conducted during appropriate climatic conditions and during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If conditions are not appropriate for arroyo toad movement during surveys, the biologist may attempt to elicit a response from the toads during nights (i.e., at least one hour after sunset), provided that temperatures are above 50°F, by spraying the project area with water to simulate a rain event. After the three clearance surveys outlined above have been completed, daily surveys shall be conducted each morning prior to the continuation of construction or maintenance activity. Any toads found shall be relocated to appropriate similar habitat outside project impact areas.
	(— B-7j) Mitigation for the loss of arroyo toad-occupied habitat shall be implemented as follows. Permanent impacts to occupied, arroyo toad breeding habitat shall include offsite acquisition and preservation of occupied arroyo toad breeding habitat at a 3:1 ratio. Permanent impacts to occupied, upland burrowing habitat shall include offsite acquisition and preservation of occupied, upland burrowing habitat at a 2:1 ratio. Temporary impacts to occupied breeding habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied, upland burrowing habitat shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied, upland burrowing habitat. Any acquired arroyo toad habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
	(— B-7j) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the arroyo toad or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired arroyo toad habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) arroyo toad habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all arroyo toad habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the arroyo toad occurs or has potential to occur.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to arroyo toads are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All brushing or grading taking place within occupied habitat of the coastal California gnatcatcher (defined as within 500 feet of any gnatcatcher sightings [USFWS, 2007b]) during construction shall be conducted from September 1 through February 14, which is outside the coastal California gnatcatcher breeding season.
	(— B-7l) When conducting all other construction activities during the coastal California gnatcatcher breeding season of February 15 through August 30, within habitat in which coastal California gnatcatchers are known to occur or have potential to occur, the following avoidance measures shall apply. A USFWS permitted biologist shall survey for coastal California gnatcatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If coastal California gnatcatchers are present, but not nesting, a USFWS permitted biologist shall survey for nesting coastal California gnatcatchers approximately once per week within 500 feet of the construction area for the duration of the activity in that area during the breeding season.
	(— B-7l) If/when an active nest is located, a 300-foot no-construction buffer (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction shall take place within this buffer until the nest is no longer active. However, if construction must take place within the 300-foot buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting coastal California gnatcatchers and the activities, and working in other areas until the young have fledged.
	(— B-7l) Mitigation for the loss of coastal California gnatcatcher-occupied habitat shall be implemented as follows. Permanent impacts to occupied habitat shall include offsite acquisition and preservation of occupied habitat at a 2:1 ratio. Temporary impacts to occupied habitat shall be mitigated at a 2:1 ratio and shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied habitat. Mitigation for the loss of unoccupied designated critical habitat for the gnatcatcher shall be implemented as follows. Permanent impacts to unoccupied designated critical habitat shall include offsite acquisition and preservation of designated critical habitat at a 2:1 ratio. Temporary impacts to unoccupied designated critical habitat shall include 1:1 onsite restoration. Impacts to coastal California gnatcatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. Any acquired coastal California gnatcatcher habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	(— B-7l) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the coastal California gnatcatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired coastal California gnatcatcher. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) coastal California gnatcatcher habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all coastal California gnatcatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Occupied gnatcatcher habitat.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to coastal California gnatcatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-8a: Conduct pre-construction surveys and monitoring for breeding birds. All vegetation clearing, except tree trimming or removal, shall take place between August 16 and January 14 (i.e., outside of the general avian breeding season of January 15 through August 15). Tree removal or trimming shall take place between September 16 and December 31 (i.e., outside the raptor breeding season of January 1 through September 15).
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) cannot occur completely outside the general avian breeding season, then pre-construction surveys for non-listed bird species' nests shall be conducted by a qualified biologist within 100 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 15 and August 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-8a) If project construction (not vegetation clearing or tree trimming/removal) including the use of helicopters cannot occur completely outside the raptor breeding season, then pre-construction surveys for active raptor nests shall be conducted by a qualified biologist within 500 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 1 and September 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (B-8a) If no active nests are observed, construction may proceed. If active nests are found, work may proceed provided that construction activity is 1) located at least 500 feet from raptor nests (USFWS, 2007b), 2) located at least 160 to 250 feet from occupied burrowing owl burrows (CDFG, 1995; see Mitigation Measure B-7d), 3) located at least 300 feet from listed bird species nests (see Mitigation Measure B-7e and B-7l), 4) located at least 100 feet from non-listed bird species nests, and 5) noise levels do not exceed 60 dB(A)hourly Leq at the edge of nesting territories (American Institute of Physics, 2005) as determined by a qualified biologist in coordination with a qualified acoustician. There may be a reduction of these buffer zones depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. In the case of raptors (except the burrowing owl), the noise level restriction stated above does not apply (USFWS, 2007b). Otherwise, if the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for construction in ABDSP), and USDA Forest Service (for alternatives with construction on National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring to ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-9a: Survey for bat nursery colonies. A CDFG-approved biologist shall conduct a habitat assessment for bat nursery colonies prior to any construction activity. Then, the approved biologist shall conduct a survey for bat nursery colonies or signs of such colonies prior to construction. Direct impacts to a nursery colony site shall not be allowed, and approach of, or entrance to, an active nursery colony site shall be prohibited. Before any blasting or drilling in the vicinity of a nursery colony site, the CDFG-approved biologist shall work with the construction crew to devise and implement methods to minimize potential indirect impacts to the nursery colony site from falling rock or substantial vibration (while a nursery colony is active). The methods shall include an option to halt any construction activity that would cause falling rock, substantial vibration impacts, or any other construction-related impact (including lighting used for night work) to a nursery colony as determined by the approved biologist, until the colony is inactive. Should falling rock block the entrance to a nursery colony site, the contractor shall work with the approved biologist to re-open an entrance to the site.
Location	Areas with potential to support bat nursery colonies (typically caves or rock crevices in the desert).
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure avoidance of impacts to bat nursery colonies.
Effectiveness Criteria	Successful avoidance of impacts to bat nursery colonies.
Responsible Agency	BLM, CPUC, and CDFG.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— B-10a: Utilize collision-reducing techniques in installation of transmission lines. The Applicant shall install the transmission lines utilizing Avian Power Line Interaction Committee standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994" (APLIC, 1994) as follows. • Placement of towers and lines shall not be located above existing towers and lines, topographic features, or tree lines to the maximum extent practicable. Power lines should be clustered in the vertical and horizontal planes aligned with existing geographic features or tree lines, and located parallel (rather than perpendicular) to prevailing wind patterns to the maximum degree feasible. • Additionally, overhead lines that are located in highly utilized avian flight paths shall be marked utilizing fixed mount Firefly Flapper/Diverters, swan flight diverter coils, or other diversion devices, if proven more effective, as to be visible to birds and to reduce avian collision with power lines.
	— (B-10a) Where such markers are installed, the Applicant shall fund a study to determine the effectiveness of the markers as a collision prevention measure since there are few, if any, studies that show if such markers work, especially on transmission lines (CEC, 2007). The Applicant shall develop a draft study protocol and submit it to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review. The Applicant shall continue to work with these agencies until approval of a final study protocol is obtained. If the study shows the markers to be ineffective, the Applicant shall coordinate with the Wildlife Agencies and State Parks (for markers in ABDSP) to develop alternate collision protection measures.
	— (B-10a) The Applicant shall implement an avian reporting system for documenting bird mortalities to help identify problem areas. The reporting system shall follow the format in Appendix C of "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006" (APLIC, 2006) or a similar format. The Applicant shall submit a draft reporting protocol and reporting system to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review and approval. The Applicant shall continue to work with these agencies until approval of a final reporting protocol and reporting system is obtained. The Applicant shall develop and implement methods to reduce mortalities in identified problem areas. The methods shall be approved by the Wildlife Agencies, State Parks (for problem areas in ABDSP), CPUC, and BLM prior to implementation. Bird mortality shall continue to be documented in the problem areas per the avian reporting system to determine the effectiveness of the mortality reduction methods and to determine if new methods need to be developed.
Location	Highly utilized avian flight paths
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure installation of markers. BLM and CPUC shall ensure that the Applicant funds and implements a study to document bird mortalities.
Effectiveness Criteria	Markers installed, bird mortality study implemented, and corrective measures taken.
Responsible Agency	CPUC, BLM, State Parks (for ABDSP), USFWS and CDFG
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-1	SDG&E would perform any detailed on-the-ground protocol surveys with regard to specific sensitive plant or wildlife species whose habitat would be impacted by the project based on final design in accordance with federal or State regulations or statutes. SDG&E would submit results of these surveys to the USFWS and CDFG ~~and consult on reasonable and feasible mitigation measures for potential impacts, prior to any ground disturbing activities in a particular area. Mitigation would prioritize avoidance as the primary means to address impacts. If avoidance is not feasible, then relocation/restoration would be implemented. Where relocation/restoration is not feasible or deemed not to fully address impacts, then mitigation though SDG&E's NCCP mitigation credits or if necessary compensation via another on- or offsite purchase or dedication of habitat at a ratio of 2:1 for impacts inside preserves and 1:1 for impacts outside of preserves would be identified and implemented~~. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
BIO-APM-3	Except when not feasible due to physical or safety constraints, all Project vehicle movement would be restricted to existing and constructed roads as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads. ~~New access road construction for the project would be allowed year-round. However, when feasible, every effort would be made to avoid constructing roads during the nesting season. When it is not feasible to keep vehicles on existing access roads or to avoid constructing new access roads during the nesting, breeding, or flight season, SDG&E would perform a site survey, or more as appropriate, in the area where the work is to occur. This survey would be performed to determine presence or absence of endangered nesting birds, or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable mitigation measures to avoid or minimize for potential impacts, prior to vehicle use off existing access roads or the construction of new access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys otherwise required by BIO-APM-1.~~ Parking or driving underneath oak trees is not allowed in order to protect root structures. In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities which could interfere with plant photosynthesis, a 15-mile-per-hour speed limit shall be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-4	The area limits of Project construction and survey activities would be predetermined based on temporary and permanent disturbance areas noted on final design engineering drawings with activity restricted to and confined within those limits. Survey personnel shall keep survey vehicles on existing roads. During Project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat would require prior approval from the project biological resource monitor in conformance with the APMs. Hiking off roads or paths for survey data collection is allowed year-round as long as other APMs are met. ~~Stringing of new wire and reconductoring for the project would be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on Project access roads. Where stringing requires that conductor drag on the brush or ground or vehicles leave Project access roads, SDG&E would perform a site survey (or more as appropriate) to determine presence/absence of endangered nesting birds or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable and feasible mitigation measures for potential impacts prior to dragging wire on the ground or through brush or taking vehicles off Project access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats are encountered in the field. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

BIO-APM-5	To the extent feasible, access roads would be built at right angles to the streambeds and washes; where not feasible for access roads to cross at right angles, SDG&E would limit roads constructed parallel to streambeds or washes to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or waters of the State. Streambed crossings and roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. Culverts would be installed where needed for right angle crossings, but rock crossings would be utilized across most right angle drainage crossings. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels and stream banks (e.g., structures would not be located within a stream channel, construction activities would avoid sensitive features). ~~Prior to construction in streambeds and washes, SDG&E would perform a pre-activity survey, or more as appropriate, to determine the presence/absence of endangered riparian species. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by the BIO-APM-1.~~ (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-6	In the construction, operation, and maintenance of the project, SDG&E would comply with all applicable environmental laws and regulations, including, without limitation, those regulating and protecting wildlife and its habitat. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-7	Littering is not allowed. Project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris would remain in the right-of-way following completion of construction. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-8	Prior to construction, plant population boundaries designated as sensitive ~~by USFWS or CDFG and other resources designated sensitive by SDG&E and resource agencies~~ would be clearly delineated. ~~with clearly visible flagging or fencing, which shall remain in place for the duration of construction.~~ Flagged areas would be avoided to the extent practicable during construction activities in that area. ~~Where these areas cannot be avoided, focused surveys for covered plant species shall be performed in conformance with BIO-APM-1, and the responsible resource agency(s) would be consulted for appropriate mitigation and/or revegetation measures prior to disturbance. Notification of presence of any covered plant species to be removed in the work area would occur within ten (10) working days prior to Project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS nor CDFG has removed such plant(s) within ten (10) working days following written notice, SDG&E may proceed with work and cause a take of such plant(s), if minimization measures are not implemented.~~ (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

BIO-APM-10	No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms shall be prohibited in all project areas except for those used by security personnel. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-11	Feeding of wildlife is not allowed. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-12	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-13	Plant or wildlife species may not be collected for pets or any other reason. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-14	~~All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife is located in the trench or excavation, the onsite biological resource monitor shall be called immediately to remove them if they cannot escape unimpeded. The onsite biological resource monitor would make required contacts with the USFWS and CDFG resource personnel and obtain verbal approval prior to removing any entrapped wildlife.~~ If the biological resource monitor is not qualified to remove the entrapped wildlife, a recognized wildlife rescue agency (such as Project Wildlife) may be employed to remove the wildlife and transport them safely to other suitable habitats. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-15	Emergency repairs may be required during the construction and maintenance of the project to address situations (e.g., downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs the APMs shall be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage would be reported to the project biological construction monitor, who would promptly submit a written report of such impacts to the USFWS and CDFG and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological construction monitor would develop a reasonable and feasible mitigation plan consistent with the APMs and any permits previously issued for the project by the governmental agencies. (SDG&E)
Location	Entire project area.
Timing	During and post construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
BIO-APM-16	Environmentally sensitive tree trimming locations for the project would be identified in SDG&E's existing vegetation management ~~tree trim~~ database utilized by ~~tree~~ trim contractors. ~~The biological field construction monitor shall be contacted prior to~~ Trimming ~~in environmentally sensitive areas Whenever feasible, trees in environmentally sensitive areas, such as areas of riparian or native scrub vegetation,~~ would be scheduled ~~for trimming~~ during non-sensitive (i.e., outside breeding or nesting) times. ~~Where trees cannot be trimmed during non-sensitive times, SDG&E would perform a site survey, or more as appropriate, to determine presence or absence of endangered nesting bird species in riparian or native scrub vegetation. SDG&E would submit results of this survey to the USFWS and CDFG and consult on mitigation measures for potential impacts, prior to tree trimming in environmentally sensitive areas. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1.~~ Where riparian areas with overstory vegetation are crossed, tree removal (i.e., clear-cut) widths would be varied where feasible to minimize visual landscape contrast and to maintain habitat diversity at established wildlife corridor edges. Where tree removal widths cannot be varied, SDG&E would consult with the USFWS and CDFG to develop alternative tree removal options that could reasonably maintain edge diversity. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-17	All new access roads or spur roads constructed as part of the project that are not required as permanent access for future Project maintenance and operation would be permanently closed. ~~Where required, roads would be permanently closed using the most effective feasible and least environmentally damaging methods appropriate to that area with the concurrence of the underlying landowner and the governmental agency having jurisdiction (e.g., stockpiling and replacing topsoil or rock replacement). This would limit new or improved accessibility into the area.~~ Mowing of vegetation can be an effective method for protecting the vegetative understory while at the same time creating access to the work area. Mowing should be used when permanent access is not required since, with time, total revegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing would be necessary to maintain permanent access. The project biological construction monitor shall conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 14-foot-wide area on straight portions of the road and a 16- to 20-foot-wide area at turns, and that the mowing height is no less than 4 inches from finished grade. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

BIO-APM-18	In areas designated as sensitive by SDG&E or the resource agencies, to the extent feasible structures and access roads would be designed to minimize impacts to sensitive features. These areas of sensitive features include but are not limited to high-value wildlife habitats, sensitive vegetation communities, and high value plant habitats, and/or to allow conductors to clearly span the features, within limits of standard structure design. If the sensitive features cannot be completely avoided, structures and access roads would be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in high value wildlife habitats, SDG&E would perform a site survey to determine presence or absence of endangered species in sensitive habitats. SDG&E would submit results of this survey to the USFWS and consult on mitigation measures for potential impacts, prior to constructing structures or access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. Where it is not feasible for access roads to avoid sensitive water resource features, such as streambed crossings, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, roads constructed parallel to streambeds would be limited to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. (SDG&E)
Location	Entire project area where sensitive features are present.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-19	Restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM under Section 7 of the Endangered Species Act (ESA) would be implemented and complied with as specified in the Biological Opinion (BO) of the USFWS. The Section 7 process would be used to obtain an incidental take authorization through a compensation-based mitigation program for permanent impacts to occupied sensitive plant and animal habitat at a ratio of 1:1 or 2:1 based on site-specific studies, as outlined in BIO-APM-1. The Section 7 process may include consideration of SDG&E's existing NCCP mitigation credits as compensation for project impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-20	In construction areas where re-contouring is not required, vegetation shall be left in place wherever possible to avoid excessive root damage and allow for re-sprouting. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-21	Structures shall be constructed to conform to "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc. 1981), to minimize impacts to raptors. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

BIO-APM-22	~~Species identified as sensitive by the land managing agency shall be salvaged where avoidance is not feasible in accordance with State law. Generally,~~ Salvage may include removal and stockpiling for replanting. ~~on site, removal and transplanting out of surface disturbance area, removal and salvage by private individuals, and removal and salvage by commercial dealers, or any combination.~~ (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-23	Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil located in areas containing sensitive habitat shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation. Topsoil located in developed or disturbed areas is excluded from this APM. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-24	~~Construction holes left open overnight shall be covered.~~ Covers shall be secured in place ~~nightly prior to workers leaving the site~~ and shall be strong enough to prevent livestock or wildlife from falling through ~~and into a hole~~. ~~Holes and/or trenches shall be inspected prior to filling to ensure absence of mammals and reptiles.~~ (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-25	Disturbed soils shall be revegetated ~~with an appropriate seed mix that does not contain invasive non-native plant species~~. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-26	Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
BIO-APM-27	1. Prior to construction, SDG&E shall remove all existing raptor nests from structures that would be affected by project construction. 2. Removal of nests shall occur outside the raptor breeding season (January to July). 3. If it is necessary to remove an existing raptor nest during the breeding season, a qualified biologist shall survey the nest prior to removal to determine if the nest is active. A nest would be considered active if it contains eggs or fledglings. If the nest does not contain eggs or nestlings and is inactive, it shall be removed promptly. If a nest is determined to be active, the nest shall not be removed and the biologist shall monitor the nest to ensure nesting activities/breeding activities are not disrupted. If the biological monitor determines that project activities are disturbing or disrupting nesting activities, the monitor shall make feasible recommendations to reduce the noise and/or disturbance in the vicinity of the nest. (SDG&E)

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-28	Potential roost trees that must be removed will be surveyed and identified in the field for application of the following procedures: *Before felling the tree:* 1. Trees should be removed under the warmest possible conditions. 2. Peel any sections of the exfoliating bark off the tree gently and search for any roosting bats underneath. 3. Create noise and vibrations on the tree itself. Noise and vibrations include: a. Running chain saw and making shallow cuts in the trunk (where bark has been peeled off). b. Striking the tree base with fallen limbs or tools such as hammers. *Felling the tree:* 4. Disturbance should be near-continuous for ten minutes, and then another ten minutes should pass, before the tree is felled. 5. When cutting sections of the bole, if any hollows or cavities (such as woodpecker holes) are discovered, be especially careful to check for the presence of bats in those areas. Cut slowly and carefully at all times. If possible, section bole near cavities to focus noise and vibrations, and open hollows by sectioning off a side. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
BIO-APM-29	Reduce construction night lighting on sensitive habitats. Exterior lighting within the project area adjacent to preserved habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable. Vehicle traffic associated with project activities would be kept to a minimum volume and speed to prevent mortality of nocturnal wildlife species that may be moving about. (SDG&E)
Location	Entire project area where sensitive habitats are present.
Timing	During construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-1a: Reduce visibility of construction activities and equipment. Substation construction sites and all staging and material and equipment storage areas including storage sites for excavated materials, and helicopter fly yards shall be appropriately located away from areas of high public visibility. If visible from nearby roads, residences, public gathering areas, or recreational areas, facilities, or trails, construction sites and staging areas and fly yards shall be visually screened using temporary screening fencing. Fencing will be of an appropriate design and color for each specific location. Additionally, construction in areas visible from recreation facilities and areas during holidays and periods of heavy recreational use shall be avoided.
	— (V-1a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the BLM and CPUC for review and approval at least 60 days prior to the start of construction. Where the project crosses lands administered by other public agencies (e.g., Forest Service, Anza-Borrego Desert State Park), construction plans shall also be submitted to those agencies for review and approval within the same 60-day timeframe.
Location	Mitigation Measure V-1a applies to all sites and all routes.
Monitoring / Reporting Action	CPUC and BLM to verify in the field during construction and following construction

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Effectiveness Criteria	Project construction sites (static), construction yards, and staging areas will be screened during construction and all construction areas will appear in their original or improved condition following construction.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-1b: Reduce construction night lighting impacts. SDG&E shall design and install all lighting at construction and storage yards and staging areas and fly yards such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-1b) SDG&E shall submit a Construction Lighting Mitigation Plan to the BLM (only if on BLM lands), Forest Service (only if on National Forest lands), Anza-Borrego Desert State Park (for Park lands) and CPUC (for all areas) for review and approval at least 90 days prior to the start of construction or the ordering of any exterior lighting fixtures or components, whichever comes first. SDG&E shall not order any exterior lighting fixtures or components until the Construction Lighting Mitigation Plan is approved by the reviewing agency. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied
Location	Mitigation Measure V-1b applies to all static sites.
Monitoring / Reporting Action	CPUC and BLM to review and approve the Construction Lighting Mitigation Plan prior to construction and to monitor implementation in the field during construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2a: Reduce in-line views of land scars. Construct access or spur roads at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. Contour grading should be used where possible to better blend graded surfaces with existing terrain.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (V-2a) All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following: • Definition of access roads with sensitive viewing areas from which visibility of access roads is a concern. • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design. • "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover. • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each access road (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route).
	— (V-2a) SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC and BLM, as well as the Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring / Reporting Action	CPUC and BLM to review construction plans prior to start of construction and verify compliance during construction.
Effectiveness Criteria	In-line views of land scars from grading will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2b: Reduce visual contrast from unnatural vegetation lines. In those areas where views of land scars are unavoidable, the boundaries of disturbed areas shall be aggressively revegetated to create a less distinct and more natural-appearing line to reduce visual contrast. Furthermore, all graded roads and areas not required for on-going operation, maintenance, or access shall be returned to pre-construction conditions. In those cases where potential public access is opened by construction routes, SDG&E shall create barriers or fences to prevent public access and patrol construction routes to prevent vandalized access and litter clean-up until all vegetation removed returns to its pre-project state. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
	— (V-2b) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of unnatural vegetation lines will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2c: Reduce color contrast of land scars on non-Forest lands. For non-USFS-administered land areas where views of land scars from sensitive public viewing locations are unavoidable, disturbed soils shall be treated with Eonite or similar treatments to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings (Eonite and Permeon are commercially available chemical treatments that "age" or oxidize rock and are used specifically for coloring concrete or rock surfaces to tone down glare and contrast and simulate naturally occurring desert varnish). SDG&E will consult with the Authorized Officer (as determined by the CPUC and BLM as appropriate) on a site-by-site basis for the use of Eonite.
	— (V-2c) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-2d: Construction by helicopter. In those areas where long-term land-scarring and vegetation clearance impacts would be visible to sensitive public viewing locations, or where construction would occur on slopes over 15 percent, SDG&E will consult with the Authorized Officer and appropriate land management agency, on a site-by-site basis regarding the use of helicopter construction techniques and the prohibition of access and spur roads. Agency consultations must be conducted and approvals received at least 120 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public or where construction would occur on slopes over 15 percent.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line (USFS Scenery Conservation Plan). CPUC and USFS to review Scenery Conservation Plan at least 120 days prior to start of construction and verify implementation following construction.
Location	Locations of all land scars and vegetation clearance on USFS – administered lands.
Monitoring / Reporting Action	CPUC and USFS to review Scenery Conservation Plan prior to start of construction and verify implementation following construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, USFS
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

MITIGATION MEASURE	V-3a: Reduce visual contrast of towers and conductors. The following design measures shall be applied to all new structure locations, conductors, and re-conductored spans, in order to reduce the degree of visual contrast caused by the new towers and conductors:
	• All new conductors and re-conductored spans are to be non-specular in design in order to reduce conductor visibility and visual contrast.
	• All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Sensitive viewing locations have been defined by Cleveland National Forest as campgrounds, trailheads, trails, wilderness areas, backcountry roads, heavily traveled roads, and overlooks. Access roads of concern are those that would be visible as they directly approach existing or proposed towers in a straight line from locations immediately downhill of the structures. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following:
	  • Definition of towers with sensitive viewing areas from which visibility of access roads is a concern.
	  • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design.
	  • "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
	  • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each tower (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route.

Location	Applies to all tower locations and route segments.
Monitoring / Reporting Action	CPUC and BLM to review Project Design Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— V-7a: Reduce visual contrast associated with ancillary facilities. SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The Surface Treatment Plan shall include: • Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture • A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation) • Two sets of brochures and/or color chips for each proposed color • A detailed schedule for completion of the treatment • A procedure to ensure proper treatment maintenance for the life of the project.
	— (V-7a) SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC. Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Surface Treatment Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-7b: Screen ancillary facilities. SDG&E shall provide a Screening Plan for screening vegetation, walls, and fences that reduces visibility of ancillary facilities (except Imperial Valley Substation) and helps the facility blend in with the landscape. The use of berms to facilitate project screening may also be incorporated into the Plan. SDG&E shall submit the Plan to the BLM and CPUC for review and approval at least 90 days prior to installing the landscape screening. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The plan shall include but not necessarily be limited to: • An 11" x 17" color simulation of the proposed landscaping at 5 years • A plan view to scale depicting the project and the location of screening elements • A detailed list of any plants to be used; their size and age at planting; the expected time to maturity, and the expected height at five years and at maturity
	— (V-7b) SDG&E shall complete installation of the screening prior to the start of project operation. SDG&E shall notify the BLM and CPUC within seven days after completing installation of the screening, that the screening components are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Screening Plan prior to start of construction and verify implementation following construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-21a: Reduce night lighting impacts. SDG&E shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-21) SDG&E shall submit a Lighting Mitigation Plan to the CPUC for review and approval at least 90 days prior to ordering any permanent exterior lighting fixtures or components. SDG&E shall not order any exterior lighting fixtures or components until the Lighting Mitigation Plan is approved by the CPUC. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.
Location	Applies to all permanent ancillary facilities including substations, switchyards, series capacitor banks, and optical repeater stations.
Monitoring / Reporting Action	CPUC and BLM to review Lighting Mitigation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	V-45a Prepare and implement Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify specific actions that will minimize the project's visible disturbance to the naturally established scenery and to establish final direction to best achieve the spirit and intent of the Scenic Integrity Objectives of the Cleveland National Forest Land and Resource Management Plan. To achieve the greatest consistency with the Scenic Integrity Objectives, the project shall detail and integrate the following design recommendations into the Scenery Conservation Plan: • Power Line and Support Towers. Transmission lines shall be nonspecular (nonreflective) and neutral in coloration. Support towers shall be custom-colored with a flat, non-reflective finish, to visually blend with native vegetation colors to appear as visually transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape. • Distance Zones. The Applicant shall consult with the Forest Service on tower design for any approved route on Forest lands and implement tower styles in accordance with agency direction. In general, the USFS requires that support towers within approximately one mile of sensitive primary viewpoints and without a backdrop be a monopole design with a simple, clean and less industrial appearance and support towers viewed beyond one mile from sensitive viewpoints or only at distance be lattice towers. • Vegetation Clearing. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line. • Roads. No new access or spur roads, or improvements (reconstruction/expansion) to existing roads are to be constructed in the following areas: (1) where ground slopes exceed 15%, or (2) on Forest lands subject to a HIGH Scenic Integrity Objective (SIO) where the new access or spur road would be visible from primary travel (paved) roads or the Pacific Crest National Scenic Trail, regardless of ground slope. Existing roads needing reconstruction/expansion on other areas of the forest shall be configured to minimize the creation of cut/fill slopes. Where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species. • Structures. All structures and structural elements, that may be constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character. • Evaluation of Effects. The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives as viewed from sensitive viewsheds. • Off-Site Mitigation. Where project features create unavoidable and permanent negative scenery effects that are inconsistent with CNF Plan Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas in new viewsheds agreeable to the Forest shall be purchased and assigned to the Forest for its stewardship.
Location	Applies to all tower locations, facilities, and route segments within Cleveland National Forest Lands.
Monitoring / Reporting Action	CNF to review Scenery Conservation Plan within one year after license issuance, or prior to any ground disturbing activities.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CNF
Timing	Pre-, during and post construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures. In order to reduce the structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures, SDG&E shall reconsider the location of the transition structures and attempt to lower their height by either relocating the next tower to shorten the span, or by moving the transition structures further downslope. This measure shall be implemented by SDG&E's submittal of a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the transition structures, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Chocolate Canyon Option.
Monitoring / Reporting Action	CPUC to review and approve SDG&E's fine-tuning of the location of the transition structures and final construction plants 120 days prior to start of construction.
Effectiveness Criteria	The visibility of the Chocolate Canyon Option transition structures will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-68a: Eliminate skylining of ridgeline towers and conductors. In order to eliminate the skylining of ridgeline towers and conductors, the ridgeline towers shall be relocated to elevations sufficiently low on the ridge to eliminate structure skylining when viewed from Moreno Boulevard, SR67, and residences on the slopes west of SR67. SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC for review and approval at least 120 days prior to the start of construction.
Location	Applies to the Interstate 8 Alternative.
Monitoring / Reporting Action	CPUC to review and approve SDG&E final construction plans at least 120 days prior to the start of construction.
Effectiveness Criteria	Structure skylining when viewed from Moreno Boulevard, SR67, will be substantially reduced.
Responsible Agency	CPUC
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-1	At highway, canyon, and trail crossings, structures shall be placed at the maximum feasible distance from the crossing to reduce visual impacts as long as other significant resources are not negatively affected. (SDG&E)
Location	Entire project area along highway, canyon, and trail crossing.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-2	SDG&E will use dulled metal finish transmission structures and non-specular conductors in visually sensitive areas including the ABDSP, new ROW in the Central Link and Peñasquitos Junction to Peñasquitos Substation in the Coastal Link. (SDG&E)
Location	Entire project area in visually sensitive areas.
Timing	During construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

VR-APM-3	Where the line parallels existing transmission lines, the spacing of structures shall match the existing transmission structures, where feasible, to minimize visual effects. (SDG&E)
Location	Entire project area where the line parallels existing transmission lines (e.g. MP I8-0 to MP I8-35)
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-4	No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-5	Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence where possible. SDG&E will consult with affected property owners on structure siting to reduce land use and visual impacts. (SDG&E)
Location	Entire project area near residences.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
VR-APM-6	In scenic view areas as designated by land management agencies, structures would be placed to avoid sensitive features and/or allow conductor to clearly span the features, within limits of standard design where possible. (SDG&E)
Location	Entire project area in scenic view areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— L-1a: Prepare Construction Notification Plan. Forty-five days prior to construction, SDG&E shall prepare and submit a Construction Notification Plan to the CPUC and the BLM for approval. The Plan shall identify the procedures SDG&E will use to inform property and business owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. The plan shall address at a minimum the following components: • Public notice mailer. A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, or require a detour to access existing residential properties, retail and commercial businesses, wilderness and recreation facilities, and public facilities (e.g., schools and memorial parks). The notice shall state the type of construction activities that will be conducted, and the location and duration of construction, including all helicopter activities. SDG&E shall mail the notice to all residents or property owners within 1,000 feet of the right-of-way, any property owners or tenants that could be impacted by construction activities and specific public agencies with facilities that could be impacted by construction. If construction delays of more than seven days occur, an additional notice shall be prepared and distributed.
	— (L-1a) • Newspaper advertisements. Fifteen days prior to construction, within a route segment, notices shall be placed in local newspapers and bulletins, including Spanish language newspapers and bulletins. The notice shall state when and where construction will occur and provide information on the public liaison person and hotline identified below. If construction is delayed for more than seven days, an additional round of newspaper notices shall be placed to discuss the status and schedule of construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (L-1a) • Public venue notices. Thirty days prior to construction, notice of construction shall be posted at public venues such as trail crossings, rest stops, desert centers, resource management offices (e.g., Bureau of Land Management field offices, Anza-Borrego Desert State Park offices and campgrounds, Cleveland National Forest Ranger Stations), and other public venues to inform residents and visitors to the purpose and schedule of construction activities. For public trail closures, SDG&E shall post information on the trail detour at applicable resource management offices and post the notice on the trail within two miles of the detour. For recreation facilities, the notice shall be posted along the access routes to known recreational destinations that would be restricted, blocked, or detoured and shall provide information on alternative recreation areas that may be used during the closure of these facilities.
	— (L-1a) • Public liaison person and toll-free information hotline. SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring property owners about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and shall develop procedures for responding to callers. Procedures for handling and responding to calls shall be addressed in the Construction Notification Plan.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E submits Construction Notification Plan, which identifies complete notification and public inquiry process.
Effectiveness Criteria	Residents, landowners and others potentially impacted are informed of construction activities; procedures are established and documented for taking and responding to construction comments and concerns.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	L-1c: Coordinate with MCAS Miramar. At least 90 days before construction, SDG&E shall provide all required project engineering details to MCAS Miramar for review and approval. Information provided shall include access roads to be used, expanded, or added. Information shall also include completed and authorized FAR Part 77 evaluations (Form 7460-1) for all objects exceeding the Outer Horizontal Surface (978 Ft AMSL) at MCAS Miramar. SDG&E shall provide the CPUC and BLM with evidence of its coordination with MCAS Miramar at least 60 days prior to the start of construction. When any towers are to be removed on MCAS Miramar, all portions of the towers/poles shall be removed. Cutting poles and leaving buried portions is not acceptable on MCAS Miramar lands.
Location	Construction activity within MCAS Miramar.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E coordinates with MCAS Miramar.
Effectiveness Criteria	SDG&E submits documentation of its coordination with MCAS Miramar.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— L-2b: Revise project elements to minimize land use conflicts. At least 90 days prior to completing final transmission line design for the approved route, SDG&E shall notify landowners of parcels through which the alignment would pass regarding the specific location of the ROW, individual towers, staging areas, pull sites, access roads, or other facilities associated with the project that would occur on the subject property or within 1,000 feet of the property. The notified parties shall be provided at least 30 days in which to identify conflicts with any existing structures or planned development on the subject property and to work with SDG&E to identify potential reroutes of the alignment that would be mutually acceptable to SDG&E and the landowner. Property owners whose land may be divided into potentially uneconomic parcels shall be afforded this same opportunity, even if development plans have not been established. SDG&E shall endeavor to accommodate these reroutes only to the extent that they are reasonable and feasible, do not create a substantial increase in cost, and do not create adverse impacts to resources or to other properties that would be greater in magnitude than impacts that would occur from construction and operation of the alignment as originally planned.
	— (L-2b) At or before the time property owners are notified and based on SDG&E's own review of the alignment and facilities, SDG&E shall provide CPUC and BLM a written report identifying properties that are suspected of having a land use conflict as described above. This report shall identify and characterize existing buildings within the ROW and residences or occupied structures within or adjacent to the ROW, with which the alignment or other permanent facilities may conflict.
	— (L-2b) SDG&E shall provide a written report to the CPUC and BLM providing evidence of the notice provided to landowners and copies of any responses to the notice within 30 days of the notice closing date for responses. SDG&E shall also identify in the documentation submitted to CPUC and BLM whether reroutes recommended by the landowner or SDG&E can be accommodated. Where they cannot be accommodated, the reasons shall be provided. SDG&E shall provide information sufficient for the CPUC and BLM to determine that the reroute creates no more adverse impact than the originally planned alignment location. SDG&E shall include environmental information consistent with that required for a Variance (as defined in Section I, Mitigation Monitoring). Where a reroute is proposed, the CPUC and BLM will review and agree to accept or reject individual reroutes. CPUC and BLM also may recommend compromise reroutes for any of the parcels for which responses were provided to SDG&E in a timely fashion.
	— (L-2b) The following specific modifications shall be developed by SDG&E, following the procedures defined above: Interstate 8 Alternative: MP I8-87 through I8-89.5, High Meadow Ranch. The initial alignment shall be shifted approximately 200 feet to the west, downslope, in order to minimize visual effects of the towers on the development. See Figure Ap.11C-56 for map of this area. Interstate 8 Alternative: MP I8-92 to I8-92.7, Private home. The alignment shall be shifted to the east side of Highway 67, to a point just south of the Preserve parking lot, where the alignment would cross Highway 67 to join the Proposed Project route. See Figure Ap.11C-57 for map of this area. Star Valley Option Revision: SDG&E shall work with affected landowners to refine the route in order to minimize effects on private properties along Star Valley Road.
Location	Along Interstate 8 Alternative and other Alternatives along the SWPL corridor
Monitoring / Reporting Action	Confirm receipt of notice and results prior to final design
Effectiveness Criteria	Provision of a report indicating contents of notice, distribution of notice, and any responses and their resolution.
Responsible Agency	CPUC and BLM
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-1	SDG&E will provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and will appoint a public affairs officer to address public concerns or questions. (SDG&E)
Location	Entire project area where residences are within 300 feet.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-2	Place new transmission structures more than 330 feet from an existing residence to the extent feasible. (SDG&E)
Location	Entire project area near existing residences.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-4	To facilitate access to properties obstructed by construction activities, SDG&E will notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-5	To remedy encroachment and safety conflicts with irrigation canals and flood management structures during construction, SDG&E will coordinate construction activities with appropriate water management representatives. (SDG&E)
Location	Entire project area along irrigation canals and flood management structures.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-6	The limits of construction activities within and outside the ROW will typically be predetermined, with activity restricted to and confined within those limits. The ROW boundary and limits of construction activity inside and outside the ROW will be flagged in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-7	To the extent feasible, project facilities would be installed along the edges or borders of private property, open space parks, and recreation areas. When it is not feasible to locate project facilities along property borders, SDG&E would consult with affected property owners to identify facility locations that create the least potential impact to property and are mutually acceptable to property owners to the extent feasible. SDG&E would pay just compensation to affected property owners based upon the impact to the property caused by the facility locations identified by SDG&E. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
LU-APM-8	SDG&E will continue its current coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans. (SDG&E)
Location	San Diego and Imperial Counties and the City of San Diego
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
LU-APM-10	SDG&E will match structure locations with existing transmission facilities where feasible and appropriate. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area. No less than 60 days prior to construction, SDG&E shall coordinate construction activities and the project construction schedule with the authorized officer for the recreation areas listed below. SDG&E shall schedule construction activities to avoid heavy recreational use periods in coordination with and at the discretion of the authorized officer. SDG&E shall locate construction equipment to avoid temporary preclusion of recreation areas in accordance with the recommendation of the authorized officer. SDG&E shall document its coordination efforts with the authorized officer and provide this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • BLM Dunaway Camp • Juan Bautista de Anza National Historic Trail (County of San Diego Regional Trail) • Trans-County Trail (County of San Diego Regional Trail) • Pacific Crest National Scenic Trail (County of San Diego Regional Trail) • California Riding and Hiking Trail (County of San Diego Regional Trail) • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in or adjacent to the recreation areas listed above.
Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers for the listed recreation areas.
Effectiveness Criteria	Construction activities are scheduled to avoid heavy recreational use periods; construction equipment is located to avoid temporary preclusion of recreation areas.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	WR-1b: Provide temporary detours for trail users. No less than 60 days prior to construction, SDG&E shall coordinate with the authorized officer of the trails listed below to establish temporary detours of the trails to avoid construction area hazards, if the trail is deemed unsafe to use during construction. Should new trail segments be constructed as detours during construction, the temporary new trail segments would be sited to avoid sensitive resources, in coordination with the authorized officer of the trail or recreation area, and would be restored to pre-construction condition by SDG&E when SRPL construction is complete, if required by the authorized officer of the trail or recreation area. SDG&E shall post a public notice of the temporary trail closure and information on the trail detour. SDG&E shall document its coordination efforts with the authorized officer and submit this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction. • Juan Bautista de Anza National Historic Trail • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Mission Trails Regional Park (Fortuna, Rim, and Quarry Loop Trails)
Location	Construction activity in or adjacent to the trails listed above.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed trails.
Effectiveness Criteria	Temporary detours of the trails are established to avoid construction area hazards; temporary new trail segments are sited to avoid sensitive resources and restored to pre-construction condition when construction is complete; public is notified of trail closures and detours.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	WR-1c: Coordinate with local agencies to identify alternative recreation areas. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local parks and recreational facilities listed below at least 60 days before construction in order to identify alternative recreation facilities that may be used by the public during construction. SDG&E shall post a public notice at recreation facilities that are to be closed or where access would be limited during project construction. SDG&E shall document its coordination efforts with the parks and recreation departments and provide this documentation to the CPUC, BLM, and all affected park jurisdictions 30 days prior to construction. • BLM Dunaway Camp • Juan Bautista de Anza National Historic Trail • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • Sycamore Canyon Open Space Preserve • Mission Trails Regional Park
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC, BLM, and affected park jurisdictions verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed parks and recreational facilities.
Effectiveness Criteria	Alternative recreation facilities are identified for use by public during construction; public notice is posted at recreation facilities that are closed or have limited access during construction.
Responsible Agency	CPUC; BLM; affected park jurisdictions.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
	WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation. SDG&E shall relocate the overhead 500 kV transmission line along the southern boundary of JAM properties as shown in Figure E.2.1-b to shorten the route and minimize effects on BLM land, Forest land, and private property. This reroute and its ground-disturbing components shall avoid Back Country Non-Motorized land use zones of the Cleveland National Forest, while also minimizing towers and disturbance on private property. SDG&E shall submit a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the BCD Alternative Revision, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.
Location	BCD Alternative Revision
Monitoring / Reporting Action	Memo and final construction plans to CPUC
Effectiveness Criteria	A reroute is developed that minimizes impacts to Back Country Non-Motorized zones and towers/disturbance on private lands
Responsible Agency	CPUC; BLM; USFS
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	— WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area. Where the Proposed Project crosses the recreation areas listed below, SDG&E shall coordinate with the authorized officer for the recreation area to determine specific tower site and spur road locations in order to minimize impacts to recreational resources. If it is not feasible to site structures outside of a park/preserve, compensation shall be required for permanent impacts (i.e., structure footings, access roads not dually used as trails) to park/preserve land at a 1:1 ratio. However, this mitigation measure is superseded by biological resource Mitigation Measure B-1a, which specifies restoration and compensation ratios for affected vegetation. In cases where the impacts to recreational resources occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (WR-3a) In consultation with the authorized officer of the trail or recreation area, access roads shall not be located on trails (e.g. , PCT, Trans-County Trail) unless the authorized officer determines that the construction of new access roads would result in greater impacts than modifying the trail for use as an access road. If it is not feasible to site transmission structures off of a trail, SDG&E shall provide full funding for relocation of trail segments, including planning and trail construction, at location(s) identified by the authorized officer of the trail or recreation area. Trail segment relocation shall maintain the connectivity of regional and community trails.
	— (WR-3a) This coordination shall occur no less than 60 days prior to the start of construction. SDG&E shall document its coordination with the authorized officer and shall submit this documentation to the CPUC, BLM, and ABDSP, at least 30 days prior to project construction. • Juan Bautista de Anza National Historic Trail • Cleveland National Forest • Trans-County Trail • Pacific Crest National Scenic Trail • California Riding and Hiking Trail • San Vicente Highlands Open Space Preserve
Location	Central Link; Anza-Borrego Link; Inland Valley Link
Monitoring / Reporting Action	CPUC, BLM, and ABDSP verify that SDG&E submits documentation of coordination efforts with the authorized officers of the listed recreation areas.
Effectiveness Criteria	Tower sites and spur road locations minimize impacts to recreation resources; roads are not located on trails unless there would be greater impacts from doing otherwise.
Responsible Agency	CPUC, BLM, and ABDSP.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2a	Advance notice of restriction of conflicts with access routes to recreational use areas will be provided. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2b	No construction that affects trail use will be conducted in that area on federal holidays. (SDG&E)
Location	Entire project area near trails (recreational use areas).
Timing	During construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

R-APM-2c	SDG&E will coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department and the California State Parks Department (for ABDSP), respectively, before construction begins in these areas. (SDG&E)
Location	Entire project area near parklands and trail systems.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2d	Signs directing vehicles to alternative park access and parking will be posted in the event construction temporarily obstructs parking areas near trailheads. (SDG&E)
Location	Entire project area in areas near trailheads.
Timing	During construction.
Status	
Review / Approval Status	
R-APM-2e	Signs advising recreation users of construction activities and directing them to alternative trails or bikeways will be posted on both sides of all trail intersections or as determined through SDG&E's coordination with the respective jurisdictional agencies. (SDG&E)
Location	Entire project area near recreational use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
R-APM-2f	Where helicopters are used for construction, signage advising equestrians of construction timeframes with helicopter use will be posted at all equestrian trail-access points within the vicinity of the flight paths. These signs will be checked and maintained regularly. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
R-APM-3a	Construction-related traffic shall be restricted to routes approved by the authorized agencies. New access roads or cross-county vehicle travel will not be permitted on ABDSP or state lands unless prior written approval is given by the authorized ABDSP officer. Authorized roads used by the project shall be rehabilitated when construction activities are complete as coordinated with California State Parks. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	AG-1a: Avoid interference with agricultural operations. The Applicant shall coordinate with property owners and tenants to ensure that project construction will be conducted so as to avoid or minimize interference with agricultural operations. Agricultural operations include, but are not limited to, the use of farm vehicles and equipment, access to property; water delivery, drainage, and irrigation. This shall occur sixty (60) days prior to the start of project construction.
Location	Locations where the project could interfere with agricultural operations
Monitoring / Reporting Action	CPUC/BLM monitors verify that signed agreements between SDG&E and affected landowners have been submitted, and ensure that construction schedules occur during time periods agreed upon in the agreement and that agreed upon restoration occurs.
Effectiveness Criteria	Affected landowners are in agreement with construction activities

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Responsible Agency	CPUC, BLM Offices
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	AG-1c: Coordinate with grazing operators. SDG&E shall coordinate with grazing operators to ensure that agricultural productivity and animal welfare are maintained both during and after construction to the maximum extent feasible. Coordination efforts will address issues including, but not necessarily limited to: • Interference with access to water (e.g., provide alternate methods for livestock access to water) • Impairment of cattle movements (e.g., provide alternate routes; reconfigure fencing/gates) • Removal and replacement of fencing (e.g., during construction install temporary fencing/barriers, as appropriate, and following construction restore equal or better fencing to that which was removed or damaged) • Impacts to facilities such as corrals and watering structures, as well as related effects such as ingress/egress, and management activities (e.g., replacement of damaged/removed facilities in kind; provide alternate access) This shall occur Sixty (60) days prior to the start of project construction and Thirty (30) days after construction on each property.
Location	Locations where the project could interfere with grazing operations
Monitoring / Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Coordination has been conducted with appropriate landowners or tenants and reasonable procedures to implement the mitigation measure have been agreed to by all parties.
Responsible Agency	CPUC, BLM Offices
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
LU-APM-3	1. Farmers will be compensated for losses of crops along ROW based upon a professional appraisal. 2. Construction activities in croplands will be scheduled to minimize or avoid planting, growing, and harvesting seasons to the extent feasible. (SDG&E)
Location	Entire project area near agriculture lands.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1b: Avoid and protect potentially significant resources. Where feasible, potentially register-eligible resources and register-eligible resources shall be protected from direct project impacts by project redesign; complete avoidance of impacts to such resources shall be the preferred protection strategy. On the basis of preliminary National Register of Historic Places (NRHP) eligibility assess-ments (Mitigation Measure C-1a) or previous determinations of resource eligibility, the BLM and CPUC, in consultation with the SHPO, may request the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (C-1b) Where the BLM and CPUC, in consultation with the Applicant, decide that potentially NRHP- and/or CRHR-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies to evaluate the resources' NRHP- and/or CRHR-eligibility and to recommend further mitigative treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the CPUC and the SHPO and shall be based upon final project engineering specifications. Evaluations shall be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
	— (C-1b) All potentially NRHP- and/or CRHR-eligible resources (as determined by the BLM and CPUC, in consultation with the SHPO) that will not be affected by direct impacts, but are within 50 feet of direct impact areas shall be designated as Environmentally Sensitive Areas (ESAs) to ensure that construction activities do not encroach on site peripheries. Protective fencing, or other markers (after approval by CPUC/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of a Historic Properties Treatment Plan and implemented by the Applicant to ensure the effectiveness of ESA protection (as detailed in Mitigation Measure C-1e).
Location	All locations within ground-disturbing activities with potentially NRHP-eligible resources.
Monitoring / Reporting Action	• BLM and CPUC review final construction drawings and rationale for necessity of impacting potentially NRHP-eligible resources. • BLM and CPUC review NRHP-eligibility recommendations. BLM forwards NRHP-eligibility determinations to appropriate SHPO. • BLM and CPUC verify location and protective measures of all ESAs.
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1d: Conduct data recovery to reduce adverse effects. If NRHP- and/or CRHR-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP- and/or CRHR-eligibility. For sites eligible under Criterion (d), significant data would be recovered through excavation and analysis.
	— (C-1d) For properties eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (C-1d) Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories, local governments, and other appropriate agencies. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate, to ensure that impacts to known significant archaeological deposits are adequately mitigated. Field closure report prior to construction within 100 ft of affected resource. Final report of data-recovery investigations within one year of completion of fieldwork.
Location	Within 100 ft of resources identified in HPTP that require data-recovery mitigation.
Monitoring / Reporting Action	• BLM and CPUC review and approve field closure report of data-recovery fieldwork. • BLM and CPUC review and approve final report of data recovery, curation of artifacts and data, and dissemination of final report.
Effectiveness Criteria	Data-recovery investigations, curation, and reporting fulfill all requirements of the agreement document promulgated with the Advisory Council.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1e: Monitor construction at known ESAs. The Applicant shall implement full-time archaeological monitoring by a professional archaeologist during ground-disturbing activities at all cultural resource Environmentally Sensitive Areas (ESAs). These locations and their protection boundaries shall be defined and mapped in the HPTP. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM and CPUC. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. The monitoring plan in the HPTP shall indicate the locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The Applicant shall retain and schedule any required Native American monitors.
	— (C-1e) Compliance with and effectiveness of any cultural resources monitoring required by an HPTP shall be documented by the Applicant in a monthly report to be submitted to the BLM and CPUC for the duration of project construction. In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted to a buffer distance determined by the archaeological monitor until authorization to resume work has been granted by the BLM and CPUC.
	— (C-1e) The Applicant shall notify the BLM of any damage to cultural resource ESAs. If such damage occurs, the Applicant shall consult with the BLM and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the BLM and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection within or outside the license area, at the discretion of the BLM.
Location	All locations identified in the HPTP.
Monitoring / Reporting Action	• BLM, and CPUC, as well as ABDSP and USFS, as appropriate, review and approve monthly monitoring reports. • BLM and CPUC receive and act on reports of failure of ESAs to protect cultural resources.
Effectiveness Criteria	Known archaeological resources are not adversely affected by construction activities.
Responsible Agency	BLM and CPUC.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Timing	During construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1f: Train construction personnel. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.
	— (C-1f) The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources. • The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.
Location	Entire project.
Monitoring / Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	• Cultural resources are not adversely affected by construction activities. • All infractions are corrected.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-2a: Properly treat human remains. All locations of known Native American human remains shall be avoided through project design and shall be protected by designation as ESAs. If the approved project route will affect sites known to contain human remains that cannot be avoided in their entirety during construction, the Applicant shall contact the California Native American Heritage Commission (NAHC). The NAHC will identify the Most Likely Descendant (MLD), within 48 hours, who will specify the preferred course of treatment in the event that additional human remains are discovered. The Applicant shall also contact the BLM (lead federal agency for the Proposed Project) and any additional land management agencies if the site is located on public lands administered by a State or federal agency other than the BLM. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains (see Section D.7.7). The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (C-2a) If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.
	— (C-2a) Although subject to the recommendations of the MLD, it is likely that the human remains would be respectfully removed by the MLD and/or qualified archaeologists and reinterred in an area not subject to impacts from the Proposed Project. The reinterment location may be identified as a nearby locale within SDG&E ROW, or an off-site location may be selected. The Applicant shall assist and support the MLD in identifying, acquiring, and protecting the reinterment location.
Location	Entire project.
Monitoring / Reporting Action	• Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC conduct and document consultation with appropriate Native American tribes and agencies. • BLM and CPUC document final disposition or treatment of Native American human remains.
Effectiveness Criteria	Adverse effects to human remains are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.
Timing	Pre- or during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-3a: Monitor construction in areas of high sensitivity for buried resources. The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the Historic Properties Treatment Plan (HPTP) as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains. These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CPUC. Monitoring shall be conducted in accordance with procedures detailed in Mitigation Measure C-1e
	— (C-3a) Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist shall consult with the BLM or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.
Location	Areas of high sensitivity for buried resources per HPTP.
Monitoring / Reporting Action	• BLM, and CPUC, as well as ABDSP and USFS, as appropriate, review and approve monthly monitoring reports. • Applicant, monitors, or construction personnel report discoveries to BLM and CPUC immediately. • BLM and CPUC receive and act on reports of failure of ESAs to protect cultural resources.
Effectiveness Criteria	Adverse effects to buried archaeological resources are avoided or treated in accordance with federal and appropriate State law.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	C-4a: Complete consultation with Native American and other Traditional Groups. The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the approved project on Traditional Cultural Properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
Location	Entire Project.
Monitoring / Reporting Action	• Signature of agreement documents for treatment of TCPs. • Written documentation and approval by BLM and CPUC of completion of required treatment.
Effectiveness Criteria	TCPs and other resources of Native American concern are treated in accordance with agreements that are made during consultation.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties. The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP- and/or CRHR)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for NRHP- and/or CRHR-eligible properties within the transmission line corridor that will experience operational and access impacts as a result of the Proposed Project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting NRHP- and/or CRHR-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to NRHP- and/or CRHR-eligible properties. The plan shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies for review and approval at least 30 days prior to project operation.
	— (C-5a) Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies within one month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM, CPUC, or other land-managing agency, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (C-5a) If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP- and/or CRHR)-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM, CPUC, or other appropriate land-managing agency become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement additional protective measures, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such measures may include, but not be limited to refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection. 30 days prior to and during project operation. During operation, annually for 5 years. Thereafter, on a schedule determined by BLM and CPUC and/or immediately upon discovery of adverse changes to NRHP or CRHR-eligible property.
Location	All locations identified in long-term protection plan.
Monitoring / Reporting Action	BLM and CPUC review and approval of long-term protection plan; compliance with reporting and monitoring provisions in the approved protection plan. Following construction, annual site monitoring; immediate notification to BLM and CPUC of adverse changes.
Effectiveness Criteria	Known cultural resources are not affected by long-term project operation and adverse changes to NRHP and CRHR-eligible properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	C-6a: Reduce adverse visual intrusions to historic built environment properties. All known historic built environment resources located within 0.5 miles of the Proposed Project shall be inventoried and subjected to a visual analysis to assess which resources would be subject to potential indirect visual intrusions resulting from the project. This inventory will supplement the analysis of built environment resources conducted for the EIS/EIR, and shall meet the requirements of Section 106 to inventory historic properties that could be adversely affected by the Proposed Project. The Applicant shall inventory potentially register-eligible built environment resources within an Area of Potential Indirect Effect established by the BLM and CPUC. A qualified (Secretary of the Interior Standards) professional shall assess the potential for visual intrusions on the qualities that qualify any historic properties within the APE for register eligibility. The results of this inventory shall be included in the HPTP. If any historic properties are identified that would be adversely affected by visual intrusions from the Proposed Project, the HPTP shall also specify mitigation measures that would be implemented to reduce adverse effects, such as screening the visual intrusion with vegetation, moving project towers to less conspicuous locations, if technically feasible, or altering towers to reduce any identified adverse effects. Selection of appropriate and effective treatments shall consider technical feasibility of the measures and potential impacts on other sensitive resources or land uses.
Location	All locations identified in HPTP. Mitigation Measures C-6b and V-3a in Anza-Borrego Link.
Monitoring / Reporting Action	BLM and CPUC review and approval of HPTP; compliance with reporting and monitoring provisions in the approved protection plan.
Effectiveness Criteria	Known historic built environment properties are not affected by construction and long-term project operation and adverse changes to NRHP and CRHR-eligible historic built environment properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	C-6e: Reduce adverse visual intrusions to portions of Old Highway 80. Visual intrusion by the aboveground portion of this alternative, on portions of Old Highway 80 that retain integrity of setting shall be minimized by a combination of minimizing tower height and screening. . In addition, since segments of Old Highway 80 would be crossed by the overhead portion of the alternative, compensatory mitigation including new signage shall be employed. If this alternative is constructed, as part of the Historic Properties Treatment Plan (Mitigation Measure C-1c) SDG&E shall include a protection plan for Old Highway 80 that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options.
Location	On portions of Old Highway 80 along the Interstate 8 Alternative.
Monitoring / Reporting Action	CPUC and BLM to review and comment on protection plan for Old Highway 80 submitted as part of the Historic Properties Treatment Plan (see Mitigation Measure C-1c).
Effectiveness Criteria	Adverse changes to visual qualities along Old Highway 80 are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-1	Prior to construction, construction personnel shall be instructed on the protection and avoidance of cultural resources. To assist in this effort, the construction contract will address state and federal laws regarding antiquities, fossils, and plants and wildlife, including the collection and removal, as well as the importance of these resources and the purpose and necessity of protecting them. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
CR-APM-2	Archeological sites that are eligible or potentially eligible for the National Register will be flagged in the field and spanned or otherwise avoided through routing during construction activities to the extent feasible. Impact avoidance and APMs for cultural resources developed in consultation with appropriate land managing and regulatory (e.g., park personnel and State Historic Preservation Office) and other interested parties will be implemented prior to and during construction. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
CR-APM-3	Any previously unidentified cultural resource (historic or prehistoric site or object) discovered by SDG&E or any person working on its behalf during construction on public or park land shall be immediately reported to the appropriate land manager or authorized park officer within 24 hours of discovery. Operations in the immediate area of the discovery shall be suspended until authorization to proceed is issued by the appropriate land manager or authorized park officer. An evaluation of the discovery will be made by the appropriate land manager, authorized park officer or SDG&E in consultation with the former to determine appropriate actions to prevent the loss of significant cultural or scientific values. SDG&E shall be responsible for the cost of evaluation. SDG&E will develop a treatment plan to mitigate the impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

CR-APM-4	SDG&E will conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995 – Weeks and Grimmer). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-5	SDG&E will use the following as guidance in the implementation of the project: 1. Preservation in-place is the preferred manner of mitigating impacts to archaeological sites. Preservation in-place maintains the relationship between the artifacts and the archaeological context to the extent feasible. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. 2. Preservation in-place may be accomplished by, but is not limited to, the following: a. planning construction to avoid archaeological sites; or b. incorporation of sites within parks, green space, or other open space; or c. deeding the site into a permanent conservation easement. 3. When data recovery through excavation is the only feasible mitigation, a data recovery plan which makes provisions for adequately recovering the scientifically consequential information from and about the historical resources shall be prepared and adopted prior to any excavation being undertaken. Such study shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5, Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be appropriate. 4. Data recovery shall not be required for an historical resource if the lead agency through discussion and consultation with Indian Tribes, professional archaeologists and SHPO determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-6	1. Historic property will be avoided and fenced or barricaded for protection. 2. Contributing portions and sensitive features of the historic property will be avoided and fenced or barricaded for protection. 3. If historic property cannot be avoided, an approved plan for recordation, relocation, or data recovery will be implemented. Recordation of buildings or structures may include Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) documentation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

CR-APM-7	1. Erosion, sedimentation, or indirect displacement that could indirectly deteriorate historic property will be controlled by limitation of activities near property, stabilization of sediments or structures, and erosion control. 2. Protective measures will be implemented to minimize erosion and prevent invasion by aggressive weeds near historic property. 3. Control measures will be implemented to minimize vibration, dust, or fumes affecting property. 4. Protective barriers or materials will be used to minimize the effects of vibration, dust, fumes, or changes in vegetation. 5. Buildings or structures will be stabilized or rehabilitated to minimize deterioration that might be accelerated by construction or operations. 6. If deterioration cannot be avoided, SDG&E will implement an approved plan for recordation, relocation, or data recovery. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-8	1. In addition to the historic property itself, those elements of the landscape that are essential to the historic setting of the property will be avoided and protected to the extent feasible. 2. The location, appearance, or operational procedures of the undertaking will be modified to minimize intrusion on the historic setting (e.g., qualifications on height, color, emissions, or operational noise levels). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-9	1. Permanent fencing or barriers will be installed, or access to the historic property will be controlled as deemed appropriate by the relevant agencies. 2. Use of access for construction or operation will be restricted. 3. Construction and maintenance personnel will be instructed in protection of sensitive properties. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
CR-APM-10	1. Project structures will be located so that conductors span linear historic property to the extent feasible. 2. Pipelines or conductors, placed underground, will bore under linear property to avoid disturbance or intrusion. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
CR-APM-11	SDG&E would implement its standard practices for cultural and paleontological resources on private lands (see Appendix D). (SDG&E)
Location	Entire project area on private lands.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

CR-APM-12	SDG&E will conduct cultural surveys for staging areas that have not yet been identified. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	PAL-1c: Monitor construction for paleontology. Based on the paleontological sensitivity assessment and Paleontological Monitoring and Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan), the Applicant shall conduct full-time construction monitoring by the qualified paleontological monitor in areas determined to have moderate to high paleontological sensitivity. Sediments of low, marginal undetermined sensitivity shall be monitored by a qualified paleontological monitor on a part-time basis (as determined by the Qualified Paleontologist). Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Qualified Paleontologist
Location	Locations identified in paleontological treatment plan.
Monitoring / Reporting Action	Progress reporting to BLM and CPUC as identified in treatment plan.
Effectiveness Criteria	Discovery of significant fossil resources from all localities affected by construction.
Responsible Agency	BLM and CPUC.
Timing	During construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	PAL-1d: Conduct paleontological data recovery. If avoidance of significant paleontological resources is not feasible or appropriate based on project design, treatment (including recovery, specimen preparation, data analysis, curation, and reporting) shall be carried out by the Applicant, in accordance to the approved Treatment Plan per Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).
Location	Locations identified in paleontological treatment plan.
Monitoring / Reporting Action	BLM and CPUC review and approve treatment plan. BLM and PCUC review and approval of final data-recovery report and disposition of fossils.
Effectiveness Criteria	Recovery of adequate samples of significant fossil resources from all localities affected by construction.
Responsible Agency	BLM and CPUC.
Timing	During construction; report within one year of data-recovery fieldwork.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	PAL-1e: Train construction personnel. Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained regarding the recognition of possible subsurface paleontological resources and protection of all paleontological resources during construction. The Applicant shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) ESAs include areas determined to be paleontologically sensitive as defined on the paleontological sensitivity maps for the project, and must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of protected fossils on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing subsurface paleontological resources, their responsibility to avoid and protect all such resources, and the penalties for collection, vandalism, or inadvertent destruction of paleontological resources. • The Applicant shall provide a background briefing for supervisory personnel describing the potential for exposing paleontological resources, the location of any potential ESAs, and procedures and notifications required in the event of discoveries by project personnel or paleontological monitors. Supervisory personnel shall enforce restrictions on collection or disturbance of fossils. • Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be diverted and the Applicant's paleontologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's paleontologist will notify the BLM, CPUC, and other appropriate land managers and proceed with data recovery in accordance with the approved Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).
Location	Entire project.
Monitoring / Reporting Action	• BLM and CPUC review and approve contract specifications. • BLM and CPUC review verification of required training. • BLM and CPUC receive prompt notification of new resource discoveries and violations.
Effectiveness Criteria	Paleontological resources are not adversely affected by construction activity.
Responsible Agency	BLM and CPUC.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
GEO-APM-9	If paleontological resources are encountered, appropriate field mitigation efforts would be implemented to protect the resources. For example, if significant resources are discovered, such as vertebrate fossils, construction would be stopped in the immediate area of the find while SDG&E and its designated paleontologist determine the appropriate method and schedule to recover or protect the resource. However, work may continue in areas outside the immediate area of the find with the approval of the paleontologist. When it is not feasible to avoid paleontological sites, SDG&E would consult with the appropriate federal, state, and resource agencies and specialists to either develop alternative construction techniques to avoid paleontological resources or develop appropriate APMs. Appropriate mitigation field measures may include actions such as protection-in-place by covering with earthen fill, removal and cataloguing, and/or removal and relocation. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— N-1a: Implement Best Management Practices for construction noise. SDG&E shall comply with local noise rules, standards, and/or ordinances by implementing the following noise-suppression techniques and variance standards set by local authorities. SDG&E shall apply for and obtain a variance for construction activities that must occur outside of the daytime hours allowed by local ordinances or within 200 feet of noise-sensitive receptors forty-five days prior to construction.
	— (N-1a)At a minimum, SDG&E shall employ the following noise-suppression techniques to avoid possible violations of local rules, standards, and ordinances: • Confine construction noise to daytime, weekday hours (e.g., 7:00 a.m. to 7:00 p.m.) or an alternative schedule established by the local jurisdiction or land use manager • On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer • Install temporary sound walls or acoustic blankets to shield adjacent residences. These sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts • Route construction traffic away from residences and schools, where feasible • Minimize unnecessary construction vehicle use and idling time. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: certain equipment, such as large diesel-powered vehicles, require extended idling for warm-up and repetitive construction tasks.)
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E applies for and obtains local variance and implements Best Management Practices.
Effectiveness Criteria	Best Management Practices implemented.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	N-2a: Avoid blasting where damage to structures could occur. Blasting shall be managed with a plan for each site. The plan shall include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. Blasting shall not be allowed where damage to vulnerable structures could occur, and a rock anchoring or mini-pile system shall be used if adjacent structures could be damaged as a result of blasting or any construction method used as an alternative to blasting. If any structure is inadvertently adversely affected by construction vibration, the structure shall be restored to conditions equivalent to those prior to blasting. SDG&E shall then fairly compensate the owner of any damaged structure for lost use. Forty-five days prior to construction for blasting plan.
Location	Construction activity in all segments.
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E submits blasting plan, which identifies complete inspection and restoration process.
Effectiveness Criteria	Structures inspected and restored.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

NOI-APM-1	Provide notice prior to construction by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. SDG&E would identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents, about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person would be included in the above notices. SDG&E would also establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	T-1a: Restrict lane closures. SDG&E shall restrict all necessary lane closures or obstructions on major roadways associated with overhead or underground construction activities to off-peak periods in congested areas to reduce traffic delays. Lane closures must not occur between 6:00 and 9:30 a.m. and between 3:30 and 6:30 p.m., unless otherwise directed in writing by the responsible public agency issuing the encroachment permit.
Location	All areas requiring road or lane closure.
Monitoring / Reporting Action	Review plan for road or lane closure to make sure that it is outside periods of peak traffic volume
Effectiveness Criteria	Road or lane closures shall not be executed during periods of peak traffic volume. Only reasonable interference with traffic flow.
Responsible Agency	CPUC, BLM and affected agencies responsible for streets/highways and traffic
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-4a: Ensure pedestrian and bicycle circulation and safety. Where construction will result in temporary closures of sidewalks and other pedestrian facilities, SDG&E shall provide temporary pedestrian access, through detours or safe areas along the construction zone. Where construction activity will result in bike route or bike path closures, appropriate detours and signs shall be provided.
Location	All locations where closures of sidewalks and other pedestrian facilities are expected during construction of the project
Monitoring / Reporting Action	Review and approve Construction Transportation Management Plan prepared by SDG&E for identified affected pedestrian facilities and the alternative facilities or detours that will be provided
Effectiveness Criteria	No interference with pedestrian/bicycle circulation or provision of detours
Responsible Agency	CPUC, BLM and the local jurisdictions
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-7a: Notify public of potential short-term elimination of parking spaces. As required in Mitigation Measure L-1a, prior to any construction activity on major roadways, SDG&E shall notify the public of the potential for parking spaces to be temporarily eliminated and where temporary parking spaces will be relocated through multiple media such as local newspapers and on-site postings. The elimination and relocation of parking spaces must be in conformance with the requirements of agencies responsible for parking management.
Location	All locations where construction could significantly impact parking spaces.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Monitoring / Reporting Action	Copies of public notices; evidence of coordination with affected jurisdiction
Effectiveness Criteria	Alternative parking spaces are provided, if required
Responsible Agency	Imperial and San Diego Counties and local municipalities
Timing	Pre- and during construction in affected jurisdiction
Status	
Review / Approval Status	
MITIGATION MEASURE	T-9a: Prepare Construction Transportation Management Plan. SDG&E shall prepare a Construction Transportation Management Plan (CTMP) to address traffic and transportation issues related to project construction. The CTMP shall describe alternate traffic routes, timing of worker commutes and material deliveries, the need for lane and road closures, the use of helicopters, plans for construction worker parking and transportation to work sites, methods for keeping roadways clean, and other methods for reducing adverse construction-related traffic impacts on regional and local roadways. The plan must comply with the requirements of the respective county and must be submitted to the respective counties and Caltrans for approval prior to commencing construction activities.
Location	All locations where construction could significantly impact regional and local roadways.
Monitoring / Reporting Action	Review Construction Transportation Management Plan
Effectiveness Criteria	Traffic flows are generally maintained without severe congestion
Responsible Agency	CPUC, BLM, and the applicable local jurisdictions
Timing	Pre- and during construction
Status	
Review / Approval Status	
T-APM-2a	Required permits for temporary lane closures will be obtained from the County of Imperial, County of San Diego, CALTRANS, and California State Parks (if applicable). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-2b	Detour plans will be submitted to the counties, CALTRANS, and/or California State Parks as part of the permit requirements. Within the ABDSP, a Right-of-Entry permit is required for any construction and maintenance activities that would occur outside of existing easements, including access roads (would not need ROE for access road maintenance if practical rights of ingress and egress are granted in easements). SDG&E will provide California State Parks a request in writing for maintenance or other earth-disturbing activities. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-4a	SDG&E shall coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles. The counties and cities will then notify respective police, fire, ambulance and paramedic services. SDG&E shall notify counties and cities of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
T-APM-5a	SDG&E will consult with the Imperial County Office of Education, Borrego Springs Unified School District, Warner Unified School District, Julian Union School District, and the Julian Union High School District at least one month prior to construction to coordinate construction activities adjacent to school bus stops. If necessary, school bus stops will be temporarily relocated or buses will be rerouted until construction in the vicinity is complete. SDG&E will also consult with Imperial Valley Transit and the Metropolitan Transit System at least one month prior to construction to reduce potential interruption of transit services.
Location	Entire project area within school districts.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-6a	Parking is permissible on Imperial County-maintained roadways when vehicles are within 18 inches of the curb; or if no curb is present, vehicles must not be more than 18 inches away from the right-hand edge of the roadway's boundary. Vehicles must also be parallel to the roadway when parked, unless otherwise indicated. Parking is prohibited where signage indicates no parking. Parking shall comply within the County of Imperial ordinances whenever possible or as indicated in an approved traffic control plan. (SDG&E)
Location	Entire project area within Imperial County.
Timing	During construction.
Status	
Review / Approval Status	
T-APM-6b	Parking on San Diego County-maintained roads and highways is not permissible by law unless otherwise noted at specific locations. Parking is prohibited where signage and painted curbs indicates no parking. Where the project crosses major roadways, parking shall be prohibited in the project work area. Parking shall comply within the County of San Diego Department of Public Works Traffic Guidelines, 2001 whenever possible or as indicated in an approved traffic control plan. (SDG&E)
Location	Entire project area within San Diego County.
Timing	During construction.
Status	
Review / Approval Status	
T-APM-8a	Required permits for entering railroad right-of-way will be obtained from Union Pacific Railroad, San Diego & Arizona Eastern Railroad and the U.S. Gypsum Mine. (SDG&E)
Location	Along railroad right-of-way.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
T-APM-9a	Eligible and Officially Designated Scenic Highways are located within Imperial and San Diego Counties. The California Public Utilities Code Section 320 requires that all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway be undergrounded where feasible. SDG&E will bury all new or relocated utilities where feasible to avoid possible revocation of SR78 as an Officially Designated Scenic Highway within the ABDSP. (SDG&E)
Location	Entire project area along eligible and designated Scenic Highways.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

T-APM-10a	SDG&E or its construction contractor shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request in order to ensure driveway access to businesses and residences, and shall provide continuous access to properties when not actively constructing the underground cable alignment. (SDG&E)
Location	Entire project area.
Timing	During construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	P-1a: Implement Environmental Monitoring Program. An environmental monitoring program will be implemented by SDG&E or its contractors to ensure that the plans defined in HS-APM-1 (personnel trained in proper use and safety procedures for the chemicals used), HS-APM-2 (personnel trained in refueling of vehicles), HS-APM-3 (preparation of environmental safety plans including spill prevention and response plan), HS-APM-8 (SDG&E's and/or General Contractor environmental/health and safety personnel), and HS-APM-10 (storage and disposal of hazardous and solid waste) are followed throughout the period of construction. SDG&E will designate an Environmental Field Representative who will be on site to observe and document adherence to the plan for all construction spreads.
Location	All locations along the proposed and alternative routes.
Monitoring / Reporting Action	Review documentation of training
Effectiveness Criteria	Training and monitoring programs educate project staff and workers regarding all regulatory plan requirements.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	P-1b: Maintain emergency spill supplies and equipment. Hazardous material spill kits will be maintained onsite by SDG&E or its contractors for response to small spills. This shall include oil-absorbent material, tarps, and storage drums to be used to contain and control any minor releases. Emergency spill supplies and equipment will be kept adjacent to all areas of work and in staging areas, and will be clearly marked. Detailed information for responding to accidental spills and for handling any resulting hazardous materials will be provided in the project's Spill Response Plan defined in HS-APM-3.
Location	All locations along the proposed and alternative routes.
Monitoring / Reporting Action	Observe construction sites and activities for compliance
Effectiveness Criteria	Emergency spill supplies are available at the construction sites
Responsible Agency	CPUC, BLM
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	P-3a: Appoint individuals with correct training for sampling, data review, and regulatory coordination. In the event that potential contaminated soil or groundwater is encountered, samples shall be collected by an OSHA-trained individual with a minimum of 40-hour hazardous material site worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SDG&E's Field Environmental Representative and they shall coordinate with the appropriate regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.
Location	All proposed and alternative route segments that have potential for discovery of unknown contamination.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Monitoring / Reporting Action	Observe construction sites and activities for compliance and review weekly reports.
Effectiveness Criteria	Excavated soils containing industrial contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM, and RWQCB or local CUPA.
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	P-3b: Documentation of compliance with measures for encountering unknown contamination. If during grading or excavation work, the contractor observes visual or olfactory evidence of contamination in the exposed soil a report of the location and the potential contamination, results of laboratory testing, recommended mitigation (if contamination is verified), and actions taken shall be submitted to the CPUC and BLM for each event. This report shall be submitted within 30 days of receipt of laboratory data.
Location	All proposed and alternative route segments that have potential for discovery of unknown contamination.
Monitoring / Reporting Action	Observe construction sites and activities for compliance and review incident reports.
Effectiveness Criteria	Excavated soils containing industrial contaminants are properly handled and disposed of.
Responsible Agency	CPUC, BLM.
Timing	During construction
Status	
Review / Approval Status	
HS-APM-1	All personnel involved in using hazardous materials shall be trained in the proper use and safety procedures for the chemical and provided with the necessary Personal Protection Equipment (PPE). A Hazardous Communication (HAZCOM) Plan with Material Safety Data Sheets on all hazardous materials used for the project shall be developed. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-2	Only personnel trained in refueling vehicles would be allowed to perform this operation. All refueling operation shall be in designated areas or preformed by assigned vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-3	All applicable environmental safety plans associated with hazardous materials shall be developed for the project. These plans include but are not necessary limited to Hazardous Material Business (HMB) Plan; HAZCOM Plan; Spill Response Plan; 90-days temporary storage and disposal (TSD) facility permit; and Spill Prevention Control and Countermeasure (SPCC) Plan (only if storage is over 1,350 gallons at one location). (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-4	SDG&E will develop a site specific blasting plan blasting of tower footing is required. A California licensed Blasting Contractor shall be used for all blasting operation. (SDG&E)
Location	Entire project area.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-5	All Government Code §65962.5 sites or other known contamination sites along the transmission line ROW or such sites that would affect construction work shall be investigated to determine potential impacts to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-6	An Unexploded Ordinance (UXO) investigation of known and potential areas used by the military along the ROW shall be undertaken by a trained contractor. If UXO are found, they shall be removed by trained personnel. (SDG&E)
Location	Entire project area in areas of known or potential UXO use areas.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-7	All personnel involved in excavation and grading or for ROW clearing shall be trained to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-8	SDG&E will assign Environmental Field Representative and/or General Contractor assigned Health & Safety Office to the project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-9	SDG&E will contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport. (SDG&E)
Location	Entire project area within 2 miles of an airport.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-10	All hazardous waste and solid waste shall be stored and disposed of in accordance with federal, State, and local regulations. Whenever feasible, hazardous material minimization methods shall be employed and all hazardous materials recycled. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

HS-APM-11	SDG&E will develop project-specific Fire Prevention and Response Plan (FPRP), which will be developed and reviewed by pertinent regulatory authorities. A project Fire Marshal shall be assigned to enforce all provisions of the FPRP as well as performing all other duties related to fire prevention activities for the Proposed Project. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-12	A Traffic Control Plan (TCP) shall be developed that addresses all roadway crossings that would be used by the project and could interfere with emergency vehicles. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-14	All construction workers shall undergo environmental training regarding potential exposure in accordance with federal, State, or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-15	If during excavation soil or groundwater contamination is suspected (e.g., unusual soil discoloration or strong odor), the contractor or subcontractor shall immediately stop work and notify the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-16	If soil or groundwater contamination is suspected, work near the immediate excavation site shall be terminated, the work area cordoned off, and appropriate health and safety procedures implemented for the location by the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. Preliminary samples of the soil, groundwater, or material shall be taken by an OSHA trained individual. These samples shall be sent to a California Certified Laboratory for characterization. Work outside the immediate excavation site may continue as determined by the General Contractor's assigned Health and Safety Officer and/or SDG&E's Field Environmental Representative. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
HS-APM-17	If the sample testing determines that contamination is not present, work would be allowed to proceed at the immediate excavation site. However, if contamination is found above regulatory limits, the regulatory agency (e.g., RWQCB or CUPA) responsible for responding to and for providing environmental oversight of the region shall be notified in accordance with State or local regulations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	PS-2a: Implement grounding measures. As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.
Location	Along the entire transmission line route
Monitoring / Reporting Action	Review documentation provided; verify that necessary grounding measures are installed.
Effectiveness Criteria	The potential for impacts associated with induced currents and voltages on objects near the energized transmission line are reduced.
Responsible Agency	CPUC
Timing	During construction and post construction pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-1a: Suppress dust at all work or staging areas and on public roads. SDG&E shall: (a) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; (b) pre-water sites for 48 hours in advance of clearing; (c) reduce the amount of disturbed area where possible; (d) all dirt stock-pole areas should be sprayed daily as needed; (e) cover loads in haul trucks or maintain at least six inches of free-board when traveling on public roads; (f) pre-moisten, prior to transport, import and export dirt, sand, or loose materials; (g) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets; (h) plant vegetative ground cover in disturbed areas as soon as possible following construction; (i) apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days); and (j) prepare and file 30 days in advance of construction with the ICAPCD, SDAPCD, BLM, and CPUC a Dust Control Plan that describes how these measures would be implemented and monitored at all locations of the project. The Dust Control Plan shall identify nearby sensitive receptors, such as land uses that include children, the elderly, the acutely ill and the chronically ill, and specify the means of minimizing impacts to these populations (for example, by locating equipment and staging areas away from sensitive receptors).
Location	All areas including work areas and staging areas.
Monitoring / Reporting Action	Review Dust Control Plan. Verify local air district concurrence with the Plan. Inspect activities for dust control.
Effectiveness Criteria	Dust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measures.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	AQ-1b: Use low-emission construction equipment. SDG&E shall maintain construction equipment per manufacturing specifications and use low-emission equipment described here. All off-road and portable construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, Sec. 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. If any engine larger than 100 hp does not meet Tier 1 standards, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless the engine manufacturer indicates that the use of such devices is not practical for that particular engine type. SDG&E shall substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible.
Location	All areas.
Monitoring / Reporting Action	Inspect construction equipment, Portable Equipment Registration Program records, and manufacturer certifications.
Effectiveness Criteria	Engine exhaust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measure.
Responsible Agency	CPUC and BLM
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-1h: Obtain NOx and particulate matter emission offsets. SDG&E shall obtain and hold for the duration of construction NOx emission reduction credits or fund incentive programs approved by ICAPCD and SDAPCD at sufficient levels to offset the construction emissions of NOx that exceed the ozone nonattainment area federal General Conformity Rule applicability threshold. SDG&E shall secure 99 tons per year of NOx reductions and 276 tons per year of particulate matter reductions in Imperial County, and SDG&E shall secure 212 tons per year of NOx reductions in San Diego County to satisfy this requirement. The emission reduction credits or incentive program shall comply with ICAPCD and SDAPCD rules and regulations, and the credits or reductions shall be obtained by SDG&E prior to commencing construction.
Location	All areas.
Monitoring / Reporting Action	As required in General Conformity Final Analysis as Approved by BLM.
Effectiveness Criteria	NOx and particulate matter emissions fully offset.
Responsible Agency	CPUC, BLM, and affected local air districts
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the duration of project construction sufficient carbon credits to fully offset construction-phase greenhouse gas emissions. During construction SDG&E shall report to the CPUC quarterly the status of efforts to create reductions or obtain banked credits and the quantity of construction-phase greenhouse gas emissions offset by credits. At a minimum, SDG&E shall create or obtain and hold carbon credits to offset 55,000 tons of carbon dioxide emissions for each of the two years of construction. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.
Location	All areas.
Monitoring / Reporting Action	Review SDG&E holdings of carbon credits.
Effectiveness Criteria	Greenhouse gas emissions fully offset.
Responsible Agency	CPUC and BLM

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-1	For activities in Imperial County, the project will comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). A Dust Control Plan for construction activities would be filed with the ICAPCD. (SDG&E)
Location	Entire project area in Imperial County.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-2	1. Prohibit construction grading on days when the wind gusts exceed 25 mph to the extent feasible to control fugitive dust. 2. All trucks hauling soil and other loose material will be covered or maintain at least two feet of freeboard. 3. Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E. 4. Vehicle speeds will be limited to 15 mph on unpaved (no gravel or similar surfacing material) roads. 5. Unpaved roads will be treated by watering as necessary. 6. Soil stabilizers will be applied to inactive construction areas on an as-needed basis. 7. Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered or treated with soil binders, as necessary. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-3	To minimize mud and dust from being transported onto paved roadway surfaces, pave, gravel, use rattle plates or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface. SDG&E will implement this measure where applicable and not conflicting with other requirements. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
AQ-APM-4	If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the project's construction schedule. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

AQ-APM-5	To the extent feasible, unnecessary construction vehicle and idling time will be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as a part of pre-construction conferences. Those briefings will include discussion of a "common sense" to vehicle use. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season. Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.
Location	All new substations
Monitoring / Reporting Action	Subdivision grading and drainage plan prepared by Applicant and approved by CPUC and RWQCB prior to construction. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the project is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-1a (CC): Construct during the dry season. All construction of the Chocolate Canyon Option shall occur during the dry season months. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains. Implement the City of San Diego Source Water Protection Guidelines for New Development (2004) that describes procedures for minimizing the adverse water quality effect of new development near water supply reservoirs such as El Capitan. These guidelines specify best management practice procedures to be used by the development, which would include the Chocolate Canyon Option.
Location	Chocolate Canyon Option
Monitoring / Reporting Action	Construction of Chocolate Canyon Option occurs only during dry season months. CPUC construction monitoring to verify compliance.
Effectiveness Criteria	Construction and BMPs in place prior to onset of winter rainy season, and kept operating as long as needed. Mitigation measure is effective if water quality near the Chocolate Canyon Option is maintained.
Responsible Agency	CPUC, BLM, or other responsible/cooperating agencies
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	— H-1k: Comply with Forest Service conditions. Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with: • The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this project by the State Water Resources Control Board or Army Corps of Engineers.
	— (H-1k) • Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed. • At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.
	— (H-1k) • The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.
	— (H-1k) • During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project. The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: 1. A description of the actual site conditions 2. Detailed descriptions, design drawings, and specific topographic locations of all control measures 3. Measures to divert runoff away from disturbed land surfaces 4. Measures to collect and filter runoff over disturbed land surfaces 5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources 6. Measures to dissipate energy and prevent erosion 7. A monitoring and maintenance schedule. Upon Commission approval, the Licensee shall implement the plan.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (H-1k) • Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.
	— (H-1k) The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources.
	— (H-1k) Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare and execute an agreement with the U.S. Forest Service prior to construction. Compliance with the agreement to be verified through monitoring by the Forest service and CPUC during construction.
Effectiveness Criteria	Compliance with the executed agreement.
Responsible Agency	CPUC and U.S. Forest Service
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan. A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant to prepare a site-specific SWPPP and sediment-control plan to be reviewed and approved by the Forest Service and CPUC prior to construction. CPUC and Forest Service to verify compliance through construction monitoring.
Effectiveness Criteria	Compliance with approved SWPPP and sediment-control plan.
Responsible Agency	CPUC and U.S. Forest Service.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-2d: Maintain vehicles and equipment. All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided to CPUC and BLM once monthly during project construction.
Location	Entire project area
Monitoring / Reporting Action	Vehicle equipment and maintenance log updated and provided to CPUC and BLM once monthly during construction

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Effectiveness Criteria	Vehicles and equipment do not leak hazardous materials
Responsible Agency	CPUC and BLM
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-4b: Avoid blasting where damage to groundwater wells or springs could occur. Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earthworking method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.
Location	Entire project above designated groundwater basins
Monitoring / Reporting Action	Applicant to prepare a blasting plan, including well survey.
Effectiveness Criteria	Avoidance of blasting where damage to wells or springs could occur, and use of rock anchoring or mini-pile system in its place
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-5a: Install substation runoff control. The pad for new substations shall be constructed with a pervious and/or high-roughness (for example gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.
Location	New substations.
Monitoring / Reporting Action	Applicant to provide CPUC with a drainage plan for new substations showing compliance with this mitigation measure. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	No increase in runoff from new substations.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property. A determination of towers requiring scour protection under WQ-APM 10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.
Location	Stream crossings entire project.
Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which towers may reasonably be subject to erosion during the life of the project. The report shall also provide plans for protection from scour, as well as an engineering demonstration that the tower and associated structures will not induce erosion onto adjacent property. CPUC monitor to verify compliance during construction.
Effectiveness Criteria	Towers to withstand scour with no adverse effect on adjacent property.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation. SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.
Location	Entire project.
Monitoring / Reporting Action	Applicant to provide CPUC with a Hazardous Substance Control and Emergency Response Plan for project operations, for review and approval, prior to completion of construction. This plan to include monitoring and reporting protocols and responsibilities.
Effectiveness Criteria	Implementation of a Hazardous Substance Control and Emergency Response Plan for project operations.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	H-8a: Bury power line below 100-year scour depth. At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction. Engineering evaluation, and associated scour protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction. Compliance to be ensured during construction.
Location	Underground stream crossings
Monitoring / Reporting Action	Applicant to provide CPUC with an engineering report, sealed by a civil engineer registered in the State of California, demonstrating which crossings may be subject to scour. The report shall also provide plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion. CPUC to review and approve the report, then monitor to verify compliance during construction.
Effectiveness Criteria	Underground crossings to be protected from scour.
Responsible Agency	CPUC
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
WQ-APM-2	To the extent feasible, structures shall be placed so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-3	Specific sites as identified by authorized agencies (e.g., fragile watersheds) where construction equipment and vehicles are not allowed shall be clearly marked on-site before any construction or surface disturbing activities begin. Construction personnel shall be trained to recognize these markers and understand the equipment movement restrictions involved. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

WQ-APM-4	1. Adequate distance from stream banks and beds will be maintained during construction activities. 2. Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams. 3. Surface water, riparian areas and floodplains will be spanned where feasible. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented. 5. Storm Water Best Management Practices (BMPs) for construction will be implemented per the requirements of the project's SWPPP. 6. Silt fencing, straw mulch, straw bale check dams would be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures. 7. The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction, operation and maintenance. 8. Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands and floodplains. 9. Structures will not be placed in streambeds or drainage channels to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-5	Any stream crossings will be constructed at low flow periods and, if necessary, a site-specific mitigation and restoration plan would be developed. (SDG&E)
Location	Entire project area along stream crossings.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-6	1. Designated surface water protection areas (source water) will be avoided. 2. There will be no diversions, detention, retention or consumption of surface waters for the project. 3. Prior to construction, interviews would take place with affected landowners regarding location of water supply wells located on their property. 4. SDG&E will negotiate with affected landowner to provide alternative water supplies in the event a supply well or springs dry up directly caused by project activities. Negotiation shall be by either a remedial cash payment to the landowner or by SDG&E contracting for the drilling of a replacement well. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

WQ-APM-8	1. In no case will groundwater removed during construction be discharged to surface waters or storm drains without first obtaining any required permits. 2. If dewatering is necessary, the water will be contained and sampled to determine if contaminants requiring special disposal procedures are present. 3. If the water tests sufficiently clean and land application is determined feasible per applicable SWRCB and RWQCB requirements, the water would be directed to relatively flat upland areas for evaporation and infiltration back to the water table, used for dust control, or used as makeup for a construction process (e.g., concrete production). 4. Water determined to be unsuitable for land application or construction use would be disposed of in another appropriate manner, such as treatment and discharge to a sanitary sewer system in accordance with applicable permit requirements or hauled offsite to an approved disposal facility. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-9	Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-10	At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth shall be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project. (SDG&E)
Location	Entire project area at locations that would cross below or pass adjacent to streams.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-11	Groundwater levels along the underground portion of the project will be tested by drilling pilot borings. The location, distribution, or frequency of such tests shall be determined to give adequate representation of the conditions. Locations where groundwater depth is less than eight feet below ground surface shall be identified prior to excavation activities and avoided, where possible. Avoidance is especially recommended where shallow groundwater flow direction is not parallel to the orientation of the alignment. Where avoidance is not possible, SDG&E shall consider constructing underground facilities in a shallower excavation, depending upon requirements of the underground method or existing underground facilities and other practical concerns. SDG&E shall document results of test drilling in a letter report to the CPUC construction starts and shall propose specific measures to minimize the impact on groundwater. (SDG&E)
Location	Entire project area along underground portions of the project.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-13	Hazardous materials will not be disposed of onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for trash. Petroleum products and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. In the event of a release of hazardous materials to the ground, it will be promptly cleaned up in accordance with applicable regulations. (SDG&E)

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-14	Secure any required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-15	To the extent feasible, where the construction of access roads would disturb sensitive features such as streambeds, the route of the access road would be adjusted to avoid such impacts. Whenever practicable, construction and maintenance traffic would use existing roads or cross-country access routes (including the ROW) which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes will be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the appropriate agency or landowner before use. Where it is not feasible for access roads to avoid streambed crossings, such crossings would be built at right angles to the streambeds whenever feasible. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in such a manner that minimizes potential adverse impacts on waters of the U.S. or waters of the state. Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and SWRCB/RWQCB. (SDG&E)
Location	Entire project area along access roads.
Timing	Pre- and during construction
Status	
Review / Approval Status	
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval with the ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geo-textile matting should be considered in the CDFG/ACOE consultation process. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	G-2a: Protect desert pavement. Grading for new access roads or work areas in areas covered by desert pavement shall be avoided or minimized. If avoidance of these areas is not possible, the desert pavement surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats on the surface. A plan for identification and avoidance or protection of sensitive desert pavement shall be prepared and submitted to the CPUC and BLM for review and approval at least 60 days prior to start of construction.
Location	All project locations where desert pavement occurs.
Monitoring / Reporting Action	Review plan and ensure that it is implemented in the field.
Effectiveness Criteria	Construction activities do not damage desert pavement.
Responsible Agency	CPUC, BLM, USFWS
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design. The design-level geotechnical studies to be performed by the Applicant shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and ASTM standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where permanent project structures will be installed.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by problematic soils.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-4a: Reduce effects of groundshaking. The design-level geotechnical investigations performed by the Applicant shall include site-specific seismic analyses to evaluate the peak ground accelerations for design of project components. Based on these findings, project structure designs shall be modified/strengthened, as deemed appropriate by the project engineer, if the anticipated seismic forces (high calculated peak vertical and horizontal ground accelerations due to severe groundshaking) are found to be greater than anticipated wind load stresses on project structures. Study results and proposed design modifications shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project locations where seismically induced groundshaking would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	G-4b: Conduct geotechnical investigations for liquefaction. Because seismically induced liquefaction-related ground failure has the potential to damage or destroy project components, the design-level geotechnical investigations to be performed by the Applicant shall include investigations designed to assess the potential for liquefaction to affect the approved project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts. Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the project designs as deemed appropriate by the project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.
Location	All project areas where liquefaction would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by liquefaction or lateral spreading.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-5a: Minimize project structures within active fault zones. Prior to final project design SDG&E shall perform a geologic/geotechnical study to confirm the location of mapped traces of active and potentially active faults crossed by the project route. For crossings of active faults, the project design shall be planned so as not to locate towers or other project structures on the traces of active faults and in addition project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and BLM in a report submitted for review and approval at least 60 days prior to the start of construction.
Location	All Project locations that would cross active faults.
Monitoring / Reporting Action	Review report. Ensure that that the recommendations of the report are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by surface fault rupture.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

MITIGATION MEASURE	G-6a: Conduct geotechnical surveys for landslides and protect against slope instability. The design-level geotechnical surveys conducted by the Applicant shall perform slope stability analyses in areas in areas of planned grading and excavation that cross and are immediately adjacent to hills and mountains. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as grading for access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Proposed Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction, and to minimize potential for damage to project facilities. These design measures shall include, but are not limited to, retaining walls, visquene, removal of unstable materials, and avoidance of highly unstable areas. SDG&E shall document compliance with this measure prior to the final project design by submitting a report to the CPUC for review and approval at least 60 days before construction. The report shall document the investigations and detail the specific support and protection measures that will be implemented.
Location	All Project locations where slope instability would potentially occur.
Monitoring / Reporting Action	Review study results. Ensure that study recommendations are implemented during construction.
Effectiveness Criteria	Project structures are not damaged by slope instability.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	G-9a: Coordinate with quarry operations. SDG&E shall coordinate with operations and management personnel, and with BLM, to determine status of and plans for active quarries adjacent to or crossed by project alignments. SDG&E shall develop a plan to avoid or minimize interference with mining operations in conjunction with mine/quarry operators prior to construction, and submit it for review and approval to the BLM and CPUC. If mine operators are out of compliance with BLM lease requirements, SDG&E shall coordinate with all parties to resolve the situation and shall demonstrate compliance with this measure prior to the start of construction by submitting the plan to the CPUC and BLM for review at least 60 days prior to the start of construction. If active mining areas require a reroute of the existing SWPL or the Interstate 8 Alternative route, SDG&E shall provide a detailed map documenting proposed new tower and access road location(s), as well as a summary of environmental impacts that would occur (biological and cultural resources surveys must be completed).
Location	All Project locations that would cross active and potentially active quarries, specifically the Interstate 8 Alternative.
Monitoring / Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Project does not interfere with mining operations.
Responsible Agency	CPUC, BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-1	No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable. (SDG&E)
Location	Entire project area along existing access roads.
Timing	Pre- and during construction

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Status	
Review / Approval Status	
GEO-APM-2	1. Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance. 2. In agricultural areas, topsoil would be left in roughened condition. 3. When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity. 4. Disturbed areas will be returned to their pre-construction contours and allowed to re-vegetate naturally, or will be reseeded with an appropriate seed mixture if necessary. 5. Affected landowners having property directly impacted by the project will be compensated to disc or till soil upon construction completion. 6. Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-3	Structure placement in areas of high shrink/swell potential will be avoided where possible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-4	Structures will be placed in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock, etc. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-5	Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Maintenance of cut and fill slopes created by project construction activities would consist primarily of erosion repair. Where re-vegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix would be done on slopes. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

GEO-APM-6	In areas where ground disturbance is substantial or where re-contouring is required (e.g., marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and re-vegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or re-contouring shall be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor. To limit impact to existing vegetation, appropriately sized equipment (e.g., bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
GEO-APM-8	During construction, SDG&E would remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage to those structures and would position structures to span over potential landslide areas to the greatest extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	S-3a: Recycle construction waste. To comply with the Integrated Waste Management Act of 1989, during project construction SDG&E and/or its construction contractor shall recycle a minimum of 50 percent of the waste generated during construction activities. In unincorporated San Diego County, to comply with the construction and demolition debris ordinance, SDG&E and/or its construction contractor shall recycle a minimum of 90 percent of inerts and 70 percent of all other materials, and submit all applicable plans and documentation. Following the completion of construction activities, SDG&E shall provide the CPUC and BLM with documentation from the recycling and landfill facilities used to show that the amount of waste recycled was 50 percent or more in Imperial Valley and incorporated San Diego County, and 90 percent of inerts and 70 percent of all other materials in unincorporated San Diego County.
Location	All project locations
Monitoring / Reporting Action	CPUC/BLM shall monitor to verify that SCE provides the CPUC with documentation from the recycling and landfill facilities
Effectiveness Criteria	Recycle a minimum of 50 percent of the waste generated during construction activities.
Responsible Agency	CPUC; BLM
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	S-3b: Use reclaimed water. To the extent feasible, SDG&E shall coordinate with local water districts in advance in order to efficiently obtain reclaimed or potable water for delivery to the construction sites and to meet any restrictions imposed by them. The Applicant shall provide a letter describing the availability of reclaimed water and efforts made to obtain it for use during construction to the CPUC and BLM a minimum of 60 days prior to the start of construction.
Location	All project locations
Monitoring / Reporting Action	CPUC/BLM shall monitor to verify that SDG&E provides the CPUC with documentation
Effectiveness Criteria	Use of reclaimed water (recommended but not required for implementation)

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Responsible Agency	CPUC; BLM
Timing	Pre- and during construction
Status	
Review / Approval Status	
PSU-APM-1	SDG&E has and will continue to coordinate with all utility providers with facilities located within or adjacent to the Proposed Project to ensure that design does not conflict with other facilities. In the event of a conflict, the project will be aligned vertically and/or horizontally as appropriate to avoid other utilities and provide adequate operational and safety buffering. Alternately, the other existing facilities may be relocated. Long-term operations and maintenance of the project will be negotiated through easement, purchased right-of-way, franchise agreement, or joint use agreement. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction.
Status	
Review / Approval Status	
PSU-APM-2	Underground Service Alert would be notified a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
PSU-APM-3	SDG&E will coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized. (SDG&E)
Location	Entire project area.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	— F-1a: Develop and implement a Construction Fire Prevention Plan. SDG&E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&E shall fully implement the Plan during all construction and maintenance activities.
	— (F-1a) All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan implementation responsibility shall remain with SDG&E.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (F-1a) At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) in Appendix 3D, and the elements listed below: • During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. • Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies. • During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF. • All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition. • Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. • Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies will review SDG&E's Construction Fire Prevention Plan and ensure its implementation.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies.
Timing	Pre- and during construction
Status	
Review / Approval Status	
MITIGATION MEASURE	— F-1c: Ensure coordination for emergency fire suppression. SDG&E shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with fire agencies.
	— (F-1c) Onsite SDG&E and contracted personnel shall coordinate fire suppression activities through the active Fire Incident Commander, and emergency ingress and egress to construction-related access roads shall remain unobstructed at all times.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

	— (F-1c) Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. SDG&E shall contact CAL FIRE and CNF dispatch two days prior to helicopter use and shall provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA and CNF lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from the CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by SDG&E shall immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CAL FIRE and CNF will ensure SDG&E: (1) coordinates fire suppression activities through the active Fire Incident Commander, (2) keeps emergency ingress and egress to construction-related access roads unobstructed at all times, (3) ceases work in the event of a fire, (4) contacts CAL FIRE and CNF prior to helicopter use.
Effectiveness Criteria	• Access roads unobstructed at all times • Work stops in the event of fire • Pre-reporting of helicopter use • Cessation of helicopter use in the event of fire
Responsible Agency	CPUC; BLM, CAL FIRE, CNF
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-1d: Remove hazards from the work area. The Applicant shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor SDG&E work areas.
Effectiveness Criteria	Work areas remain clear of brush and dead and decaying vegetation
Responsible Agency	CPUC; BLM
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-2b: Install existing conductors on steel poles. Where construction of the Proposed Project or an alternative would result in the relocation of existing 69 kV transmission lines, these lines shall be relocated onto non-specular steel poles using vertical conductor construction. Also, all existing 69 kV or distribution lines with poles located within 100 feet of the Proposed Project or alternative shall be reconstructed so the existing conductors are on non-specular steel poles using vertical conductor construction to eliminate pole combustion hazard potential, increase wind loading capacity, and reduce mid-line slap ignition potential. Steel poles shall be finished to give the appearance of wood poles. This measure shall not apply to conductors that would be underbuilt on steel poles or lattice towers or installed underground. The vertical conductor construction requirement shall not apply to isolated towers that would be adjacent to existing structures with horizontal conductor construction, and shall apply to sets of four or more sequential towers.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E installs exiting conductors on steel poles.

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction

Effectiveness Criteria	Existing conductors are installed on steel poles, and wood poles are removed
Responsible Agency	CPUC; BLM
Timing	During construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-3a: Contribute to Powerline Firefighting Mitigation Fund.. The Applicant shall contribute an annual sum to local, State, and federal fire protection districts in the project vicinity through the mechanism of a new Powerline Firefighting Mitigation Fund, which shall be organized and carried out by SDG&E, and shall be subject to the oversight of the CPUC for the life of the Fund. Funding shall be used toward fire prevention measures and protection equipment and services, as appropriate to each jurisdiction. An increase in funding for fire prevention and suppression services and equipment will increase the probability of a fire being successfully contained, especially during normal weather conditions, and will therefore partially mitigate the significant barrier the transmission line poses to firefighting operations. The annual sum shall be based on an equivalent fuelbreak mitigation (presented as Mitigation Measure F-3a in the Draft EIR/EIS), which is an alternative means of partially mitigating the significant effect that the presence of the transmission line on firefighting operations, but which would be jurisdictionally infeasible. This shall be $1,000 per acre for the first year plus $250 per acre for each subsequent year for the life of the project (in 2008 United States Dollars), based on the number of miles of Wildfire Containment Conflict listed in Table D.15-26 (see below). Should CAL FIRE wish to take over administrative authority for the Powerline Firefighting Mitigation Fund, an administrative transfer shall not be in violation of Mitigation Measure F-3a.
Location	Fund contribution based on miles of Wildfire Containment Conflict of the Approved Route
Monitoring / Reporting Action	SDG&E provides proof of annual payment. CPUC, BLM, and U.S. Forest Service will ensure SDG&E contributes annually to the fund and shall have oversight for the life of the fund. The funds shall be used toward fire prevention measures and protection equipment and services.
Effectiveness Criteria	Annual sum is paid to Powerline Firefighting Mitigation Fund.
Responsible Agency	CPUC; BLM, U.S. Forest Service
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-3b: Prepare and implement a Multi-agency Fire Prevention MOU. A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The MOU shall be adopted prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall stipulate the mechanism for defensible space grants distribution (Mitigation Measure F-1e). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted. A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that MOU is created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate.
Effectiveness Criteria	MOU is drafted, agreed upon, and reviewed every five (5) years

Table H-1. Mitigation Measures and Applicant Proposed Measures – During Construction	
Responsible Agency	CPUC; BLM
Timing	Pre-, during, and post construction.
Status	
Review / Approval Status	

Attachment I

Pre-Energizing Mitigation Measures

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, e.g., **— (A-1a)**. A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Several of the biological resources APMs have been updated to show changes (in underline/~~strikeout~~) that were originally incorporated into Appendix 8N of the Final EIR/EIS. These changes are included in the following table, and throughout the MMCRP.

Table I-1. Mitigation Measures and Applicant Proposed Measures – Post Construction, Pre-Energizing

	— WR-2b: Evaluate and Implement PCT Route Revision. SDG&E shall consult and coordinate with the U.S. Forest Service, BLM, and the Pacific Crest Trail Association to develop route options for revising the PCT so it would cross the Modified Route D Alternative only once, rather than three times. SDG&E shall prepare and submit a report to the BLM and U.S. Forest Service prior to energizing the new transmission line. The report shall identify feasible PCT relocation options, and, under the direction of the federal agencies, shall evaluate whether its construction and restoration of the old trail segment would create overall greater impacts than those created by three crossings of the PCT that would occur with the Modified Route D Alternative.
	— (WR-2b) If directed by the BLM, SDG&E shall be responsible for constructing the new trail segment and restoring the old trail segment in manner acceptable to the BLM and U.S. Forest Service. Trail construction and restoration shall be completed within one year of energizing the transmission line.
Location	Modified Route D Alternative at PCT Crossing
Monitoring / Reporting Action	Consult and coordinate with USFS, BLM, and Pacific Crest Trail Association
Effectiveness Criteria	PCT relocation options are identified and implemented at the direction of the agencies
Responsible Agency	USFS; BLM
Timing	Post construction, pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	PS-2a: Implement grounding measures. As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.
Location	Along the entire transmission line route
Monitoring / Reporting Action	Review documentation provided; verify that necessary grounding measures are installed.
Effectiveness Criteria	The potential for impacts associated with induced currents and voltages on objects near the energized transmission line are reduced.
Responsible Agency	CPUC
Timing	During construction and post construction pre-energizing the line.
Status	
Review / Approval Status	

Table I-1. Mitigation Measures and Applicant Proposed Measures – Post Construction, Pre-Energizing

MITIGATION MEASURE	F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007). The draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) are presented in Appendix 3D. The Amended Plan shall, at a minimum, include all of the provisions of the Final Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, U.S. Forest Service, and ABDSP, and shall submit the Plan (with agency comments incorporated) for review and approval by Cal Fire at least 90 days prior to energizing the Proposed Project.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP will review and comment and CAL FIRE will approve the SDG&E Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP
Timing	Post construction, pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	— F-2a: Establish and maintain adequate line clearances. The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW, except where the transmission line spans a canyon. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
	— F-2a During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times. Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E established adequate conductor clearance.
Effectiveness Criteria	Adequate (15 foot) conductor clearance is maintained
Responsible Agency	CPUC; BLM
Timing	Post construction, prior to energizing the project and for the life of the project.
Status	
Review / Approval Status	

Attachment J

Post-Construction Mitigation Measures

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Note: In this table, mitigation measures are denoted with Mitigation Measure preceding the measure title and Applicant Proposed Measures are denoted with APM. To facilitate tracking of the measures' requirements, some measures have been subdivided by task and/or timing. A measure that has been subdivided is identifiable by its measure number preceded by a dash, with subsequent tasks shown in parentheses, e.g., **— (A-1a)**. A row with a measure number preceded by a dash and/or in parentheses does not contain the entire measure, only a specific task.

Several of the biological resources APMs have been updated to show changes (in underline/~~strikeout~~) that were originally incorporated into Appendix 8N of the Final EIR/EIS. These changes are included in the following table where applicable, and throughout the MMCRP.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	— B-1a: Provide restoration/compensation for impacted sensitive vegetation communities. Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible, and disturbance of vegetation and soils shall be minimized. Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist (see Mitigation Measure B-1c). The construction mats shall not be left on the ground for more than three weeks. Use of construction mats shall be considered a temporary impact to vegetation and shall be mitigated in accordance with this mitigation measure. If avoidance of sensitive vegetation communities is not feasible due, for example, to physical or safety constraints, the Applicant shall restore temporarily impacted areas to pre-construction conditions following construction (or emergency repairs) and shall permanently block off all public access to them, and/or shall purchase/dedicate suitable habitat for preservation to off-set permanently impacted areas. Restoration of some vegetation communities in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, the mitigation shall consist of offsite acquisition and preservation of the vegetation community instead. Any area that can be preserved as intact or restored habitat, or if it contains any species (plant or animal) that require project-related compensatory mitigation will qualify as offsite mitigation lands. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years (or less if the restoration meets all success criteria). Restoration in ABDSP shall be maintained and monitored for a minimum of five years. The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat. Any restoration efforts would be subject to a Habitat Restoration Plan approved by the CPUC, BLM, Wildlife Agencies, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). Mitigation ratios and mitigation acreages for construction within authorized limits are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). The mitigation ratios also apply to impacts from emergency repairs. In cases where the impacts to sensitive vegetation communities occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.
	— (B-1a) All limits of construction shall be delineated with orange construction fencing. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates. To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-1a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio (5.5:1 in FTHL MA). Restoration of the unauthorized impacts shall be credited at a 1:1 ratio (i.e., mitigated by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

— (B-1a) Areas to be restored shall include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Where onsite restoration is planned, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Habitat Restoration Plan, for restoring temporarily impacted sensitive vegetation communities, to be approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. This Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Hydroseeding, drill seeding, or an otherwise proven restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration).

The Habitat Restoration Plan shall incorporate Desert Bioregion Revegetation/Restoration Guidance measures for restoration of temporary impacts to desert scrub and dune habitats. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

The Habitat Restoration Plan shall also incorporate the measures identified in the May 25, 2006 Memorandum of Understanding among Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the Environmental Protection Agency (Edison Electric Institute, et al., 2006) where applicable. The MOU discusses vegetation management along ROWs for electrical transmission and distribution facilities on federal lands. The major provisions of the MOU include reducing soil erosion and water quality impacts; promoting local ecotypes in revegetation projects; planting native species and protecting rare species; and reducing the introduction of non-native, invasive or noxious plant species to the ROWs. The MOU can be viewed online at http://www.eei.org/industry_issues/environment/land/vegetation_management/EEI_MOU_FINAL_5-25-06.pdf.

The following habitat restoration requirements are not included in the MOU described above. The restoration of habitat shall be maintained and monitored for five years after installation by an experienced, licensed Habitat Restoration Contractor, or until established success criteria identified in the Restoration Plan (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance and monitoring for restoration in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Maintenance and monitoring shall be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For areas where habitat restoration cannot meet mitigation requirements, as determined by the Habitat Restoration Specialist in coordination with CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies, offsite purchase and dedication of habitat shall be provided at the mitigation ratios provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives) or as otherwise required by the Wildlife Agencies, ABDSP, or USDA Forest Service (supersedes the mitigation ratios in BIO-APM-1).

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-1a) Tree Mitigation. Mitigation for loss of native trees or native tree trimming shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (i.e., planting) trees on land that would not be subject to vegetation clearing (either in the Applicant's ROW and/or on land acquired and preserved). Any land to be used for this mitigation shall be approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For habitat acquisition and preservation, the mitigation ratios shall follow those in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). For example, removal of coast live oak trees (that occur in coast live oak woodland) shall require mitigation at a 3:1 ratio based on the permanent impact to the summed acreage of all individual coast live oak trees impacted. Therefore, if the total acreage of all individual coast live oak trees in coast live oak woodland impacted is 10 acres, then 30 acres of coast live oak woodland shall be acquired and preserved. For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no mitigation shall be required.
	— (B-1a) For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed. Native trees that are removed shall be replaced in-kind (by species) as follows. • Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1 • Trees between five and 12 inches DBH shall be replaced at 5:1 • Trees between 12 and 36 inches shall be replaced at 10:1 • Trees greater than 36 inches shall be replaced at 20:1 • Native trees that are trimmed shall be replaced in-kind (by species) as follows. • Trees less than 12 inches DBH shall be replaced at 2:1 • Trees greater than 12 inches DBH shall be replaced at 5:1 All restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for National Forest land restoration), and the Wildlife Agencies.
	— (B-1a) Mitigation Parcels/Habitat Management Plans. All offsite mitigation parcels shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for impacts to ABDSP), and USDA Forest Service (for alternatives with impacts to National Forest lands) and must be acquired or their acquisition must be assured before the line is energized. To demonstrate that such parcels shall be acquired, SDG&E shall submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan shall be submitted to the CPUC, BLM, the Wildlife Agencies, State Parks (for impacts in ABDSP) and USDA Forest Service (for impacts on National Forest Lands) for review and approval, and shall include, but shall not be limited to: legal descriptions and maps of all parcels to be acquired; schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (e.g., performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-1a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any vegetation disturbing activities. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) • Baseline biological data for all mitigation parcels • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to National Forest lands) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All areas disturbed by construction activities.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. CPUC/BLM biological monitor shall confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-1k: Re-seed disturbed areas after a transmission line–caused fire. Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the Proposed Project or a constructed alternative, the Applicant shall re-seed all natural areas — both public and private — that are burned as a result of the project-caused fire. Re-seeding shall be required for areas that have been burned due to the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan shall be developed with input from Cal Fire, the U.S. Forest Service, BLM, and CPUC, based on a native seed mix. Seeds shall be raked into the soil to avoid seed predation, and re-seeding shall be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. The Applicant shall provide a written report documenting all re-seeding activities to the CPUC. The Applicant shall make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort shall be submitted to the CPUC upon request. Specific re-seeding requirements stipulated in this mitigation measure shall be subject to approval and modification by any public landowning agency.
Location	Areas burned as a result of a project-caused fire and that have also been burned at least once in the preceding 10-year period.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Monitoring/Reporting Action	CPUC/BLM shall oversee the development of re-seeding plan and shall collect written documentation of all re-seeding activities from the Applicant.
Effectiveness Criteria	Re-seeding occurs per re-seeding plan requirements.
Responsible Agency	CPUC, BLM, and USDA Forest Service
Timing	During and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-2a: Provide restoration/compensation for impacted jurisdictional areas. Impacts to areas under the jurisdiction of the ACOE, Regional Water Boards, State Water Board, and CDFG shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible (including for emergency repairs), the Applicant shall provide the necessary mitigation required as part of wetland permitting by creation/restoration/preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation in ABDSP), USDA Forest Service (for alternatives with mitigation on National Forest lands), ACOE, Regional Water Boards, State Water Board, and CDFG as part of the wetland permitting process. It is anticipated that the sites would be in close proximity to the impacts or in the same watershed. A jurisdictional delineation and impact assessment shall be prepared based on the final alignment and final engineering plans when they are complete. Mitigation ratios would range from 1:1 up to 4:1 and would depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. The width of wetland buffers would also depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. Recommended mitigation ratios for vegetation communities that generally occur in jurisdictional areas are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). It is anticipated that at least a 1:1 ratio of the mitigation would include creation of jurisdictional habitat so there would be no net loss of jurisdictional habitat. For example, permanent impacts to emergent wetland would require a 2:1 mitigation ratio. Half (or 1:1) of the mitigation acreage would have to consist of created emergent wetland in an appropriate location to be preserved, and the other half (1:1) would require acquisition and preservation of already-existing emergent wetland (or other wetland community acceptable to the permitting agencies — ACOE, Regional Water Boards, State Water Board, and CDFG). It is also anticipated that a 1:1 ratio would be required for impacts to jurisdictional non-wetland Waters of the U.S. in the form of wetland enhancement, restoration, or creation as determined in consultation with the permitting agencies. Wetland permits shall be obtained from the ACOE, Regional Water Boards, State Water Board, and CDFG prior to initiating construction in jurisdictional areas.
	— (B-2a) All limits of construction shall be delineated with orange construction fencing and/or silt fencing. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete. If silt fencing is used to delineate the limits of construction or as part of implementation of erosion control BMPs, the silt fencing may be left in place longer than 30 days if erosion control is still necessary. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.
	— (B-2a) Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio, unless otherwise directed by the ACOE, Regional Water Boards, State Water Board, and CDFG: restoration of the unauthorized impacts shall be credited at a 1:1 ratio; the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-2a) The Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). The Habitat Restoration Specialist shall prepare and implement a Wetland Mitigation Plan to be approved in writing by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP mitigation), and USDA Forest Service (for alternatives with mitigation on National Forest lands). The Applicant shall work with the above-listed agencies until a plan is approved by all. The mitigation of habitat shall be maintained and monitored for five years after installation, or until established success criteria (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met, to assess progress and identify potential problems with the mitigation. Maintenance and monitoring in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the mitigation. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP restoration), and USDA Forest Service (for alternatives with restoration on National Forest lands).
	— (B-2a) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired offsite mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact jurisdictional areas. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	All locations with impacts to jurisdictional areas.
Monitoring/Reporting Action	BLM, CPUC, and wetland permitting agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans. BLM/CPUC biological monitor to confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, ACOE, RWQCB, State Parks (for mitigation lands in ABDSP), and USDA Forest Service (for mitigation lands on USFS land).
Timing	Pre-, during and post construction.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	— B-3a: Prepare and implement a Weed Control Plan. The Applicant shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where the Applicant owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC), or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding governmental agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, the Applicant shall work with the landowners to obtain authorization of the weed control treatment that is required. State Parks shall have review and approval authority over the Weed Control Plan for ROW within or adjacent to the boundaries of ABDSP. Developed land shall be excluded from weed control.
	— (B-3a) The Weed Control Plan shall include the following: • A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured) as well as at all ancillary facilities associated with the project for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner or State Parks (for ROW within or adjacent to ABDSP) as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [Bromus tectorum], Saharan mustard [Brassica tournefortii] and medusa head [Taeniatherum caput-medusae]). These populations shall be mapped and described according to density and area covered. These plant species shall be treated (where access and permission can be secured) prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, or the tribal government, as appropriate. A pre-construction weed inventory shall also be conducted by surveying areas that will be directly impacted by the project for weed populations that are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006) or are weed species of concern to State Parks (for ROW within or adjacent to ABDSP). These plant species shall be treated prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC and State Parks (for treatment in ROW within ABDSP).
	— (B-3a) Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC, or the tribal government, as appropriate, with the goal of controlling populations before they start producing seeds.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-3a) For the lifespan of the project (i.e., as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows. • From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required in the survey areas described above. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC. • During project construction and operation/maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office, or the tribal government, as appropriate. • During project construction and operation/maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) at an offsite washing facility (e.g., a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed at an offsite washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. In addition, vehicles, tools, and equipment shall be washed at an offsite washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). Finally, vehicles, tools, and equipment used for maintenance shall be washed at an offsite washing facility immediately before each maintenance event. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort shall be made to use wash facilities that use recycled water. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies, State Parks (for weeds in ABDSP), tribal governments (for weeds on tribal lands), and biological monitor for inspection at any time and shall be submitted to the CPUC on a monthly basis during construction and submitted annually to the CPUC during operation/maintenance.
Location	Entire project area.
Monitoring/Reporting Action	BLM/CPUC biological monitor to confirm preparation and implementation of a weed control plan.
Effectiveness Criteria	Weed control plan prepared and successfully implemented.
Responsible Agency	BLM, CPUC, and ROW land-holding agencies (BLM, State Parks for ABDSP, USDA Forest Services for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. A qualified biologist shall survey for special status plants in the spring of a year with adequate rainfall prior to initiating construction activities in a given area. If a survey can not be conducted due to inadequate rainfall, then SDG&E shall consult with the Wildlife Agencies, State Parks (for impacts in ABDSP), and the USFS (for impacts on National Forest lands) to determine if construction may begin in the absence of survey data and what mitigation would be required, or whether construction would not be allowed until such data is collected. A report of special status plants observed shall be prepared and submitted for approval by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies prior to activities which may impact the plant resources.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-5a) All special status plant populations shall be staked or flagged by a qualified biologist approved by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete.
	— (B-5a) Impacts to federal or State listed plant species shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through salvage and relocation (salvage and relocation for plants in ABDSP shall be determined in consultation with, and approval of, State Parks) via a restoration program and/or offsite acquisition and preservation of habitat containing the plant at a 2:1 ratio. Avoidance may not be feasible due to physical or safety constraints. The CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies shall decide whether the Applicant can restore rare plant populations or shall acquire habitat with rare plant populations off site (locations to be approved by the CPUC, BLM, State Parks [for activities in ABDSP], USDA Forest Service [for alternatives with activities on National Forest lands], and the Wildlife Agencies). A qualified biologist shall prepare a Restoration Plan that shall indicate where restoration would take place. The restoration plan shall also identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service (for alternatives with restoration on National Forest lands) until a plan is approved by all. Impacts to moderately sensitive plant species (i.e., BLM Sensitive, USDA Forest Service Sensitive, CNPS List 1 and 2 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock) or relocation to temporarily disturbed areas (reseeding and relocation of plants in ABDSP shall be determined in consultation with, and approval of, State Parks). Avoidance may not be feasible due to physical or safety constraints. Mitigation Measure B-1a would also provide habitat-based mitigation for these impacts.
	— (B-5a) Where reseeding or salvage and relocation is required, the Applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Restoration Plan for reseeding or salvaging and relocating special status plant species to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies in writing prior to impacting the plant resources. The Applicant shall work with the above-listed agencies until a plan is approved by all. The reseeding or relocation of plants shall be maintained and monitored for five years after installation, or until established success criteria are met, to assess progress and identify potential problems with the mitigation. The reseeding or relocation of plants in ABDSP shall be maintained and monitored for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional seeding, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-5a) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact special status plant resources. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired offsite mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) offsite mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all mitigation parcels; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Entire project area.
Monitoring/Reporting Action	BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures, and confirm that habitat restoration plans are implemented.
Effectiveness Criteria	Successful avoidance or restoration/relocation of sensitive plants, purchase of appropriate mitigation lands, and provision of long-term habitat management for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State Parks (for ABDSP), and USDA Forest Service (for USFS land).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy. Mitigation for impacts to the FTHL shall follow all applicable measures in the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003). This mitigation includes, but is not limited to, locating impacts outside of MAs, delineating work limits, using existing roads, biological monitoring, and worker education.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-7b) According to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), compensation for FTHL habitat impacts could involve purchase of FTHL habitat and/or monetary compensation as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee. Impacts shall be mitigated at a 1:1 ratio for habitat outside a MA. Furthermore, mitigation inside a MA shall be at a 3.5:1 ratio for temporary impacts (2.5:1 for disturbed habitat, developed land, or agriculture) and a 5.5:1 ratio for permanent impacts (4.5:1 for disturbed habitat, developed land, or agriculture) . For the Proposed Project, the required mitigation for FTHL impacts (if offsite acquisition is the method of compensation) is 403.48 acres. On-site restoration requirements for the Project would be 232.84 acres. Any FTHL habitat acquired shall be approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP)
	— (B-7b) A Habitat Management Plan shall be prepared by a biologist approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) for all acquired FTHL habitat. The Habitat Management Plan must be approved in writing by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the FTHL or its habitat. The Applicant shall work with the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired FTHL habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) FTHL habitat approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); • Baseline biological data for all acquired FTHL habitat; • Designation of a land management entity approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	FTHL MAs and where potential FTHL habitat occurs.
Monitoring/Reporting Action	BLM and CPUC shall ensure that required purchase of mitigation land and provision of long-term management occurs. BLM/CPUC biological monitor shall ensure that applicable measures in the FTHL Rangewide Management Strategy are implemented.
Effectiveness Criteria	Direct impacts to the flat-tailed horned lizard are minimized. Compensatory mitigation for impacts to FTHL is implemented, including purchase of habitat and provision of long-term management for mitigation sites.
Responsible Agency	BLM, CPUC, and Flat-Tailed Horned Lizard Interagency Coordinating Committee.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	— B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat. With regard to timing of activities, construction and maintenance activities (including the use of helicopters) in bighorn sheep critical habitat shall be limited to outside the lambing season and the period of greatest water need, or a minimum ceiling of 1,500 feet for helicopter flights shall be maintained. The lambing season is January 1 through June 30. The period of greatest water need is May through September. Construction and maintenance activities in PBS critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.
	— (B-7c) To help reconnect PBS subpopulations and at least partially offset impacts to the overall population of PBS caused by the project, the Applicant shall: • fund the design and construction of an overpass (for sheep) or tunnel (for vehicles) to facilitate PBS movement across a highway at a location determined by the USFWS (in coordination with State Parks and CDFG. Tunnel or overpass design must be approved by the Wildlife Agencies. • fund removal of tamarisk and fences for the life of the project, and install and maintain water sources at locations determined by the USFWS (in coordination with State Parks and CDFG) • fund a minimum 10-year-long program to monitor the effects of the project on PBS behavior, movements, and dispersal in the project corridor (ten years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program would be implemented by the Wildlife Agencies and State Parks following construction.
	— (B-7c) Furthermore, the Applicant shall provide compensation for direct loss of critical habitat at a 5:1 ratio for permanent impacts and at a 3:1 ratio (including a combination of onsite restoration and offsite purchase) for temporary impacts with PBS critical habitat or other habitat acceptable to the Wildlife Agencies, BLM, and State Parks (for critical habitat in ABDSP). Impacts to PBS critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. For the Proposed Project, the required mitigation for PBS impacts includes offsite purchase of 525.7 acres and onsite restoration of 111.81acres. The determination of impact acreage shall be based on the definition of critical habitat in effect as of the time of publication of the Final EIR/EIS.
	— (B-7c) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and State Parks for all acquired PBS habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) PBS or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired PBS habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) PBS habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) • Baseline biological data for all acquired PBS habitat • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity) • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where bighorn sheep or designated bighorn sheep critical habitat occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with APMs and bighorn sheep impact minimization measures. BLM and CPUC shall ensure that funding is provided for bighorn sheep studies and crossing mitigation; and that habitat acquisition and long-term management of mitigation sites is implemented.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Effectiveness Criteria	Successful avoidance/minimization of bighorn sheep impacts, and implementation of funding for studies and a wildlife crossing, habitat acquisition and long-term management for mitigation parcels.
Responsible Agency	BLM, CPUC, USFWS, CDFG, and State Parks.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/compensation strategies. A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. In addition, the burrowing owl shall be looked for opportunistically as part of other surveys and monitoring required during project construction. If the burrowing owl is absent, then no mitigation is required.
	— (B-7d) If the burrowing owl is present, no disturbance shall occur within 50 meters (approximately 160 ft) of occupied burrows from September 1 through January 31 or within 75 meters (approximately 250 ft) of occupied burrows from February 1 through August 31 (CDFG, 1995).
	— (B-7d) During construction, any pipe or similar construction material that is stored on site for one or more nights shall be inspected for burrowing owls by a qualified biologist before the material is moved, buried, or capped
	— (B-7d) Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters from the impact zone and that are within or contiguous to a minimum of 6.5 acres of preserved (or acquired and preserved if not already preserved) foraging habitat for each relocated owl (single owl or owl pair). Passive relocation is accomplished by first creating two artificial burrows in contiguous, preserved foraging habitat (if no natural burrows exist) for each occupied burrow that would be impacted; and second, installing one-way doors on occupied burrow entrances so owls can leave the burrow but not re-enter it. Following passive relocation, the area of impact and the preserved foraging habitat with alternate burrows are surveyed daily for one week to confirm owl use of alternate burrows before excavation of burrows in the impact zone. All passive relocation shall be conducted by a biologist approved by the CDFG. If the alternate burrows are not used by the relocated owls, then the Applicant shall work with the CDFG to provide alternate mitigation for burrowing owls. If the alternate burrows are used, no other mitigation shall be required. If it is not possible to preserve contiguous habitat on which to provide alternate burrows (e.g., on private land), and occupied owl burrows would be directly impacted, then the owls shall be passively relocated without the creation of alternate burrows prior to construction (relocation should only be implemented during the non-breeding season [September 1 through January 31]). The loss of occupied owl habitat shall be mitigated by acquiring and preserving other occupied habitat elsewhere (as explained below) per the Staff Report on Burrowing Owl Mitigation (CDFG, 1995) and the Burrowing Owl Survey Protocol and Mitigation Guidelines (The Burrowing Owl Consortium, 1993), or as otherwise determined in consultation with the CDFG.
	— (B-7d) Impacted occupied habitat shall be mitigated by 1) acquiring and preserving occupied habitat at a rate of 1.5 times 6.5 acres (or 9.75 acres) per pair or single bird impacted, or 2) acquiring and preserving unoccupied habitat contiguous with currently occupied habitat at a rate of two times 6.5 acres (or 13 acres) per pair or single bird impacted, or 3) acquiring and preserving suitable unoccupied habitat at a rate of three times 6.5 acres (or 19.5 acres) per pair or single bird impacted. All acquired habitat shall be acceptable to the CDFG and shall be protected and managed for the burrowing owl in perpetuity.
	— (B-7d) The survey required within 30 days prior to the initiation of construction will determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond and whether or not the mitigation needs to be revised.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-7d) A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, CDFG, and State Parks (for land in ABDSP) for all acquired burrowing owl habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the burrowing owl or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired burrowing owl habitat. The Habitat Management Plan shall include, but shall not be limited to: — Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) burrowing owl habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP); — Baseline biological data for all acquired burrowing owl habitat; — Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management; — A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; — Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and — Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).
Location	Where occupied burrowing owl habitat occurs.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures. If necessary, BLM and CPUC shall approve habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Avoidance of occupied burrows and surrounding foraging area, successful passive relocation, and/or replacement of occupied habitat that is managed in perpetuity.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All grading or brushing taking place within riparian habitats of the least Bell's vireo or southwestern willow flycatcher during construction shall be conducted from September 16 (October 1 in ABDSP) through March 14, which is outside the least Bell's vireo and southwestern willow flycatcher breeding seasons.
	— (B-7e) When conducting all other construction activities during the breeding season of March 15 through September 15 (September 30 in ABDSP) within 500 feet (USFWS, 2007b) of habitat in which least Bell's vireos and/or southwestern willow flycatchers are known to occur or have potential to occur, a biologist permitted by the USFWS shall survey for least Bell's vireos and southwestern willow flycatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.
	— (B-7e) If least Bell's vireos or southwestern willow flycatchers are present, a permitted biologist shall survey for nesting vireos and flycatchers approximately once per week within 500 feet of the construction area (USFWS, 2007b), for the duration of the activity in that area during the breeding season.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-7e) If/when an active nest is located, a 300-foot no-construction buffer zone (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. No construction shall take place within this buffer until the nest is no longer active unless there are physical or safety constraints. If construction must take place within the buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied vireo/flycatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies, State Parks (for activities in ABDSP), and USDA Forest Service (for activities on National Forest lands) to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The permitted biologist shall monitor the nest daily until either activities are no longer within 300 feet of the nest, or the fledglings become independent of their nest.
	— (B-7e) Mitigation for the loss of least Bell's vireo- or southwestern willow flycatcher-occupied habitat (or designated critical habitat for the flycatcher) shall be implemented as follows. Permanent impacts to occupied habitat and/or designated critical habitat shall include offsite acquisition and preservation of occupied habitat or designated critical habitat at a 3:1 ratio. Temporary impacts to occupied habitat or designated critical habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied habitat and/or designated critical habitat. Impacts to least Bell's vireo or southwestern willow flycatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. If a USFWS protocol, pre-construction survey, conducted in an area where presence of the vireo or flycatcher was assumed in this analysis (see Appendix 8B) determines that the species is absent, then the mitigation shall be reduced accordingly. Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-7e) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the least Bell's vireo or southwestern willow flycatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired vireo or flycatcher habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) least Bell's vireo or southwestern willow flycatcher habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all least Bell's vireo or southwestern willow flycatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the vireo or flycatcher occur or have potential to occur.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to nesting vireos and flycatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, and CDFG.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-7h: Implement appropriate avoidance/minimization strategies for eagle nests. No construction or maintenance activities shall occur within 4,000 feet of an eagle nest during the eagle breeding season (December through June).
Location	Within 4,000 feet of eagle nests
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure compliance with restrictions before and during construction. A qualified biologist shall ensure compliance during maintenance.
Effectiveness Criteria	Successful avoidance of indirect impacts to eagle nests.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	— B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/ compensation strategies. A pre-construction, USFWS protocol survey shall be conducted for the toad in the construction zone (by a biologist permitted by the USFWS to handle the toad) where absence of the species has not been proven to conclusively define the impacts to occupied habitat. In the absence of this survey data, the mitigation acreages required below shall stand. Where the pre-construction survey determines the species is absent, the mitigation shall be reduced accordingly.
	(— B-7j) The removal of toad riparian breeding habitat shall occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.
	(— B-7j) Where the toad is present (or assumed to be present if no pre-construction survey is conducted), the construction zone shall be fenced with exclusion fencing to prevent toad access to it. The fencing shall be a silt-screen type barrier comprised of a minimum 24-inch high fence with the remainder (minimum 12 inches) anchored firmly against the ground. The fence may be buried if necessary to exclude toad access. The fence locations shall be identified by a USFWS permitted biologist and adjusted as necessary. Exclusion fencing shall be monitored daily by a qualified biologist (see Mitigation Measure B-1c) and maintained in its original condition by construction personnel for the entire length of the construction period in toad habitat. Pre- and post-exclusion fencing surveys within the construction zone shall be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. Prior to construction commencement, a minimum of three surveys shall be conducted by this biologist following installation of the fencing and prior to construction activities. One of these clearance surveys must take place no more than 24 hours prior to activity commencement. These surveys shall be conducted during appropriate climatic conditions and during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If conditions are not appropriate for arroyo toad movement during surveys, the biologist may attempt to elicit a response from the toads during nights (i.e., at least one hour after sunset), provided that temperatures are above 50°F, by spraying the project area with water to simulate a rain event. After the three clearance surveys outlined above have been completed, daily surveys shall be conducted each morning prior to the continuation of construction or maintenance activity. Any toads found shall be relocated to appropriate similar habitat outside project impact areas.
	(— B-7j) Mitigation for the loss of arroyo toad-occupied habitat shall be implemented as follows. Permanent impacts to occupied, arroyo toad breeding habitat shall include offsite acquisition and preservation of occupied arroyo toad breeding habitat at a 3:1 ratio. Permanent impacts to occupied, upland burrowing habitat shall include offsite acquisition and preservation of occupied, upland burrowing habitat at a 2:1 ratio. Temporary impacts to occupied breeding habitat shall include 1:1 onsite restoration and 2:1 offsite acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied, upland burrowing habitat shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied, upland burrowing habitat. Any acquired arroyo toad habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	(— B-7j) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the arroyo toad or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired arroyo toad habitat. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) arroyo toad habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all arroyo toad habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Areas where the arroyo toad occurs or has potential to occur.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to arroyo toads are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. All brushing or grading taking place within occupied habitat of the coastal California gnatcatcher (defined as within 500 feet of any gnatcatcher sightings [USFWS, 2007b]) during construction shall be conducted from September 1 through February 14, which is outside the coastal California gnatcatcher breeding season.
	(— B-7l) When conducting all other construction activities during the coastal California gnatcatcher breeding season of February 15 through August 30, within habitat in which coastal California gnatcatchers are known to occur or have potential to occur, the following avoidance measures shall apply. A USFWS permitted biologist shall survey for coastal California gnatcatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If coastal California gnatcatchers are present, but not nesting, a USFWS permitted biologist shall survey for nesting coastal California gnatcatchers approximately once per week within 500 feet of the construction area for the duration of the activity in that area during the breeding season.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	(— B-7l) If/when an active nest is located, a 300-foot no-construction buffer (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction shall take place within this buffer until the nest is no longer active. However, if construction must take place within the 300-foot buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting coastal California gnatcatchers and the activities, and working in other areas until the young have fledged.
	(— B-7l) Mitigation for the loss of coastal California gnatcatcher-occupied habitat shall be implemented as follows. Permanent impacts to occupied habitat shall include offsite acquisition and preservation of occupied habitat at a 2:1 ratio. Temporary impacts to occupied habitat shall be mitigated at a 2:1 ratio and shall include 1:1 onsite restoration and 1:1 offsite acquisition and preservation of occupied habitat. Mitigation for the loss of unoccupied designated critical habitat for the gnatcatcher shall be implemented as follows. Permanent impacts to unoccupied designated critical habitat shall include offsite acquisition and preservation of designated critical habitat at a 2:1 ratio. Temporary impacts to unoccupied designated critical habitat shall include 1:1 onsite restoration. Impacts to coastal California gnatcatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. Any acquired coastal California gnatcatcher habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
	(— B-7l) A Habitat Management Plan for any required, offsite mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the coastal California gnatcatcher or its habitat. The Applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired coastal California gnatcatcher. The Habitat Management Plan shall include, but shall not be limited to: • Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) coastal California gnatcatcher habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands); • Baseline biological data for all coastal California gnatcatcher habitat; • Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management; • A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; • Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity); and • Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).
Location	Occupied gnatcatcher habitat.
Monitoring/Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/ minimization/mitigation measures. BLM and CPUC shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Effectiveness Criteria	Impacts to coastal California gnatcatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	BLM, CPUC, USFWS, CDFG, State parks (for ABDSP) and USDA Forest Services (for USFS lands).
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-10a: Utilize collision-reducing techniques in installation of transmission lines. The Applicant shall install the transmission lines utilizing Avian Power Line Interaction Committee standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994" (APLIC, 1994) as follows. • Placement of towers and lines shall not be located above existing towers and lines, topographic features, or tree lines to the maximum extent practicable. Power lines should be clustered in the vertical and horizontal planes aligned with existing geographic features or tree lines, and located parallel (rather than perpendicular) to prevailing wind patterns to the maximum degree feasible. • Additionally, overhead lines that are located in highly utilized avian flight paths shall be marked utilizing fixed mount Firefly Flapper/Diverters, swan flight diverter coils, or other diversion devices, if proven more effective, as to be visible to birds and to reduce avian collision with power lines.
	— (B-10a) Where such markers are installed, the Applicant shall fund a study to determine the effectiveness of the markers as a collision prevention measure since there are few, if any, studies that show if such markers work, especially on transmission lines (CEC, 2007). The Applicant shall develop a draft study protocol and submit it to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review. The Applicant shall continue to work with these agencies until approval of a final study protocol is obtained. If the study shows the markers to be ineffective, the Applicant shall coordinate with the Wildlife Agencies and State Parks (for markers in ABDSP) to develop alternate collision protection measures.
	— (B-10a) The Applicant shall implement an avian reporting system for documenting bird mortalities to help identify problem areas. The reporting system shall follow the format in Appendix C of "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006" (APLIC, 2006) or a similar format. The Applicant shall submit a draft reporting protocol and reporting system to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review and approval. The Applicant shall continue to work with these agencies until approval of a final reporting protocol and reporting system is obtained. The Applicant shall develop and implement methods to reduce mortalities in identified problem areas. The methods shall be approved by the Wildlife Agencies, State Parks (for problem areas in ABDSP), CPUC, and BLM prior to implementation. Bird mortality shall continue to be documented in the problem areas per the avian reporting system to determine the effectiveness of the mortality reduction methods and to determine if new methods need to be developed.
Location	Highly utilized avian flight paths
Monitoring/Reporting Action	BLM/CPUC biological monitor shall ensure installation of markers. BLM and CPUC shall ensure that the Applicant funds and implements a study to document bird mortalities.
Effectiveness Criteria	Markers installed, bird mortality study implemented, and corrective measures taken.
Responsible Agency	CPUC, BLM, State Parks (for ABDSP), USFWS and CDFG
Timing	During and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	B-11a: Prepare and implement a Raven Control Plan. The Applicant shall prepare and implement a Raven Control Plan where it occurs in FTHL habitat inside and outside FTHL MAs. The raven control plan shall include the use of raven perching/nesting deterrents (such as those manufactured by Prommel Enterprises, Inc. [www.ZENAdesign.com], Mission Environmental [www.missionenviro.co.za], or Kaddas Enterprises, Inc. [www.kaddas.com] and/or shall describe the procedure for obtaining a permit from the USFWS Law Enforcement Division to legally remove ravens. The plan shall identify the purpose of conducting raven con egar; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; and describe procedures for documenting the activities on an annual basis. The Applicant shall obtain approval of this plan from the USFWS prior to the start of construction. The Applicant shall work with the USFWS until approval of a plan is obtained.
Location	FTHL habitat inside and outside FTHL Mas, and where desert tortoise has potential to occur, outside ABDSP.
Monitoring/Reporting Action	BLM/CPUC biological monitor shall verify that SDG&E submitted a raven control plan and received approval from USFWS prior to construction, and that the plan is implemented after construction.
Effectiveness Criteria	A raven control plan is submitted by SDG&E, approved by USFWS, and implemented.
Responsible Agency	BLM, CPUC, and USFWS Law Enforcement Division.
Timing	Pre- and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— B-12a: Conduct maintenance activities outside the general avian breeding season. The Applicant shall educate all maintenance workers about the sensitivity of biological resources associated with the project and the necessity to avoid unauthorized impacts to them.
	— (B-12a)In areas not cleared of vegetation in the prior two years, all vegetation clearing, except tree trimming or removal, shall take place between September 16 and February 14 (i.e., outside of the general avian breeding season of February 15 through September 15). Tree trimming or removal shall only take place between September 16 and December 31 (i.e., outside the raptor breeding season of January 1 through September 15). Other maintenance activities shall occur outside the general avian breeding season where feasible. For other maintenance activities that cannot occur outside the above-listed breeding seasons, a qualified biologist shall work with a qualified acoustician to determine if a maintenance activity would meet or exceed the 60 dB(A) Leq hourly noise threshold where nesting territories of the coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing owl occur. If the noise threshold would not be met or exceeded at the edge of their nesting territories, then maintenance may proceed. If the noise threshold would be met or exceeded at the edge of their nesting territories, pre-maintenance surveys for nests of these species shall be conducted by a qualified biologist (USFWS permitted biologist for gnatcatcher, vireo, and flycatcher) within 300 feet of the maintenance area no more than seven days prior to initiation of maintenance that would occur between February 15 and August 30 for the gnatcatcher, March 15 and September 15 for the vireo, April 15 and September 15 for the flycatcher, and February 1 and August 31 for the burrowing owl. If active nests are found, work may proceed provided that methods, determined by the qualified acoustician to be effective, are implemented to reduce noise below the threshold. These methods include, but are not limited to, turning off vehicle engines and other equipment whenever possible and/or installing a protective noise barrier between a nesting territory and maintenance activities. If the qualified acoustician determines that no methods would reduce noise to below the threshold, maintenance shall be deferred until the nestlings have fledged as determined the qualified biologist. Where noise-reducing methods are employed, active nests shall be monitored by the qualified biologist on a weekly basis until maintenance is complete or until the nestlings fledge, whichever comes first. The qualified biologist shall be responsible for documenting the results of the pre-maintenance nest surveys and the nest monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for maintenance in ABDSP), and USDA Forest Service (for alternatives with maintenance on National Forest lands).

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (B-12a) Animal Burrows/Dens. If any animal burrows or dens are identified during the pre-maintenance surveys for active bird nests, soil in a brush-clearing area shall be sufficiently dry before brush clearing to prevent damage to burrows or dens. At any time of year where maintenance would occur in occupied SKR habitat, all equipment and vehicles shall remain on existing access roads/staging areas (e.g., they shall not pull off the shoulder) to prevent the crushing of SKR burrows.
Location	Entire project area.
Monitoring/Reporting Action	A qualified biologist shall conduct surveys and monitoring, and ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds and prevention of damage to burrows or dens.
Responsible Agency	BLM, CPUC, USFWS, CDFG, state parks (for ABDSP) and USDA Forest Service (for USFS land).
Timing	Post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-12b: Conduct maintenance when arroyo toads are least active. To avoid impacts to arroyo toads during project maintenance (specifically the use and maintenance of access roads within 2 kilometers of occupied toad habitat), use and maintenance of these access roads shall only occur between two hours after sunrise until two hours before sunset.
Location	Access roads where occupied habitat (or potential habitat where absence has not been established) occurs.
Monitoring/Reporting Action	A qualified biologist shall ensure compliance with construction time restrictions.
Effectiveness Criteria	Avoidance of impacts to arroyo toads on access roads
Responsible Agency	BLM, CPUC
Timing	Post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	B-12c: Maintain access roads and clear vegetation in Quino checkerspot butterfly habitat. If access roads in QCB-occupied or potentially occupied habitat (see Impact B-7J and Mitigation Measure B-7i) are maintained (i.e., egardin) and vegetation around structures is cleared at least once every two years, then no additional mitigation shall be required for this ongoing maintenance. If more than two years pass without egarding or clearing, then the maintenance shall be considered a new impact to QCB habitat and shall be mitigated as prescribed in Mitigation Measure B-7i (i.e., protocol pre-maintenance survey, biological monitoring, and avoidance or mitigation).
Location	Access roads in occupied or potential occupied habitat.
Monitoring/Reporting Action	A qualified biologist shall provide monitoring to ensure compliance.
Effectiveness Criteria	Avoidance or mitigation of impacts to QCB
Responsible Agency	BLM, CPUC
Timing	Post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

BIO-APM-5	To the extent feasible, access roads would be built at right angles to the streambeds and washes; where not feasible for access roads to cross at right angles, SDG&E would limit roads constructed parallel to streambeds or washes to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or waters of the State. Streambed crossings and roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. Culverts would be installed where needed for right angle crossings, but rock crossings would be utilized across most right angle drainage crossings. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels and stream banks (e.g., structures would not be located within a stream channel, construction activities would avoid sensitive features). ~~Prior to construction in streambeds and washes, SDG&E would perform a pre-activity survey, or more as appropriate, to determine the presence/absence of endangered riparian species. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by the BIO-APM-1.~~ (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-6	In the construction, operation, and maintenance of the project, SDG&E would comply with all applicable environmental laws and regulations, including, without limitation, those regulating and protecting wildlife and its habitat. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-9	Brush clearing around any Project facilities (e.g., structures, substations) for fire protection, visual inspection or Project surveying, in areas which have been previously cleared or maintained within a two-year or shorter period shall not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing shall not be conducted during the breeding season (~~March through August~~) without a pre-activity survey for vegetation containing active nests, burrows, or dens. ~~The pre-activity survey performed by the onsite biological resource monitor would make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work would be avoided until after the nesting season, or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance-level survey, soil in the brush clearing area would be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.~~ (SDG&E)
Location	Entire project area.
Timing	Post construction.
Status	
Review / Approval Status	
BIO-APM-10	No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms shall be prohibited in all project areas except for those used by security personnel. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-11	Feeding of wildlife is not allowed. (SDG&E)
Location	Entire project area.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-12	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-13	Plant or wildlife species may not be collected for pets or any other reason. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
BIO-APM-14	~~All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife is located in the trench or excavation, the onsite biological resource monitor shall be called immediately to remove them if they cannot escape unimpeded. The onsite biological resource monitor would make required contacts with the USFWS and CDFG resource personnel and obtain verbal approval prior to removing any entrapped wildlife.~~ If the biological resource monitor is not qualified to remove the entrapped wildlife, a recognized wildlife rescue agency (such as Project Wildlife) may be employed to remove the wildlife and transport them safely to other suitable habitats. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
BIO-APM-15	Emergency repairs may be required during the construction and maintenance of the project to address situations (e.g., downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs the APMs shall be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage would be reported to the project biological construction monitor, who would promptly submit a written report of such impacts to the USFWS and CDFG and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological construction monitor would develop a reasonable and feasible mitigation plan consistent with the APMs and any permits previously issued for the project by the governmental agencies. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

BIO-APM-17	All new access roads or spur roads constructed as part of the project that are not required as permanent access for future Project maintenance and operation would be permanently closed. ~~Where required, roads would be permanently closed using the most effective feasible and least environmentally damaging methods appropriate to that area with the concurrence of the underlying landowner and the governmental agency having jurisdiction (e.g., stockpiling and replacing topsoil or rock replacement). This would limit new or improved accessibility into the area.~~ Mowing of vegetation can be an effective method for protecting the vegetative understory while at the same time creating access to the work area. Mowing should be used when permanent access is not required since, with time, total revegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing would be necessary to maintain permanent access. The project biological construction monitor shall conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 14-foot-wide area on straight portions of the road and a 16- to 20-foot-wide area at turns, and that the mowing height is no less than 4 inches from finished grade. (SDG&E)
Location	Entire project area.
Timing	During and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2b: Reduce visual contrast from unnatural vegetation lines. In those areas where views of land scars are unavoidable, the boundaries of disturbed areas shall be aggressively revegetated to create a less distinct and more natural-appearing line to reduce visual contrast. Furthermore, all graded roads and areas not required for on-going operation, maintenance, or access shall be returned to pre-construction conditions. In those cases where potential public access is opened by construction routes, SDG&E shall create barriers or fences to prevent public access and patrol construction routes to prevent vandalized access and litter clean-up until all vegetation removed returns to its pre-project state. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
	— (V-2b) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	All grading sites for access roads, spur roads, and ancillary faculties.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of unnatural vegetation lines will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-2c: Reduce color contrast of land scars on non-Forest lands. For non-USFS-administered land areas where views of land scars from sensitive public viewing locations are unavoidable, disturbed soils shall be treated with Eonite or similar treatments to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings (Eonite and Permeon are commercially available chemical treatments that "age" or oxidize rock and are used specifically for coloring concrete or rock surfaces to tone down glare and contrast and simulate naturally occurring desert varnish). SDG&E will consult with the Authorized Officer (as determined by the CPUC and BLM as appropriate) on a site-by-site basis for the use of Eonite.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (V-2c) SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.
Location	Locations of all land scars that would be visible to the public.
Monitoring / Reporting Action	CPUC and BLM to review construction and restoration plans prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line (USFS Scenery Conservation Plan). CPUC and USFS to review Scenery Conservation Plan at least 120 days prior to start of construction and verify implementation following construction.
Location	Locations of all land scars and vegetation clearance on USFS – administered lands.
Monitoring / Reporting Action	CPUC and USFS to review Scenery Conservation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of high-contrast colors from exposed soils will be minimized and the resulting visual contrast will be minimal.
Responsible Agency	CPUC, USFS
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	V-3a: Reduce visual contrast of towers and conductors. The following design measures shall be applied to all new structure locations, conductors, and re-conductored spans, in order to reduce the degree of visual contrast caused by the new towers and conductors:
	• All new conductors and re-conductored spans are to be non-specular in design in order to reduce conductor visibility and visual contrast.
	• All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Sensitive viewing locations have been defined by Cleveland National Forest as campgrounds, trailheads, trails, wilderness areas, backcountry roads, heavily traveled roads, and overlooks. Access roads of concern are those that would be visible as they directly approach existing or proposed towers in a straight line from locations immediately downhill of the structures. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following:
	  • Definition of towers with sensitive viewing areas from which visibility of access roads is a concern.
	  • Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design.
	  • "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
	  • A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each tower (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route.

Location	Applies to all tower locations and route segments.
Monitoring / Reporting Action	CPUC and BLM to review Project Design Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	— V-7a: Reduce visual contrast associated with ancillary facilities. SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The Surface Treatment Plan shall include: • Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture • A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation) • Two sets of brochures and/or color chips for each proposed color • A detailed schedule for completion of the treatment • A procedure to ensure proper treatment maintenance for the life of the project.
	— (V-7a) SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC. Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Surface Treatment Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	V-7b: Screen ancillary facilities. SDG&E shall provide a Screening Plan for screening vegetation, walls, and fences that reduces visibility of ancillary facilities (except Imperial Valley Substation) and helps the facility blend in with the landscape. The use of berms to facilitate project screening may also be incorporated into the Plan. SDG&E shall submit the Plan to the BLM and CPUC for review and approval at least 90 days prior to installing the landscape screening. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The plan shall include but not necessarily be limited to: • An 11" x 17" color simulation of the proposed landscaping at 5 years • A plan view to scale depicting the project and the location of screening elements • A detailed list of any plants to be used; their size and age at planting; the expected time to maturity, and the expected height at five years and at maturity
	— (V-7b) SDG&E shall complete installation of the screening prior to the start of project operation. SDG&E shall notify the BLM and CPUC within seven days after completing installation of the screening, that the screening components are ready for inspection.
Location	Applies to all permanent ancillary facilities including substations and switchyards.
Monitoring / Reporting Action	CPUC and BLM to review Screening Plan prior to start of construction and verify implementation following construction.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Effectiveness Criteria	The occurrence of visual contrast from ancillary facilities will be minimized and facilities will blend with the landscape to the extent feasible.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— V-21a: Reduce night lighting impacts. SDG&E shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.
	— (V-21) SDG&E shall submit a Lighting Mitigation Plan to the CPUC for review and approval at least 90 days prior to ordering any permanent exterior lighting fixtures or components. SDG&E shall not order any exterior lighting fixtures or components until the Lighting Mitigation Plan is approved by the CPUC. The Plan shall include but is not necessarily limited to the following: • Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary • All lighting shall be of minimum necessary brightness consistent with worker safety • High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.
Location	Applies to all permanent ancillary facilities including substations, switchyards, series capacitor banks, and optical repeater stations.
Monitoring / Reporting Action	CPUC and BLM to review Lighting Mitigation Plan prior to start of construction and verify implementation following construction.
Effectiveness Criteria	Light bulbs and reflectors at Construction yards and staging areas would not be visible from public viewing areas and night lighting would not cause reflected glare and illumination beyond the construction site and into the nighttime sky.
Responsible Agency	CPUC, BLM on BLM-administered lands
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	V-45a Prepare and implement Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify specific actions that will minimize the project's visible disturbance to the naturally established scenery and to establish final direction to best achieve the spirit and intent of the Scenic Integrity Objectives of the Cleveland National Forest Land and Resource Management Plan. To achieve the greatest consistency with the Scenic Integrity Objectives, the project shall detail and integrate the following design recommendations into the Scenery Conservation Plan: • Power Line and Support Towers. Transmission lines shall be nonspecular (nonreflective) and neutral in coloration. Support towers shall be custom-colored with a flat, non-reflective finish, to visually blend with native vegetation colors to appear as visually transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape. • Distance Zones. The Applicant shall consult with the Forest Service on tower design for any approved route on Forest lands and implement tower styles in accordance with agency direction. In general, the USFS requires that support towers within approximately one mile of sensitive primary viewpoints and without a backdrop be a monopole design with a simple, clean and less industrial appearance and support towers viewed beyond one mile from sensitive viewpoints or only at distance be lattice towers. • Vegetation Clearing. Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line. • Roads. No new access or spur roads, or improvements (reconstruction/expansion) to existing roads are to be constructed in the following areas: (1) where ground slopes exceed 15%, or (2) on Forest lands subject to a HIGH Scenic Integrity Objective (SIO) where the new access or spur road would be visible from primary travel (paved) roads or the Pacific Crest National Scenic Trail, regardless of ground slope. Existing roads needing reconstruction/expansion on other areas of the forest shall be configured to minimize the creation of cut/fill slopes. Where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species. • Structures. All structures and structural elements, that may be constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character. • Evaluation of Effects. The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives as viewed from sensitive viewsheds. • Off-Site Mitigation. Where project features create unavoidable and permanent negative scenery effects that are inconsistent with CNF Plan Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas in new viewsheds agreeable to the Forest shall be purchased and assigned to the Forest for its stewardship.
Location	Applies to all tower locations, facilities, and route segments within Cleveland National Forest Lands.
Monitoring / Reporting Action	CNF to review Scenery Conservation Plan within one year after license issuance, or prior to any ground disturbing activities.
Effectiveness Criteria	The occurrence of visual contrast from towers and conductor spans will be minimized. Asynchronous tower spans will be minimized.
Responsible Agency	CNF
Timing	Pre-, during and post construction.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Status	
Review / Approval Status	
	— WR-2b: Evaluate and Implement PCT Route Revision. SDG&E shall consult and coordinate with the U.S. Forest Service, BLM, and the Pacific Crest Trail Association to develop route options for revising the PCT so it would cross the Modified Route D Alternative only once, rather than three times. SDG&E shall prepare and submit a report to the BLM and U.S. Forest Service prior to energizing the new transmission line. The report shall identify feasible PCT relocation options, and, under the direction of the federal agencies, shall evaluate whether its construction and restoration of the old trail segment would create overall greater impacts than those created by three crossings of the PCT that would occur with the Modified Route D Alternative.
	— (WR-2b) If directed by the BLM, SDG&E shall be responsible for constructing the new trail segment and restoring the old trail segment in manner acceptable to the BLM and U.S. Forest Service. Trail construction and restoration shall be completed within one year of energizing the transmission line.
Location	Modified Route D Alternative at PCT Crossing
Monitoring / Reporting Action	Consult and coordinate with USFS, BLM, and Pacific Crest Trail Association
Effectiveness Criteria	PCT relocation options are identified and implemented at the direction of the agencies
Responsible Agency	USFS; BLM
Timing	Post construction, pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	AG-1b: Restore compacted soil. The Applicant shall restore soils compacted or disturbed such as by excavation during construction by conferring with the property owner or tenant to identify and then implement a mutually agreed means to restore such soils. Restoration actions may include, but are not be limited to, disking, plowing, removal of excavated soil, or other suitable restoration methods. This shall occur thirty (30) days after completion of construction clean-up and site restoration at each property.
Location	Locations where changes to the existing environment due to construction activities could result in compacted soil.
Monitoring / Reporting Action	After construction is completed, land is restored per agreement with landowner. Monitors will verify that restoration activity has been completed and landowner has concurred that restoration effort is consistent with original agreement. SDG&E shall provide copies of the original agreements and the restoration concurrence acknowledgement from the landowner.
Effectiveness Criteria	Affected landowners are in agreement with restoration
Responsible Agency	CPUC, BLM Offices
Timing	Post construction.
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	AG-1c: Coordinate with grazing operators. SDG&E shall coordinate with grazing operators to ensure that agricultural productivity and animal welfare are maintained both during and after construction to the maximum extent feasible. Coordination efforts will address issues including, but not necessarily limited to: • Interference with access to water (e.g., provide alternate methods for livestock access to water) • Impairment of cattle movements (e.g., provide alternate routes; reconfigure fencing/gates) • Removal and replacement of fencing (e.g., during construction install temporary fencing/barriers, as appropriate, and following construction restore equal or better fencing to that which was removed or damaged) • Impacts to facilities such as corrals and watering structures, as well as related effects such as ingress/egress, and management activities (e.g., replacement of damaged/removed facilities in kind; provide alternate access) This shall occur Sixty (60) days prior to the start of project construction and Thirty (30) days after construction on each property.
Location	Locations where the project could interfere with grazing operations
Monitoring / Reporting Action	Verify coordination has taken place and an agreement has been reached.
Effectiveness Criteria	Coordination has been conducted with appropriate landowners or tenants and reasonable procedures to implement the mitigation measure have been agreed to by all parties.
Responsible Agency	CPUC, BLM Offices
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-1d: Conduct data recovery to reduce adverse effects. If NRHP- and/or CRHR-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP- and/or CRHR-eligibility. For sites eligible under Criterion (d), significant data would be recovered through excavation and analysis.
	— (C-1d) For properties eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment shall be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations shall follow standard statistical sampling methods, but sampling shall be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC.
	— (C-1d) Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories, local governments, and other appropriate agencies. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate, to ensure that impacts to known significant archaeological deposits are adequately mitigated. Field closure report prior to construction within 100 ft of affected resource. Final report of data-recovery investigations within one year of completion of fieldwork.
Location	Within 100 ft of resources identified in HPTP that require data-recovery mitigation.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Monitoring / Reporting Action	• BLM and CPUC review and approve field closure report of data-recovery fieldwork. • BLM and CPUC review and approve final report of data recovery, curation of artifacts and data, and dissemination of final report.
Effectiveness Criteria	Data-recovery investigations, curation, and reporting fulfill all requirements of the agreement document promulgated with the Advisory Council.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	C-4a: Complete consultation with Native American and other Traditional Groups. The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the approved project on Traditional Cultural Properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).
Location	Entire Project.
Monitoring / Reporting Action	• Signature of agreement documents for treatment of TCPs. • Written documentation and approval by BLM and CPUC of completion of required treatment.
Effectiveness Criteria	TCPs and other resources of Native American concern are treated in accordance with agreements that are made during consultation.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	— C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties. The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP- and/or CRHR)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for NRHP- and/or CRHR-eligible properties within the transmission line corridor that will experience operational and access impacts as a result of the Proposed Project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting NRHP- and/or CRHR-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to NRHP- and/or CRHR-eligible properties. The plan shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies for review and approval at least 30 days prior to project operation.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

	— (C-5a) Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies within one month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM, CPUC, or other land-managing agency, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.
	— (C-5a) If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP- and/or CRHR)-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM, CPUC, or other appropriate land-managing agency become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement additional protective measures, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such measures may include, but not be limited to refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection. 30 days prior to and during project operation. During operation, annually for 5 years. Thereafter, on a schedule determined by BLM and CPUC and/or immediately upon discovery of adverse changes to NRHP or CRHR-eligible property.
Location	All locations identified in long-term protection plan.
Monitoring / Reporting Action	BLM and CPUC review and approval of long-term protection plan; compliance with reporting and monitoring provisions in the approved protection plan. Following construction, annual site monitoring; immediate notification to BLM and CPUC of adverse changes.
Effectiveness Criteria	Known cultural resources are not affected by long-term project operation and adverse changes to NRHP and CRHR-eligible properties are mitigated.
Responsible Agency	BLM and CPUC.
Timing	Pre-, during and post construction.
Status	
Review / Approval Status	
CR-APM-9	1. Permanent fencing or barriers will be installed, or access to the historic property will be controlled as deemed appropriate by the relevant agencies. 2. Use of access for construction or operation will be restricted. 3. Construction and maintenance personnel will be instructed in protection of sensitive properties. (SDG&E)
Location	Entire project area.
Timing	Pre, during and post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	N-3a: Respond to complaints of corona noise. SDG&E shall respond to third-party complaints of corona noise generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures (such as repair damaged conductors, insulators, or other hardware). As part of SDG&E's repair inspection and maintenance program, the transmission line shall be patrolled, and damaged insulators or other transmission line materials, which could cause excessive noise, shall be repaired or replaced.
Location	All overhead transmission line segments.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E investigates noise complaints, implements feasible repairs, and maintains a repair inspection and maintenance program to manage corona noise.
Effectiveness Criteria	Corona noise is managed.
Responsible Agency	CPUC; BLM El Centro Field Office.
Timing	Post construction.
Status	
Review / Approval Status	
MITIGATION MEASURE	T-5a: Repair roadways damaged by construction activities. If damage to roads, occurs, SDG&E shall coordinate repairs with the affected public agencies to ensure that any impacts to area roads are adequately repaired at SDG&E's cost. Roads disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Care shall be taken to prevent damage to roadside drainage structures. Roadside drainage structures and road drainage features (e.g., rolling dips) shall be protected by regarding and reconstructing roads to drain properly. Said measures shall be incorporated into an access agreement/easement with the applicable governing agency prior to construction.
Location	All roads used to access the construction sites
Monitoring / Reporting Action	Review documentation to ensure that SDG&E obtained permits for construction within each road ROW prior to construction. Verify that each affected roadway has been satisfactorily restored and/or reconstructed within 30 days of the end of the construction.
Effectiveness Criteria	Restoration/maintenance or roads to pre-construction conditions as determined by the affected public agency.
Responsible Agency	CPUC, BLM and affected jurisdictions
Timing	Post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	PS-1b: Document and resolve electronic interference complaints. After energizing the transmission line, SDG&E shall respond to and document all radio/television/equipment interference complaints received and the responsive action taken. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SDG&E to the CPUC for resolution.
Location	Along the overhead route segment
Monitoring / Reporting Action	Review documentation provided.
Effectiveness Criteria	All radio/television/equipment interference disputes are resolved.
Responsible Agency	CPUC
Timing	Post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	PS-2a: Implement grounding measures. As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.
Location	Along the entire transmission line route
Monitoring / Reporting Action	Review documentation provided; verify that necessary grounding measures are installed.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Effectiveness Criteria	The potential for impacts associated with induced currents and voltages on objects near the energized transmission line are reduced.
Responsible Agency	CPUC
Timing	During construction and post construction pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-4b: Offset operation-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the life of the project sufficient carbon credits to fully offset greenhouse gas emissions caused by activity to support transmission line operation, maintenance, and inspection activities. To determine the quantity of carbon credits that must be created or obtained and held each year, SDG&E must develop a complete GHG inventory annually for project-related operational emissions. SDG&E shall follow established methodologies to report and inventory indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project. SDG&E shall report to the CPUC annually the status of efforts to obtain banked credits and the quantity of greenhouse gas emissions offset by credits. Established methodologies for determining project-related emissions include the current California Climate Action Registry (CCAR) General Reporting Protocol, and the Power/Utility Reporting Protocol appendix to the General Reporting Protocol. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.
Location	All areas.
Monitoring / Reporting Action	Review SDG&E holdings of carbon credits.
Effectiveness Criteria	Greenhouse gas emissions fully offset.
Responsible Agency	CPUC and BLM
Timing	Post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	AQ-4c: Avoid sulfur hexafluoride emissions. SDG&E shall identify sulfur hexafluoride (SF_6) leaks and establish a strategy for replacing leaking equipment to reduce SF_6 leaks. To accomplish this, SDG&E shall develop and maintain a record of SF_6 purchases, an SF_6 leak detection and repair program using laser imaging leak detection and monitoring no less frequently than quarterly, an SF_6 recycling program, and an employee education and training program for avoiding or eliminating SF_6 emissions caused by the Proposed Project. The SF_6 leak detection and repair program shall be provided to the CPUC and BLM 90 days prior to project construction. Prior to construction, SDG&E shall also become a Partner in the U.S. EPA's SF_6 Emissions Reduction Partnership for Electric Power Systems. SDG&E shall also report SF_6 emissions from the Proposed Project to the California Climate Action Registry according to CCAR methodologies or alternate methodology approved by the California Air Resources Board. To develop a complete GHG inventory, SDG&E shall follow established methodologies to report indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project.
Location	All areas.
Monitoring / Reporting Action	Review strategies for replacing leaking equipment, leak detection and repair, recycling, and education.
Effectiveness Criteria	SF_6 emissions are avoided.
Responsible Agency	CPUC and BLM
Timing	Pre- and post construction
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval with the ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geo-textile matting should be considered in the CDFG/ACOE consultation process. (SDG&E)
Location	Entire project area.
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007). The draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) are presented in Appendix 3D. The Amended Plan shall, at a minimum, include all of the provisions of the Final Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, U.S. Forest Service, and ABDSP, and shall submit the Plan (with agency comments incorporated) for review and approval by Cal Fire at least 90 days prior to energizing the Proposed Project.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP will review and comment and CAL FIRE will approve the SDG&E Fire Plan for Electric Standard Practice. CPUC and BLM will verify adoption of plan.
Effectiveness Criteria	Approval and implementation of the Plan Quarterly updates to agencies Work stoppage during Red Flag Warnings and Very High PAL
Responsible Agency	CPUC, BLM, CAL FIRE, U.S. Forest Service, and ABDSP
Timing	Post construction, pre-energizing the line.
Status	
Review / Approval Status	
MITIGATION MEASURE	F-1d: Remove hazards from the work area. The Applicant shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor SDG&E work areas.
Effectiveness Criteria	Work areas remain clear of brush and dead and decaying vegetation
Responsible Agency	CPUC; BLM
Timing	Pre-, during and post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-1e: Contribute to defensible space grants fund. SDG&E shall contribute an annual sum to a fund that shall be distributed as homeowner grants for the creation of defensible space around homes, to promote compliance with PRC 4291, and to facilitate firefighting efforts and reduce structure damage from wildfires potentially ignited by the transmission line. The dollar value of the contribution is $2000 (2008USD) per home determined to be affected through Fire Behavior Model analysis (Table D.15-25). Grants from the fund shall be distributed to those homeowners at highest risk of sustaining structure damage from an ignition-related to the transmission line, as demonstrated by the Fire Behavior Trend Model results. Grants may alternatively be used toward retrofitting rooftops with fire-proof materials, fire shutters, double pane windows, cave boxing, removal of attic vents and/or installation of alternatives, automatic or remotely-operated water sprinklers and automatic or remotely-operated generator-supported water systems, and removal or replacement of wood fencing and decks with fire-resistant materials, at the discretion of the homeowner and under advisement by the agencies. The mechanism for grants distribution shall be determined through agency negotiations and detailed in the Memorandum of Understanding (Mitigation Measure F-3b).
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM verifies SDG&E contributes sum to fund.
Effectiveness Criteria	Annual contributions are made according to MOU and Table D.15-25 (see below)
Responsible Agency	CPUC/BLM
Timing	Post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	— F-2a: Establish and maintain adequate line clearances. The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW, except where the transmission line spans a canyon. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.
	— F-2a During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times. Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that SDG&E established adequate conductor clearance.
Effectiveness Criteria	Adequate (15 foot) conductor clearance is maintained
Responsible Agency	CPUC; BLM
Timing	Post construction, prior to energizing the project and for the life of the project.

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

Status	
Review / Approval Status	
MITIGATION MEASURE	F-2c: Perform climbing inspections. The Applicant shall perform climbing inspections on 10 percent of project structures annually, such that every project structure has been climbed and inspected at the end of a 10-year period, for the life of the project. In addition, the Applicant shall keep a detailed inspection log of climbing inspections, and any potential structural weaknesses or imminent component failures shall be acted upon immediately. The inspection log shall be submitted to CPUC for review on an annual basis.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	Inspection log is provided to CPUC annually
Effectiveness Criteria	Climbing inspections are performed on 10 percent of structures annually
Responsible Agency	CPUC; BLM
Timing	Post construction
Status	
Review / Approval Status	
MITIGATION MEASURE	F-3a: Contribute to Powerline Firefighting Mitigation Fund.. The Applicant shall contribute an annual sum to local, State, and federal fire protection districts in the project vicinity through the mechanism of a new Powerline Firefighting Mitigation Fund, which shall be organized and carried out by SDG&E, and shall be subject to the oversight of the CPUC for the life of the Fund. Funding shall be used toward fire prevention measures and protection equipment and services, as appropriate to each jurisdiction. An increase in funding for fire prevention and suppression services and equipment will increase the probability of a fire being successfully contained, especially during normal weather conditions, and will therefore partially mitigate the significant barrier the transmission line poses to firefighting operations. The annual sum shall be based on an equivalent fuelbreak mitigation (presented as Mitigation Measure F-3a in the Draft EIR/EIS), which is an alternative means of partially mitigating the significant effect that the presence of the transmission line on firefighting operations, but which would be jurisdictionally infeasible. This shall be $1,000 per acre for the first year plus $250 per acre for each subsequent year for the life of the project (in 2008 United States Dollars), based on the number of miles of Wildfire Containment Conflict listed in Table D.15-26 (see below). Should CAL FIRE wish to take over administrative authority for the Powerline Firefighting Mitigation Fund, an administrative transfer shall not be in violation of Mitigation Measure F-3a.
Location	Fund contribution based on miles of Wildfire Containment Conflict
Monitoring / Reporting Action	SDG&E provides proof of annual payment. CPUC, BLM, and U.S. Forest Service will ensure SDG&E contributes annually to the fund and shall have oversight for the life of the fund. The funds shall be used toward fire prevention measures and protection equipment and services.
Effectiveness Criteria	Annual sum is paid to Powerline Firefighting Mitigation Fund.
Responsible Agency	CPUC; BLM, U.S. Forest Service
Timing	Pre-, during and post construction
Status	
Review / Approval Status	

Table J-1. Mitigation Measures and Applicant Proposed Measures – Post Construction

MITIGATION MEASURE	F-3b: Prepare and implement a Multi-agency Fire Prevention MOU. A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The MOU shall be adopted prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall stipulate the mechanism for defensible space grants distribution (Mitigation Measure F-1e). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted. A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.
Location	Along entire Proposed Project and Alternatives
Monitoring / Reporting Action	CPUC/BLM monitor verifies that MOU is created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate.
Effectiveness Criteria	MOU is drafted, agreed upon, and reviewed every five (5) years
Responsible Agency	CPUC; BLM
Timing	Pre-, during, and post construction.
Status	
Review / Approval Status	

Attachment K

Mitigation Measures Applicable by Construction Link, Segment, and Structures

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
B-1a: Provide restoration/compensation for impacted sensitive vegetation communities			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
B-1c: Conduct biological monitoring	X																									
B-1k: Re-seed disturbed areas after a transmission line–caused fire			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
B-1l: SDG&E shall continue to work with the USDA Forest Service to minimize impacts to the RCA between Structures 184 and 187								X																		
B-2a: Provide restoration/compensation for impacted jurisdictional areas			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
B-3a: Prepare and implement a Weed Control Plan			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
B-5a: Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
B-7a: Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals)	X																									
B-7b: Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy			X	X																						
B-7c: Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat			X	X	X		X																			
B-7d: Conduct burrowing owl surveys, and implement appropriate avoidance/ minimization/compensation strategies			X																							
B-7e: Conduct least Bell's vireo and southwestern willow flycatcher surveys, and imple-ment appropriate avoidance/ minimization/compensation strategies								X		X	X	X	X		X	X	X	X								
B-7h: Implement appropriate avoidance/ minimization strategies for eagle nests							X	X				X	X	X	X		X									
B-7i: Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/compensation strategies						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
B-7j: Conduct arroyo toad surveys, and implement appropriate avoidance/ minimization/compensation strategies							X	X			X	X	X		X	X	X	X								
B-7l: Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/ minimization/compensation strategies												X				X	X	X	X		X	X	X			

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
B-8a: Conduct pre-construction surveys and monitoring for breeding birds	X																									
B-9a: Survey for bat nursery colonies			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
B-10a: Utilize collision-reducing techniques in installation of transmission lines			X	X	X	X	X	X	X	X	X	X	X		X		X	X	X							
B-11a: Prepare and implement a Raven Control Plan			X	X																						
B-12a: Conduct maintenance activities outside the general avian breeding season			X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X			
B-12b: Conduct maintenance when arroyo toads are least active							X	X			X	X	X		X	X	X	X								
B-12c: Maintain access roads and clear vegetation in Quino checkerspot butterfly habitat						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
BIO-APM-1: Perform any detailed on-the-ground protocol surveys with regard to specific sensitive plant or wildlife species whose habitat would be impacted. Implement with B-1a, B-1b, B-2a, B-5a, B-7d, B-7e, B-7g, B-7i, B-7j, B-k, B-7l, B-7m, and B-7o	X																									
BIO-APM-2: Train personnel regarding the appropriate work practices necessary to effectively implement the biological APMs.	X																									
BIO-APM-3: Restrict vehicle movement to existing and constructed roads. Implement with B-5a, B-7a, B-8a, B-9a, B-12a, B-12b, and B-12c	X																									
BIO-APM-4: Comply with survey vehicles guidelines on existing roads	X																									
BIO-APM-5: Configure access roads in compliance with hydrological resources guidelines. Implement with B-1a, B-2a, B-5a, and B-8a	X																									
BIO-APM-6: Comply with all applicable environmental laws and regulations. Implement with B-1a, B-5a, B-8a, and B-12a	X																									
BIO-APM-7: Littering is not allowed. Implement with B-6a, B-8a, and B-12a	X																									
BIO-APM-8: Delineate sensitive plant population boundaries. Implement with B-5a	X																									
BIO-APM-9: Follow brush clearing guidelines. Implement with B-8a and B-12a	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	0 to 19.2	19.2 to 22.8	22.8 to 30.6	30.6 to 39.9	39.9 to 53.9	53.9 to 61.3	61.3 to 65.5	65.5 to 70.9	70.9 to 75.6	75.6 to 77.7	77.7 to 89.1		89.1 to 91.8	91.8 to 98.2	98.2 to 104.6	104.6 to 111.9	111.9 to 117.1							
Structures			P301 to P363-1	P282 to P301	P255-1 to P282	P217-1 to P255-1	P140 to P217-1	P108-2 to P140	P89-1 to P108-2	P67 to P89-1	P47-2 to P67	P42 to P47-2	P1-3 to P42		P95-1 to P109-1		P59 to P88-1	P31-2 to P59	P2 to P31-2							
BIO-APM-10: No wildlife, including rattlesnakes, may be harmed except to protect life and limb; Firearms shall be prohibited. Implement with B-12a	X																									
BIO-APM-11: Feeding of wildlife is not allowed. Implement with B-12a	X																									
BIO-APM-12: Do not bring pets. Implement with B-12a	X																									
BIO-APM-13: Plant or wildlife species may not be collected for pets or any other reason. Implement with B-5a and B-12a	X																									
BIO-APM-14: Comply with removal of wildlife and transportation guidelines. Implement with B-7a	X																									
BIO-APM-15: Follow APMs during emergency repairs. Implement with B-1a and B-2a	X																									
BIO-APM-16: Follow sensitive tree trimming guidelines. Implement with B-1a, B-2a, B-8a, and B-12a	X																									
BIO-APM-17: Permanently close any new access roads or spur roads constructed as part of the project that are not required as permanent access. Implement with B-1a	X																									
BIO-APM-18: Design access roads to minimize impacts to sensitive features. Implement with B-2a and B-5a, B-8a, and B-9a	X																									
BIO-APM-19: Implement restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM	X																									
BIO-APM-20: Leave vegetation in place in construction areas where recontouring is not required. Implement with B-1a	X																									
BIO-APM-21: Comply with “Suggested Practices for Raptor Protection on Power Lines” (Raptor Research Foundation, Inc., 1981). Implement with B-10a	X																									
BIO-APM-22: Salvage may include removal and stockpiling for replanting. Implement with B-5a	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
BIO-APM-23: Remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Implement with B-1a and B-3a	X																									
BIO-APM-24: Prevent livestock or wildlife from falling through covers. Implement with B-7a	X																									
BIO-APM-25: Revegetate disturbed soils. Implement with B-1a and B-3a	X																									
BIO-APM-26: Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles. Implement with B-7a	X																									
BIO-APM-27: Remove all existing raptor nests from structures that would be affected by Project construction. Implement with B-8a	X																									
BIO-APM-28: Remove potential roost trees	X																									
BIO-APM-29: Reduce construction night lighting on sensitive habitats. Implement with B-7a and B-9a	X																									
Visual Resources																										
V-1a: Reduce visibility of construction activities and equipment	X																									
V-1b: Reduce construction night lighting impacts	X																									
V-2a: Reduce in-line views of land scars		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
V-2b: Reduce visual contrast from unnatural vegetation lines		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
V-2c: Reduce color contrast of land scars on non-Forest lands		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
V-2d: Construction by helicopter		X						X	X	X	X	X	X	X	X				X		X					
V-2f: Reduce land scarring and vegetation clearance impacts on USFS-administered lands								X	X	X	X	X	X		X											
V-3a: Reduce visual contrast of towers and conductors			X	X	X	X	X	X	X	X	X	X	X		X		X	X	X							
V-7a: Reduce visual contrast associated with ancillary facilities		X												X						X				X	X	X
V-7b: Screen ancillary facilities		X												X						X				X	X	X
V-21a: Reduce night lighting impacts														X												
V-45a Prepare and implement Scenery Conservation Plan								X	X	X	X	X	X													
V-66a: Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures																	X									
V-68a: Eliminate skylining of ridgeline towers and conductors																		X								

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		IV Sub	500 kV Imperial County Link 1			500 kV San Diego Link 1		500 kV San Diego Link 2						Suncrest Link 3	230KV OH Link 5	230kV UG Link 4	230kV OH Link 5			Sycamore Sub	Reconductors			Other Substation Upgrades		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A							
Segments	All	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Mileposts		0	0 to 19.2	19.2 to 22.8	22.8 to 30.6	30.6 to 39.9	39.9 to 53.9	53.9 to 61.3	61.3 to 65.5	65.5 to 70.9	70.9 to 75.6	75.6 to 77.7	77.7 to 89.1		89.1 to 91.8	91.8 to 98.2	98.2 to 104.6	104.6 to 111.9	111.9 to 117.1							
Structures			P301 to P363-1	P282 to P301	P255-1 to P282	P217-1 to P255-1	P140 to P217-1	P108-2 to P140	P89-1 to P108-2	P67 to P89-1	P47-2 to P67	P42 to P47-2	P1-3 to P42		P95-1 to P109-1		P59 to P88-1	P31-2 to P59	P2 to P31-2							
VR-APM-1: Place structures at the maximum feasible distance from highway, canyon, and trail crossings. (Need SDG&E input)			X	X	X	X	X	X			X					X	X	X								
VR-APM-2: Use dulled metal finish on transmission structures and non-specular conductors in visually sensitive areas. Implement with V-3b (Need SDG&E input)																										
VR-APM-3: Match the spacing of structures where the line parallels existing transmission lines			X	X	X	X			X	X	X	X	X													
VR-APM-4: No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. Implement with V-1c	X																									
VR-APM-5: Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence. Implement with V-3c			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
VR-APM-6: In scenic view areas place structures to avoid sensitive features and/or allow conductor to clearly span the features. (Need SDG&E input)																										
Land Use																										
L-1a: Prepare Construction Notification Plan	X																									
L-1c: Coordinate with MCAS Miramar																			X	X	X	X	X			
L-2b: Revise project elements to minimize land use conflicts							X	X	X	X	X	X	X	X	X	X	X	X	X							
LU-APM-1: Provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and SDG&E will appoint a public affairs officer to address public concerns or questions. Implement with L-1d	X																									
LU-APM-2: Place new transmission structures more than 330 feet from an existing residence. Implement with L-1d						X	X	X	X	X	X	X	X	X	X	X	X	X	X							
LU-APM-4: Notify property owners and tenants in advance of construction activities. Provide alternative access if feasible. Implement with L-1e	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	0 to 19.2	19.2 to 22.8	22.8 to 30.6	30.6 to 39.9	39.9 to 53.9	53.9 to 61.3	61.3 to 65.5	65.5 to 70.9	70.9 to 75.6	75.6 to 77.7	77.7 to 89.1		89.1 to 91.8	91.8 to 98.2	98.2 to 104.6	104.6 to 111.9	111.9 to 117.1							
Structures			P301 to P363-1	P282 to P301	P255-1 to P282	P217-1 to P255-1	P140 to P217-1	P108-2 to P140	P89-1 to P108-2	P67 to P89-1	P47-2 to P67	P42 to P47-2	P1-3 to P42		P95-1 to P109-1		P59 to P88-1	P31-2 to P59	P2 to P31-2							
LU-APM-5: Coordinate construction activities with appropriate water management representatives. (Need SDG&E input). Implement with L-1a			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LU-APM-6: Flag ROW boundary and limits of construction activity inside and outside the ROW in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided. Implement with L-1f			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LU-APM-7: Install project facilities along the edges or borders of private property, open space parks, and recreation areas			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
LU-APM-8: Continue coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans.	X																									
LU-APM-9: Obtain all necessary and/or appropriate ministerial land use permits	X																									
LU-APM-10: Match structure locations with existing transmission facilities. (Need SDG&E input)			X	X	X	X			X	X	X	X	X													
Wilderness and Recreation																										
WR-1a: Coordinate construction schedule and activities with the authorized officer for the recreation area			X							X						X	X	X	X	X	X	X	X			
WR-1b: Provide temporary detours for trail users			X							X						X	X	X	X		X					
WR-1c: Coordinate with local agencies to identify alternative recreation areas			X							X						X	X	X	X	X	X	X	X			
WR-2a. Develop a reroute for the BCD Alternative Revision to reduce effects on recreation							X																			
WR-2b: Evaluate and Implement PCT Route Revision										X																
WR-3a: Coordinate tower and road locations with the authorized officer for the recreation area.			X					X	X	X	X	X	X		X	X	X	X	X							
R-APM-2a: Provide advance notice of restriction of conflicts with access routes to recreational use areas. Implement with WR-1a			X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X			

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
R-APM-2b: No construction that affects trail use will be conducted in that area on federal holidays. Implement with WR-1a			X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X			
R-APM-2c: Coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department. Implement with WR-1a										X						X	X	X	X	X	X	X	X			
R-APM-2d: Post signs directing vehicles to alternative park access and parking in the event construction temporarily obstructs parking areas near trailheads. Implement with WR-1a			X					X	X	X	X	X	X			X	X	X	X	X	X	X	X			
R-APM-2e: Post signs advising recreation users of construction activities and directing them to alternative trails or bikeways on both sides of all trail intersections. Implement with WR-1a			X					X	X	X	X	X	X			X	X	X	X	X	X	X	X			
R-APM-2f: Post signs advising equestrians of construction timeframes where helicopters are used for construction, at all equestrian trail-access points within the vicinity of the flight paths. Implement with WR-1a			X					X	X	X	X	X	X			X	X	X	X	X	X	X	X			
R-APM-3a: Construction-related traffic shall be restricted to routes approved by the authorized agencies	X																									
Agriculture																										
AG-1a: Avoid interference with agricultural operations						X	X	X	X	X	X		X				X									
AG-1b: Restore compacted soil						X	X	X	X	X	X		X				X									
AG-1c: Coordinate with grazing operators						X	X	X	X	X	X		X				X									
AG-3b: Consult with and inform aerial applicators						X	X	X	X	X	X		X				X									
LU-APM-3: Compensate farmers for losses of crops along ROW. Implement with L-1d						X	X	X	X	X	X		X				X									
Cultural Resources																										
C-1a: Inventory and evaluate cultural resources in Final Area of Potential Effect (APE)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-1b: Avoid and protect potentially significant resources			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-1c: Develop and implement Historic Properties Treatment Plan			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
C-1d: Conduct data recovery to reduce adverse effects			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-1e: Monitor construction at known ESAs			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-1f: Train construction personnel	X																									
C-1g Avoid and protect Old Highway 80 (P-37-024023)																X										
C-2a: Properly treat human remains	X																									
C-3a: Monitor construction in areas of high sensitivity for buried resources			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-4a: Complete consultation with Native American and other Traditional Groups			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-5a: Protect and monitor NRHP- and/or CRHR-eligible properties			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
C-6a: Reduce adverse visual intrusions to historic built environment properties						X		X																		
C-6e: Reduce adverse visual intrusions to portions of Old Highway 80						X		X																		
C-6f: Reduce adverse visual intrusions to the Desert View Tower viewshed						X																				
CR-APM-1: Instruct construction personnel on the protection and avoidance of cultural resources. Implement with PAL-1e	X																									
CR-APM-2: Flag archeological sites that are eligible or potentially eligible for the National Register			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-3: Report any previously unidentified cultural resource (historic or prehistoric site or object) discovered			X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X							
CR-APM-4: Conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines	X																									
CR-APM-5: Follow the guidance described for: Preservation in-place for mitigating impacts to archaeological sites, and preparation of data recovery plans	X																									
CR-APM-6: Avoid, fence, or barricade historic properties, contributing portions and sensitive features for protection			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-7: Control erosion, sedimentation, or indirect displacement. Implement with C-2a, C-3a, C-4a, and C-5a			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	0 to 19.2	19.2 to 22.8	22.8 to 30.6	30.6 to 39.9	39.9 to 53.9	53.9 to 61.3	61.3 to 65.5	65.5 to 70.9	70.9 to 75.6	75.6 to 77.7	77.7 to 89.1		89.1 to 91.8	91.8 to 98.2	98.2 to 104.6	104.6 to 111.9	111.9 to 117.1							
Structures			P301 to P363-1	P282 to P301	P255-1 to P282	P217-1 to P255-1	P140 to P217-1	P108-2 to P140	P89-1 to P108-2	P67 to P89-1	P47-2 to P67	P42 to P47-2	P1-3 to P42		P95-1 to P109-1		P59 to P88-1	P31-2 to P59	P2 to P31-2							
CR-APM-8: Avoid and protect elements of the landscape that are essential to the historic setting of the property			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-9: Install permanent fencing or barriers; or control/restrict access to the historic property			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-10: Locate project structures so that conductors span linear historic properties; underground placement of pipelines and conductors will be bored under linear properties to avoid disturbance or intrusion			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-11: Implement standard practices for cultural and paleontological resources on private lands						X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CR-APM-12: Conduct cultural surveys for staging areas that have not yet been identified	X																									
Paleontological Resources																										
PAL-1a: Inventory and evaluate paleontological resources in Final APE		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X							
PAL-1b: Develop Paleontological Monitoring and Treatment Plan		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X							
PAL-1c: Monitor construction for paleontology		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X							
PAL-1d: Conduct paleontological data recovery		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X							
PAL-1e: Train construction personnel		X	X	X	X	X	X	X		X	X		X	X	X		X	X	X							
GEO-APM-9: Implement appropriate mitigation efforts if paleontological resources are encountered. Implement with PAL-1d		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
Noise																										
N-1a: Implement Best Management Practices for construction noise	X																									
N-2a: Avoid blasting where damage to structures could occur (SDG&E to define blasting)																										
N-3a: Respond to complaints of corona noise		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
NOI-APM-1: Provide notice by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads; and establish a toll free telephone number for receiving questions/complaints. Implement with L-1a	X																									
Transportation and Traffic																										
T-1a: Restrict lane closures			X	X	X	X		X	X	X	X	X	X		X	X	X	X	X		X	X	X			

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
T-4a: Ensure pedestrian and bicycle circulation and safety.						X	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X			
T-5a: Repair roadways damaged by construction activities	X																									
T-7a: Notify public of potential short-term elimination of parking spaces			X	X	X	X			X	X	X	X	X		X	X	X	X	X		X	X	X			
T-9a: Prepare Construction Transportation Management Plan	X																									
T-11b: Consult with and inform U.S. Customs and Border Patrol			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
T-APM-2a: Obtain required permits for temporary lane closures	X																									
T-APM-2b: Submit detour plans. Implement with T-1b	X																									
T-APM-4a: Coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.	X																									
T-APM-5a: Consult with County Education Offices, School Districts to coordinate construction activities adjacent to school bus stops	X																									
T-APM-6a: Comply with county parking ordinances or approved traffic control plan		X	X	X	X																					
T-APM-6b: Prohibit parking on San Diego County-maintained roads and highways unless otherwise noted at specific locations; comply with the County of San Diego Department of Public Works Traffic Guidelines, 2001 whenever possible, or an approved traffic control plan						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
T-APM-8a: Obtain required permits for entering railroad ROW			X	X		X			X																	
T-APM-9a: Underground all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway. (Need SDG&E input)																										
T-APM-10a: Provide the ability to quickly lay a temporary steel plate trench bridge upon request in order to ensure access to properties when not actively constructing the underground cable alignment	X																									
Public Health and Safety																										
P-1a: Implement Environmental Monitoring Program	X																									
P-1b: Maintain emergency spill supplies and equipment	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
P-2a: Test for residual pesticides/herbicides on currently or historically farmed land						X			X	X	X	X	X													
P-3a: Appoint individuals with correct training for sampling, data review, and regulatory coordination	X																									
P-3b: Documentation of compliance with measures for encountering unknown contamination	X																									
P-7a: Evaluate contaminated sites						X	X									X	X	X								
HS-APM-1: Train personnel involved in using hazardous materials. Develop a Hazardous Communication Plan. Implement with P-1a	X																									
HS-APM-2: Train personnel in refueling vehicles. Implement with P-1a	X																									
HS-APM-3: Develop applicable environmental safety plans associated with hazardous materials. Implement with P-1a	X																									
HS-APM-4: Develop a site specific blasting plan of tower footing																			X							
HS-APM-5: Investigate all Government Code §65962.5 sites or other known contamination sites along the transmission line ROW.	X																									
HS-APM-6: Investigate any known or potential areas for Unexploded Ordinance (UXO) used by the military along the ROW			X	X	X														X	X	X	X	X			
HS-APM-7: Train personnel involved in excavation and grading or for ROW clearing to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites	X																									
HS-APM-8: Assign an Environmental Field Representative and/or General Contractor for Health & Safety. Implement with P-1a	X																									
HS-APM-9: Contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport.	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
HS-APM-10: Store and dispose of hazardous waste and solid waste in accordance with federal, State, and local regulations. Implement with P-1a	X																									
HS-APM-11: Develop Fire Prevention and Response Plan (FPRP). Assign a project Fire Marshal to enforce all provisions of the FPRP	X																									
HS-APM-12: Develop a Traffic Control Plan	X																									
HS-APM-14: Construction workers shall undergo environmental training regarding potential exposure	X																									
HS-APM-15: Stop work and notify Health and Safety Officer if during excavation soil or groundwater contamination is suspected	X																									
HS-APM-16: Terminate and conrdone off work if soil or groundwater contamination is suspected	X																									
HS-APM-17: Notify regulatory agency if the sample testing determines that contamination is found above regulatory limits	X																									
PS-1a: Limit the conductor surface electric gradient	X																									
PS-1b: Document and resolve electronic interference complaints		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
PS-2a: Implement grounding measures	X																									
Air Quality																										
AQ-1a: Suppress dust at all work or staging areas and on public roads	X																									
AQ-1b: Use low-emission construction equipment	X																									
AQ-1h: Obtain NOx and particulate matter emission offsets	X																									
AQ-4a: Offset construction-phase greenhouse gas emissions with carbon credits	X																									
AQ-4b: Offset operation-phase greenhouse gas emissions with carbon credits	X																									
AQ-4c: Avoid sulfur hexafluoride emissions	X																									
AQ-APM-1: Comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). File a Dust Control Plan with the ICAPCD		X	X	X	X																					
AQ-APM-2: Control fugitive dust	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
AQ-APM-3: Minimize mud and dust from being transported onto paved roadway surfaces, pave, and gravel	X																									
AQ-APM-4: Carpool to the job site	X																									
AQ-APM-5: Minimize unnecessary construction vehicle and idling time	X																									
Hydrology and Water Resources																										
H-1a: Prepare Substation Grading and Drainage Plan; construct during the dry season														X												
H-1a (CC):Construct during the dry season																	X									
H-1b: Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego																			X							
H-1k: Comply with Forest Service conditions								X	X	X	X	X	X		X	X	X									
H-1l: Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment-Control Plan								X	X	X	X	X	X		X	X	X									
H-2d: Maintain vehicles and equipment	X																									
H-4b: Avoid blasting where damage to groundwater wells or springs could occur	X																									
H-5a: Install substation runoff control														X												
H-6a: Scour protection to include avoidance of bank erosion and effects to adjacent property			X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X							
H-7a: Develop Hazardous Substance Control and Emergency Response Plan for project operation	X													X						X				X	X	X
H-8a: Bury power line below 100-year scour depth																X										
WQ-APM-1: Minimize disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks	X																									
WQ-APM-2: Place structures so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design	X																									
WQ-APM-3: Clearly mark where construction equipment and vehicles are not allowed on-site; and train personnel	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																										
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			10B	10B 10A	10A 9C	9C	9B	9A 8 E	8E	8D	8C	8B	8A		7	6	5	5	4A							
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
WQ-APM-4: Maintain adequate distance from stream banks and beds; use existing bridges to cross major streams and culverts in most dry intermittent streams; Span surface water, riparian areas and floodplains; prepare and implement a Storm Water Pollution Prevention Plan (SWPPP)	X																									
WQ-APM-5: Construct any stream crossings at low flow periods; and if necessary, develop a site-specific mitigation and restoration plan	X																									
WQ-APM-6: Avoid designated surface water protection areas	X																									
WQ-APM-8: Obtain and comply with required permits for any groundwater discharged to surface waters or storm drains	X																									
WQ-APM-9: Prohibit storage of fuels and hazardous materials within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells	X																									
WQ-APM-10: At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, comply with burial depth requirements. Implement with H-6a	X																									
WQ-APM-11: Test groundwater levels along underground portion of the project drilling pilot borings																X										
WQ-APM-13: Do not disposed of hazardous materials onto the ground, the underlying groundwater, or any surface water	X																									
WQ-APM-14:Secure required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization	X																									
WQ-APM-15: Construct access roads to avoid streambeds	X																									
WQ-APM-16: Conduct site-specific assessments for each affected site	X																									
Geology, Minerals, and Soils																										
G-2a: Protect desert pavement			X	X																						
G-3a: Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design	X																									
G-4a: Reduce effects of groundshaking			X	X	X		X	X								X	X	X								

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
G-4b: Conduct geotechnical investigations for liquefaction			X	X	X		X	X	X	X	X	X	X		X	X	X	X	X							
G-5a: Minimize project structures within active fault zones			X																							
G-6a: Conduct geotechnical surveys for landslides and protect against slope instability			X	X	X		X	X	X	X	X	X	X		X	X	X	X	X							
G-9a: Coordinate with quarry operations			X	X														X								
GEO-APM-1: No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable	X																									
GEO-APM-2: Comply with soil disturbance guidelines	X																									
GEO-APM-3: Avoid placing structures in areas of high shrink/swell potential	X																									
GEO-APM-4: Place structures in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock	X																									
GEO-APM-5: Avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation	X																									
GEO-APM-6: Conduct surface restoration for erosion control and re-vegetation	X																									
GEO-APM-8: Remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage; and position structures to span over potential landslide areas	X																									
Socioeconomics																										
S-2a: Notify public of utility service interruption			X	X	X	X									X	X	X	X	X							
S-2b: Protect underground utilities			X	X	X	X									X	X	X	X	X							
S-3a: Recycle construction waste	X																									
S-3b: Use reclaimed water	X																									
PSU-APM-1: Coordinate with all utility providers with facilities located within or adjacent to ensure that design does not conflict with other facilities	X																									
PSU-APM-2: Notify Underground Service Alert a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines	X																									

Mitigation Measures Applicable By Construction Link, Segment and Structures																											
Construction Links		**IV Sub**	**500 kV Imperial County Link 1**			**500 kV San Diego Link 1**		**500 kV San Diego Link 2**						**Suncrest Link 3**	**230KV OH Link 5**	**230kV UG Link 4**	**230kV OH Link 5**			**Sycamore Sub**	**Reconductors**			**Other Substation Upgrades**		
Section			**10B**	**10B 10A**	**10A 9C**	**9C**	**9B**	**9A 8 E**	**8E**	**8D**	**8C**	**8B**	**8A**		**7**	**6**	**5**	**5**	**4A**								
Segments	**All**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Mileposts		**0**	**0 to 19.2**	**19.2 to 22.8**	**22.8 to 30.6**	**30.6 to 39.9**	**39.9 to 53.9**	**53.9 to 61.3**	**61.3 to 65.5**	**65.5 to 70.9**	**70.9 to 75.6**	**75.6 to 77.7**	**77.7 to 89.1**		**89.1 to 91.8**	**91.8 to 98.2**	**98.2 to 104.6**	**104.6 to 111.9**	**111.9 to 117.1**							
Structures			**P301 to P363-1**	**P282 to P301**	**P255-1 to P282**	**P217-1 to P255-1**	**P140 to P217-1**	**P108-2 to P140**	**P89-1 to P108-2**	**P67 to P89-1**	**P47-2 to P67**	**P42 to P47-2**	**P1-3 to P42**		**P95-1 to P109-1**		**P59 to P88-1**	**P31-2 to P59**	**P2 to P31-2**							
PSU-APM-3: Coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized	X																										
Fire and Fuels Management																											
F-1a: Develop and implement a Construction Fire Prevention Plan						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
F-1b: Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007)						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
F-1c: Ensure coordination for emergency fire suppression						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
F-1d: Remove hazards from the work area						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
F-1e: Contribute to defensible space grants fund						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X					
F-2a: Establish and maintain adequate line clearances						X	X	X	X	X	X	X	X	X	X	X	X	X	X							
F-2b: Install existing conductors on steel poles									X	X	X	X	X	X	X				X							
F-2c: Perform climbing inspections						X	X	X	X	X	X	X	X	X	X	X	X	X	X							
F-3a: Contribute to Powerline Firefighting Mitigation Fund						X				X	X		X						X							
F-3b: Prepare and implement a Multi-agency Fire Prevention MOU						X				X	X		X						X							

Segment	Description	Location	Dates
1	Imperial Valley Substation	Imperial Valley Substation	Oct-09
2	Imperial Valley Sub to Pyramid Mining	MP0 to MP19.2	Aug-10
3	Pyramid Mining to Mountain Springs Grade	MP19.2 to MP23.2	Aug-10
4	Mountain Springs Grade to Jade	MP23.2 to MP30.3	Oct-09
5	Jade to I-8 (McCain Valley)	MP30.3 to MP39.7	Oct-09
6	I-8 (McCain Valley) to USFS	MP39.7 to MP52.5	Oct-10
7	USFS East	MP52.5 to MP61.3	Aug-10
8	USFS East to Cameron Substation	MP61.3 to MP65.4	Aug-10
9	Section 8D	MP65.4 to MP70.9	Feb-11
10	Section 8C	MP70.9 to MP74.8	Jul-10
11	Section 8B	MP74.8 to MP77.6	Nov-10
12	Section 8A	MP77.6 to MP90.0	Jul-10
13	Suncrest Substation (Modified Route D Substation)	Suncrest Substation	Jun-10
14	Section 7	MP90.0 to MP92.8	Sep-10
15	Section 6 (Alpine Blvd. UG)	MP92.8 to MP99.0	Jun-10
16	Puetz Valley thru El Monte Valley	MP99.0 to MP105.5	Sep-10
17	El Monte Valley to Hwy 67	MP105.5 to MP112.7	Sep-10
18	Hwy 67 to Sycamore Canyon Substation	MP112.7 to MP118.1	Sep-10
19	Sycamore Canyon Substation	Sycamore Canyon Substation	Nov-09
20	Sycamore to Elliot 69kV Reconductor	Sycamore to Elliott	Sep-09
21	Sycamore to Scripps 69kV Reconductor	Sycamore to Scripps	Sep-09
22	Sycamore to Pomerado 69kV Reconductor	Sycamore to Pomerado	Aug-09
23	South Bay Substation Upgrades	South Bay Substation	Oct-11
24	Encina Substation Upgrades	Encina Substation	Oct-10
25	San Luis Rey Substation Upgrades	San Luis Rey Substation	Aug-10

Attachment L

Communication Protocol

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

Communication Protocol Summary

San Diego Gas & Electric

Sunrise Powerlink Project

In order to ensure that the CPUC Environmental Monitors (EMs) can get accurate information on ongoing surveys, construction work, and schedules, and that SDG&E management is kept in the loop, the following protocols have been formulated:

- The CPUC EM's primary point of contact will be SDG&E's lead environmental monitor. If he/she is not available, the construction segment environmental monitor will be the point of contact. If issues can't be resolved at the EM/SDG&E environmental monitor level they will be initially elevated to CPUC EM Project Manager/SDG&E Mitigation Monitoring Coordinator discussions.
- SDG&E will keep environmental monitors up to speed on all survey and construction activity, including status of permits.
- The CPUC EM can talk to anyone on the construction site to ask questions about their activity, but the construction personnel may opt to refer him/her to the construction segment manager for an answer. Construction segment managers are the appropriate contacts for information on construction activity schedules or construction practices.
- SDG&E will provide a list of all construction monitoring personnel and segment managers, identified by segment and title, and contact information for each person. Update distributions will be utilized to keep all parties informed of monitor and staff additions/changes.
- CPUC EMs will continue to point out compliance concerns first to SDG&E and SDG&E environmental monitors and give them time to contact resource agencies and resolve compliance before contacting resource agencies directly. However, at any time when the CPUC EMs have an unresolved concern about compliance, the SDG&E environmental monitors and CPUC EMs will call the appropriate resource agency <u>together</u> to discuss the issue.
- The resource agencies will be notified immediately by SDG&E of any issues (e.g., non-compliance events, special status specie sightings, etc.) regarding their respective resources. In addition, the CPUC EM will also receive immediate notification. Subsequent to immediate agency notification, SDG&E will develop a plan to handle the situation and will follow up with the respective agencies to explain their strategy and receive agency approval.
- If "take" is imminent or there is a danger/hazard, the CPUC EM can request work to be stopped in that area immediately (as long as it can be done safely); this request should be made to the construction segment manager or the segment EM. At any time, anyone can order an activity to be halted temporarily if take or a hazard is imminent.
- Weekly conference calls will include a discussion of construction and compliance activities, with CPUC EMs and SDG&E lead environmental monitor participating.

Attachment M

U.S. Bureau of Land Management
Programmatic Agreement

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

PROGRAMMATIC AGREEMENT
AMONG THE
DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT,
THE DEPARTMENT OF AGRICULTURE, FOREST SERVICE,
THE MARINE CORPS AIR STATION MIRAMAR,
THE U.S. ARMY CORPS OF ENGINEERS,
THE CALIFORNIA PUBLIC UTILITIES COMMISSION,
SAN DIEGO GAS AND ELECTRIC COMPANY,
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE PROPOSED SAN DIEGO GAS AND ELECTRIC POWER COMPANY'S SUNRISE POWERLINK TRANSMISSION LINE PROJECT,
IMPERIAL AND SAN DIEGO COUNTIES, CALIFORNIA

WHEREAS, the United States Department of the Interior through the Bureau of Land Management (BLM) manages the public lands in the California desert in accordance with the 1980 California Desert Conservation Area Plan (CDCAP), as amended, and lands in San Diego County, California in accordance with the South Coast Resource Management Plan (SCMP) and with the 2008 Eastern San Diego County Resource Management Plan (ESDCRMP). The CDCAP and the ESDCRMP designate Energy Production and Utility Corridors appropriate for the development and installation of electrical transmission and other utility lines across public lands; and

WHEREAS, San Diego Gas and Electric Company (Applicant) has applied to BLM for a right-of-way (ROW) across BLM managed lands to construct the Sunrise Powerlink Transmission Line Project (hereinafter referred to as the "Undertaking" as defined in 36 CFR 800.16(y)) which includes the construction, operation and maintenance of an electric transmission system and associated infrastructure managed in accordance with the Federal Land Management and Policy Act (P.L. 94-579); and

WHEREAS, the BLM El Centro Field Office is the lead BLM Office for the purpose of compliance with the National Environmental Policy Act (NEPA) (P.L. 91-190, as amended) and Section 106 of the National Historic Preservation Act (NHPA) (P.L. 89-665, as amended; 16 U.S.C. 470f) and its implementing regulations found at 36 CFR Part 800; and

WHEREAS, the BLM has determined that amending its land use plans and issuing a ROW and Notice to Proceed for this Undertaking has the potential to cause effects to historic properties and intends to use this Programmatic Agreement (PA) to comply with the regulation (36 CFR 800) implementing Section 106 of the National Historic Preservation Act (NHPA)(P.L. 89-665, as amended; 16 U.S.C. 470f) and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]), including implementing regulations; and

WHEREAS, BLM has consulted with the California State Historic Preservation Officer (SHPO), pursuant to 36 CFR 800.14(b)(3) about this Undertaking and because the effects of the Undertaking's implementation on historic properties cannot be fully determined prior to the Undertaking's approval, is yet in the process of considering different alternatives for the Undertaking that may have the potential to adversely affect historic properties, and chooses to conclude its assessment of the Undertaking's potential adverse effect and resolve any such effect through the implementation of this PA; and

WHEREAS, BLM, in consultation with the SHPO, has determined that a phased (tiered) process for compliance with Section 106 of the NHPA is appropriate for the Undertaking, such that completion of the identification of historic properties, determinations of specific effects on historic properties, and consultation concerning measures to avoid, minimize, or mitigate any adverse effects will be carried out as part of planning for and prior to any Notice to Proceed and specific project implementation; and

WHEREAS, in accordance with regulations at 36 CFR 800.14(b)(3) BLM has notified and invited the Advisory Council on Historic Preservation (ACHP) per 36 CFR 800.6(a)(1)(C) to participate in consultation to resolve the potential effects of the Undertaking on Historic Properties, and as per their letter dated October 2, 2008, the ACHP has elected not to participate in this PA; and

WHEREAS, the Cleveland National Forest (Forest Service), Marine Corps Air Station Miramar (Miramar), and the U.S. Army Corps of Engineers intend to use this Programmatic Agreement (PA) to comply with Section 106 of the National Historic Preservation Act (NHPA)(P.L. 89-665, as amended; 16 U.S.C. 470f), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]) and have agreed to participate in the Section 106 consultation regarding the Undertaking under the terms of this Programmatic Agreement and are Invited Signatories to this PA; and

WHEREAS, historic properties and cultural resources on public lands administered by the BLM, the Forest Service, and Miramar are managed according to the NHPA, Archaeological Resources Protection Act (ARPA)(P.L. 96-95, as amended), National Environmental Policy Act (NEPA)(P.L. 91-190, as amended), American Indian Religious Freedom Act (AIRFA)(P.L. 95-341, as amended), and Native American Graves Protection and Repatriation Act (NAGPRA)(P.L. 101-601), applicable regulations (e.g., 36 CFR 60, 63, 296, and 800; 43 CFR 10), and applicable Executive Orders (e.g., 13007, 13175, and 13287), and these have been considered during consultation for this Programmatic Agreement; and

WHEREAS, the California Public Utilities Commission (CPUC) is the lead State agency for compliance with the California Environmental Quality Act and has certain responsibilities under State laws and regulations to take into account and mitigate the effects of this Undertaking on historic properties eligible for or included on the California Register of Historic Places and is coordinating compliance with State law with federal agency responsibilities to comply with Section 106 of the NHPA, and is an Invited Signatory to this PA; and

WHEREAS, BLM and CPUC have prepared the *Environmental Impact Report/Environmental Impact Statement, Sunrise Powerlink Project* (prepared by Aspen Environmental Group, October 2008) (EIR/EIS) to identify the general alternative alignments, and have comparatively examined the relative effects of the alternatives on known historic properties, and identified mitigation measures that would reduce adverse effects to historic properties; and

WHEREAS, in accordance with the conditions of the ROW to be granted by the BLM, and in accordance with the stipulations of this PA, which shall be appended to and made a part of the BLM's Record of Decision authorizing the grant of the ROW, the Applicant will be assigned specific responsibilities for assisting BLM in the preparation and implementation of a Historic Properties Management Plan (HPMP) to, among other things, establish the Area of Potential Effect (APE) of the selected alternative, outline procedures for completing inventory and evaluations of historic properties, and assessing effects of the Undertaking on historic properties (per 36 CFR 800.14(b)(1)(ii)(iii)(v); and

WHEREAS, the Applicant, as grantee of the ROW, has participated in consultation per 36 CFR 800.2(c)(4), and is willing to carry out the stipulations of this PA under the oversight of BLM, and is an Invited Signatory to this PA; and

WHEREAS, this PA does not apply to lands owned or under the management of Indian tribes (as defined in 36 CFR 800.16(m)) unless an Indian Tribe requests to participate pursuant to Stipulation X of this PA; and

WHEREAS, pursuant to section 101(d)(6)(B) of the NHPA, 36 CFR 800.2(c)(2)(ii), the AIRFA, Executive Order 13175, and section 3(c) of the NAGPRA, BLM has consulted with the Agua Caliente Bank of Mission Indians, Augustine Band of Cahuilla Indians, Barona Band of Diegueno Indians, Cabazon Band of Mission Indians, Cahuilla Band of Mission Indians, Campo Kumeyaay Nation, Cocopah Indian Tribe, Ewiiaapaayp Band of Kumeyaay Indians, Fort Yuma Quechan Tribe, Inaja-Cosmit Band of Mission Indians, Jamul Indian Village, Kwaaymii Laguna Band of Indians, La Jolla Band of Luiseno Indians, La Posta Band of Kumeyaay Indians, Los Coyotes Band of Cahuilla and Cupeno Indians, Manzanita Band of Kumeyaay Indians, Mesa Grande Band of Mission Indians, Pala Band of Mission Indians, Pauma/Yuima Band of Mission Indians, Pechanga Band of Mission Indians, Ramona Band of Cahuilla Indians, Rincon Luiseno Band of Indians, San Luis Rey Band of Mission Indians, San Pasqual Band of Diegueno Indians, Santa Ysabel Band of Diegueno Indians, Soboba Band of Luiseno Indians, Sycuan Band of Kumeyaay Nation, Torres-Martinez Desert Cahuilla Indians, and the Viejas Band of Kumeyaay Indians (Tribes) on this Undertaking and this PA, and has invited those Tribes expressing an interest in the Undertaking to concur in this PA, with the further understanding that, notwithstanding any decision by these Tribes to decline concurrence, BLM shall continue to consult with these Tribes throughout the implementation of this PA; and

WHEREAS, execution of this PA as a concurring party by a Tribe indicates participation as a Section 106 consulting party and acknowledgment that the Tribe's views were taken into consideration, but does not indicate approval of the outcome of the NEPA analysis for the Undertaking nor does it indicate a preference for a specific alternative;

NOW, THEREFORE, the BLM and the SHPO, with the concurrence of the Forest Service, the U.S. Army Corps of Engineers, Miramar, the CPUC, and the Applicant, agree that the federal agencies, to the extent of their legal authority, shall administer the Undertaking in accordance with the following stipulations to satisfy the federal agencies' Section 106 responsibilities for this Undertaking.

STIPULATIONS

BLM and invited signatories shall ensure that the following stipulations are carried out:

I. DEFINITIONS

The definitions provided at 36 CFR 800.16 and in these stipulations are applicable throughout this PA.

"Area of Potential Effects" (APE) means the geographic area or areas, regardless of land ownership, within which an undertaking may directly or indirectly cause alternations in the character or use of historic properties, if any such properties exist. The area of the

potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

"Concurring Parties" refers to consulting parties, and may include State agencies and land managers, the Applicant, Indian Tribes, representatives of local governments, and certain individuals or organizations with a demonstrated interest in the Undertaking, who concur, through their signature, in this PA. Concurring parties may propose amendments to this PA.

"Consulting Parties" refers to BLM, SHPO, land managers, the Applicant, Indian Tribes, representatives of local governments, and certain individuals or organizations with a demonstrated interest in the Undertaking, who have participated in consultation on this undertaking, and have signed this PA.

"Day," singular or plural, refers to a calendar, rather than a business, day.

"Invited Signatories" refers to those entities who have responsibilities within the consultation process described in this agreement and NHPA implementing regulations. Invited Signatories may propose amendments to this PA.

"Notice to Proceed" refers to the authorization that BLM issues to the Applicant which allows the Applicant to proceed with specific activities associated with the Undertaking and noted in the locations specified on the authorization as long as these activities are in compliance with specified stipulations.

"Right-of-Way" refers to the public lands BLM authorizes a holder to use or ocupy under a grant. For this project it specifically refers to the bounded area or corridor that BLM will legally grant to the Applicant within which the operation and maintenance of the project components will be allowed after completion of construction.

"Signatories" refers to the BLM and SHPO. These Signatories have responsibilities within the consultation process described in this agreement. Signatories may propose amendments to this PA and have the exclusive authority to terminate the PA.

"Survey Corridor" refers to the area determined by BLM to be the physical area in which inventory efforts will be conducted. They survey corridor may be wider or larger than the right-of-way corridor and the area within which construction activities are allowed.

"Tribes" mean the Indian Tribes (as defined in 36 CFR 800.16(m) that BLM has invited to consult on this undertaking and invites to concur in this PA.

II. STANDARDS

A. PROFESSIONAL QUALIFICATIONS. All actions prescribed by this PA that involve the identification, evaluation, analysis, recordation, treatment, monitoring, and disposition of Historic Properties and that involve the reporting and documentation of such actions in the form of reports, forms or other records, shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the Secretary of the Interior's Professional Qualifications Standards (PQS) for archaeology, history, or architectural history, as appropriate (48 FR. 44739).

However, nothing in this stipulation may be interpreted to preclude any party qualified under the terms of this paragraph from using the services of properly supervised persons who do not meet the PQS.

B. DOCUMENTATION STANDARDS. Reporting on and documenting the actions cited in paragraph A. of this stipulation shall conform to BLM 8100 Manual guidance as stipulated in the BLM Cultural Resources Use Permit and Field Authorizations for this Undertaking, and to every reasonable extent with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 FR. 44716-44740), as well as the California Office of Historic Preservation's Preservation Planning Bulletin Number 4(a) December 1989, *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports*, and any specific county or local requirements or report formats as necessary.

C CURATION AND CURATION STANDARDS. To the extent permitted under § 5097.98 and § 5097.991 of the California Public Resources Code, the materials and records resulting from the actions cited in paragraph A of this stipulation and located on non-federal lands shall be curated in accordance with 36 CFR 79. Where Federal lands are involved, all records and materials resulting from the actions cited in paragraph A of this stipulation shall be curated in accordance with 36 CFR 79 and the provisions of the NAGPRA, 43 CFR 10, as applicable. Unless otherwise agreed to and stipulated in the Historic Property Management Plan, BLM will attempt to have all collections curated at one location appropriate to each County. If cultural materials are recovered from private lands, BLM will seek to have the materials donated through a written donation agreement to be curated with other cultural materials. No human remains will be curated. If any human remains are discovered in the course of the Undertaking, the preferred course of treatment will be identified as provided for in the Historic Properties Management Plan, in consultation with the most likely descendant, and consistent with state and federal legal requirements.

III. AREA OF POTENTIAL EFFECTS

A. DEFINING THE APE.

1. BLM in consultation with SHPO and other consulting parties has determined and documented the APE. BLM has defined conventions or standards for survey corridors and survey intensity to adequately identify historic properties that may be directly affected by this Undertaking. The APE, as defined and documented, is a baseline for additional survey and inventory. Where Tribal Consultation, additional field research or literature review, consultation with interested parties, or other factors indicate that the qualities and values of historic properties that lie outside boundaries of these conventions may be affected directly or indirectly, the APE may be modified in accordance with Section III.B of this PA or through the development of the Historic Property Management Plan (Section IV) to provide for consideration of effects to these historic properties. In defining and documenting the APE and conducting additional survey and inventory activities, unless otherwise agreed to and stipulated in the Historic Property Management Plan, the following conventions or standards will apply.

A. The APE will apply to federal, state, and private lands included in the transmission line corridor, or included in staging areas, access roads, borrow areas, transmission substations, or other related transmission infrastructure for this Undertaking.
B. The survey corridor will meet the accepted convention of 300 feet at minimum (150 feet on either side of centerline for the right-of-way) in areas where above ground transmission lines are proposed or 120' (60 feet on either side of centerline) where below ground transmission lines are proposed.
C. The survey corridor for access roads will be 100 feet (50 feet on either side of centerline)
D. The survey convention for staging areas, borrow areas, substations, and other transmission infrastructure will include a buffer of 150 feet around the footprint of the proposed activity.
E. The convention for all survey activity will meet BLM Manual 8100 guidance for a comprehensive survey (BLM Class III Survey) and be consistent with the guidance and standards of the California Office of Historic Preservation.

B. AMENDING THE APE.

1. If BLM determines that unforeseen changes to the Undertaking may cause effects to historic properties in a geographic area or areas beyond the extent of the established APE, then BLM shall adjust the APE using the process set forth in stipulation III.B.2 below.

2. Any consulting party to this PA may propose that the APE be modified. BLM shall notify all the Signatories and Invited Signatories of the proposal and consult with the SHPO for no more than 30 days to reach agreement on the proposal. If the BLM and SHPO agree to the proposal, then BLM will prepare a description and a map of the modification and provide to all the consulting parties. Agreement to amend the APE will not require an amendment to the PA. If the BLM and SHPO cannot agree to a proposal for the modification of the APE, then they will resolve the dispute in accordance with stipulation VII below.

IV. HISTORIC PROPERTIES MANAGEMENT PLAN

A. Upon the selection of a corridor alternative and prior to issuance of any Notice to Proceed and the onset of approved activity related to the implementation of the Undertaking on federal lands, the BLM shall develop, in consultation with all consulting parties, a HPMP that will address, but is not limited to, the following:

1) A process for survey and identification of potential historic properties including any Traditional Cultural Properties in the APE of the selected alternative.

2) A process for evaluation of cultural resources for eligibility for inclusion on the National Register of Historic Places (NRHP).

3) A process for incorporating design changes to the project to avoid adverse effects to historic properties.

4) Ways to avoid, minimize, or mitigate adverse effects on historic properties as outlined in the EIR/EIS.

5) Incorporation of conditions and stipulations set forth in the EIS/EIR to meet both CPUC and BLM requirements.

6) Preparation of a Historic Properties Treatment Plan that will address, but is not limited to, the following:

   a. Incorporate or adhere closely to the Mitigation Monitoring Plan developed by the CPUC
   b. Address the assessment of effects and how adverse effects to historic properties will be resolved in consultation with the Applicant and other consulting parties
   c. Process for managing unanticipated discoveries
   d. Process for managing discovery of human remains taking into account applicable state, local laws, and the Native American Graves Protection and Repatriation Act (NAGPRA; 25 U.S.C. § 3001) on federal lands.
   e. Archaeological and Tribal monitoring

7) Provide a list of the known cultural resources in the Undertaking's APE.

The HPMP will be developed subsequent to the issuance of the BLM NEPA Record of Decision and may be completed in phases and by task, as directed by BLM. The HPMP will specify how each task will be carried out, when it will be completed for each segment of the Undertaking, and shall provide sufficient flexibility to permit Notices to Proceed for segments of the Undertaking on a phased (tiered) basis. Cultural resource mitigation measures for the alternative chosen in the BLM Record of Decision will be incorporated into the HPMP. The HPMP shall be submitted for review and comment in accordance with stipulation IV.C.

The HPMP shall state that the BLM, and the California SHPO agree, that the BLM shall manage the future operation and maintenance of the transmission line and associated infrastructure where it traverses public lands through a ROW grant and consider effects to cultural resources in relation to those actions, operation and maintenance, in accordance with stipulation V of the *State Protocol Agreement Among the California State Director of the Bureau of Land Management and the California State Historic Preservation Officer and the Nevada State Historic Preservation Officer Regarding the Manner in Which the Bureau of Land Management Will Meet its Responsibilities under the National Historic Preservation Act and the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers* (15 October 2007)(Protocol) or any subsequent PA or Protocol Agreement.

B. BLM shall submit the HPMP or a component of the HPMP to all consulting parties for a 45 day review period. Absent comments within this time frame, BLM may assume the reviewing consulting parties' concurrence. BLM will provide the reviewing consulting parties with written documentation indicating whether and how the draft HPMP has been modified in response to any timely comments received within 30 days. BLM will provide the consulting parties a copy of the final HPMP. Any disputes that may arise between BLM and another consulting party over the content of the HPMP shall be resolved in accordance with stipulation VII below.

C. In consultation and agreement with the consulting parties, components of the HPMP, such as the survey and inventory plan, may be prepared and implemented prior to the completion of the final HPMP and be will incorporated into the HPMP as agreed.

V. NATIVE AMERICAN CONSULTATION

BLM, mindful of its government-to-government responsibilities, as the lead Federal agency for Section 106 review and implementation of this Undertaking, shall continue to facilitate consultation with the Tribes. BLM will carry out its responsibilities under Section 106 to consult with Tribes that request such consultation regardless of their status as a concurring party to this PA. As stipulated in the recitations to this PA, this PA does not apply to lands owned or under the management of Indian Tribes unless an Indian Tribe requests to participate pursuant to Stipulation X of this PA.

VI. AMENDMENTS TO THE AGREEMENT

A. Any party to this PA may at any time propose amendments, whereupon all parties shall consult for no more than 45 days to consider such amendments pursuant to 36 CFR 800.6(c)(7) and 800.6(c)(8). This PA may be amended only upon written agreement of the Signatories.

B. Amendments to this PA shall take effect on the dates that they are fully executed by the Signatories.

VII. DISPUTE RESOLUTION

A. Should the Signatories or Invited Signatories object at any time to the manner in which the terms of this PA are implemented, the BLM will immediately notify the other Signatories and Invited Signatories and request their comments on the objection within 30 days.

B. If the objection can be resolved within the consultation period, the BLM may authorize the disputed action to proceed in accordance with the terms of such resolution.

C. If at the end of the 30 day consultation period, the objection cannot be resolved through such consultation, the BLM will forward all documentation relevant to

the objection to the ACHP per 36 CFR 800.2(b)(2). Any comments provided by the ACHP within 30 days after its receipt of all relevant documentation will be taken into account by the BLM in reaching a final decision regarding the objection. The BLM will notify the Signatories, Invited Signatories, and Concurring Parties in writing of its final decision within 14 days after it is rendered.

D. The BLM's responsibility to carry out all other actions under this PA that are not the subject of the objection will remain unchanged.

E. At any time during implementation of the terms of this PA, should an objection pertaining to the PA or HPMP be raised by a concurring party or a member of the interested public, the BLM shall immediately notify the Signatories, Invited Signatories, and other concurring parties, consult with SHPO about the objection, and take the objection into account. The other consulting parties may comment on the objection to the BLM. The BLM shall consult with the objecting party(ies) for no more than 14 days. Within 7 days following closure of consultation, the BLM will render a decision regarding the objection and notify all parties of its decision in writing. In reaching its final decision, the BLM will take into account all comments from the parties regarding the objection. The BLM shall have the authority to make the final decision resolving the objection. Any dispute pertaining to the NRHP eligibility of historic properties or cultural resources covered by this PA will be addressed by the BLM per 36 CFR 800.4(c)(2).

VIII. TERMINATION

A. Only Signatories may terminate this PA. If this PA is not amended as provided for in Stipulation VI or if a Signatory proposes termination of this PA for other reasons, the Signatory proposing termination shall notify the other Signatories in writing, explain the reasons for proposing termination, and consult for no more than 60 days to seek alternatives to termination.

B. Should such consultation result in an agreement on an alternative to termination, the Signatories shall proceed in accordance with that agreement.

C. Should such consultation fail, the Signatory proposing termination may terminate this Agreement by promptly notifying the other Signatories in writing.

D. Should this PA be terminated, then the BLM, as lead for the other federal land managing agencies, shall either consult in accordance with 36 CFR 800.14(b) to develop a new Agreement or request the comments of the ACHP pursuant to 36 CFR 800.4-800.6.

E. Beginning with the date of termination, the BLM shall ensure that until and unless a new PA is executed for the actions covered by this PA, such undertakings shall be reviewed individually in accordance with 36 CFR 800.4-800.6.

IX. DURATION OF THIS AGREEMENT

A. Unless the PA is terminated pursuant to stipulation VIII above, another agreement executed for the Undertaking supersedes it, or the Undertaking itself has been terminated, this PA will remain in full force and effect until BLM, in consultation with the other Signatories, determines that construction of all aspects of the Undertaking has been completed and that all terms of this PA and any subsequent tiered agreements have been fulfilled in a satisfactory manner. Upon a determination by BLM that construction of all aspects of the Undertaking has been completed and that all terms of this PA and any subsequent tiered agreements have been fulfilled in a satisfactory manner, BLM will notify the other signatories and concurring parties of this PA in writing of the agency's determination. This PA will terminate and have no further force or effect on the day that BLM so notifies the other signatories to the PA.

This PA will expire if the Undertaking or the stipulations of this PA have not been implemented within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, the BLM shall either (a) execute a MOA pursuant to 36 C.F.R. 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. 800.7. Prior to such time, the BLM may consult with the other consulting parties to reconsider the terms of the PA and amend it in accordance with Stipulation VI above. The BLM shall notify the signatories as to the course of action it will pursue within 30 days.

X. WITHDRAWAL OR ADDITION OF PARTIES FROM/TO THE PA

A. Withdrawal of BLM: If for some reason BLM should decide to withdraw from the Undertaking or for some reason the Undertaking is altered to no longer require BLM action or involvement, BLM shall inform the other Signatories to this PA of its intention to withdraw as soon as is practicable. Upon receipt of BLM's notification of its withdrawal from the Project, BLM will consult with the Signatory and Invited Signatories to determine whether there is still an undertaking as defined under 36 CFR 800, whether another Federal agency shall become the acting lead agency for the purpose of implementing this PA, or whether this PA should be terminated. The final decision to terminate this PA, or to initiate consultation under stipulation VI to amend this PA to designate another Federal agency as the lead agency shall rest with the BLM. The withdrawal consultation and decision process of this stipulation shall not exceed a period of 60 days from the BLM's notification of the other parties.

B. Withdrawal of Consulting Parties: After the selection of the alternative corridor or issuance of BLM's ROD, should an Invited Signatory or Concurring Party determine that its participation in the Undertaking and this PA is no longer warranted, the Party may withdraw from participation by informing the BLM of its intention to withdraw as soon as is practicable. BLM shall inform the other consulting parties to this PA of the withdrawal.

C. Addition of Consulting Parties: After the selection of the alternative corridor or issuance of BLM's ROD, should the scope of the Undertaking or APE change in such a way to involve lands managed by other state, federal, or tribal entities not already party to this agreement, BLM will invite the new party to participate in this PA, notify the other consulting parties, and amend this PA as necessary pursuant to section VI of this PA.

XI. EFFECTIVE DATE

This PA shall take effect on the date that it has been fully executed by the Signatories. Any amendments or attachments to this PA shall take effect on the dates they are fully executed by the Signatories, or such other self-executing dates as may be described in those documents.

EXECUTION AND IMPLEMENTATION OF THIS PA is evidence that BLM has afforded the ACHP a reasonable opportunity to comment on the Undertaking and its effects on Historic Properties. The signatories to this PA represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

SIGNATORY PARTIES:

U.S. BUREAU OF LAND MANAGEMENT

BY: _____ DATE 12/22/08
Mike Pool
State Director

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: _____ DATE 23 DEC 2008
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Attachment N

U.S. Fish and Wildlife Service Biological Opinion

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

U. S. Fish and Wildlife Service
Biological Opinion
FWS-2008B0423-2009F0097

Sunrise Powerlink Project
2009

Imperial and San Diego Counties, California

Carlsbad Fish and Wildlife Office
Carlsbad, California

January 2009

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Acronyms and Abbreviations Used in the Sunrise Power Line Project Biological Opinion

A

ac	acre or acres
Act	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.)

B

BA	Biological Assessment
BAER	Burned Area Emergency Response
BLM	Bureau of Land Management
BMPs	Best Management Practices

C

Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
cm	centimeter or centimeters
CNDDB	California Natural Diversity Database
CNF	Cleveland National Forest
Corps of Engineers	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CPSD	Consumer Protection and Safety Division

D

DAPTF	Declining Amphibian Population Task Force

E

EA	Environmental Assessment
ECMSCP	East County Multiple Species Conservation Program
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESSR	Environmental Superior Southern Route

F

FTHL	Flat-tail Horned Lizard
flycatcher	Southwestern willow flycatcher
ft	foot or feet

G

G-CM	General Conservation Measures
GIS	Geographic Information System
gnatcatcher	California gnatcatcher

H

ha	hectare or hectares
HCP	Habitat Conservation Plan

I

J

K

km	kilometer or kilometers

L

LMS	Laguna Mountains skipper

M

m	meter or meters
MA	Management Area
MCAS	Marine Corps Air Station
mi	mile or miles
MOU	Memorandum of Understanding
MP	mileposts
mph	mile/s per hour
MRD	Modified Route D
MSCP	Multiple Species Conservation Program
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

N

NEPA	National Environmental Policy Act

O

O&M	Operations and Maintenance

P

PAR	Property Analysis Record
PBS	Peninsular bighorn sheep
PCA	Pest Control Advisor

Q

Quino	Quino Checkerspot Butterfly

R

ROW	Right of Way

S

SDG&E	San Diego Gas and Electric Company
Service	U.S. Fish and Wildlife Service
SKR	Stephens' kangaroo rat
SRPL	Sunrise Powerlink
SS-CM	Species-Specific Conservation Measures
SWPPP	Storm Water Pollution Prevention Plan

T

toad	Arroyo toad

U

USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

V

vireo	least Bell's vireo

W

Wildlife Agencies	Service and CDFG, collectively
WQCB	State and/or Regional Water Resources Control Board

X

Y

Z

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-2008B0423-2009F0097

JAN 16 2009

Memorandum

To: Field Manager, El Centro Field Office, Bureau of Land Management
El Centro, California

From: Field Supervisor, Carlsbad Fish and Wildlife Office
Carlsbad, California

Subject: Biological and Conference Opinion on the Construction and Long-term Operation and Maintenance Program for the Sunrise Powerlink Project, Imperial and San Diego Counties, California

This document transmits the U.S. Fish and Wildlife Service's (Service) biological and conference opinion regarding effects on federally listed species and their designated and proposed critical habitats from the proposed construction and long-term operation and maintenance program for the Sunrise Powerlink (SRPL) Project, including a new 193-kilometer (km) (120-mile (mi)) transmission line and related facilities traversing lands under the jurisdiction of the Bureau of Land Management (BLM), U.S. Forest Service (USFS), and local San Diego County and San Diego City agencies and private lands in Imperial and San Diego counties, California. This biological and conference opinion has been prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*), and is the result of a process-oriented consultation with the BLM, USFS, and the non-Federal agency representative, San Diego Gas and Electric Company (SDG&E), on the proposed transmission line project.

Application for section 404 permits under the Clean Water Act may be necessary for the SRPL Project. Consultation with the Service to address potential impacts to listed species in association with such permits has not been initiated by the U.S. Army Corps of Engineers (Corps of Engineers). Thus, this biological and conference opinion does not satisfy the section 7 consultation requirements of the Corps of Engineers for the SRPL Project. We acknowledge, however, that actions requiring permits from the Corps of Engineers may overlap with the impacts addressed in this biological and conference opinion. Thus, future consultation with the Corps of Engineers on the SRPL Project, including development of a biological opinion, may be facilitated and/or streamlined by referencing this biological and conference opinion.

During the course of this consultation and related environmental review processes (National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA)) for the SRPL Project, endangered and threatened species surveys were conducted along proposed

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alternative alignments; however, along some portions of the selected alignment, the "Final Environmentally Superior Southern Route" or ESSR, site specific surveys are still pending. The Service has determined, based on the best available scientific data, that existing information, and that gained through the consultation and NEPA/CEQA processes, are sufficient to render jeopardy/no jeopardy determinations on the six listed species known to occur along the proposed transmission line Right –of-Way (ROW) and within the greater action area we have defined for this consultation (See Environmental Baseline Section below). The conclusions rendered in this biological and conference opinion are also supported by the commitment of SDG&E to implement General and Species-Specific Conservation Measures to avoid, minimize and offset the impacts of this project on endangered and threatened species and their designated and proposed critical habitats. These measures include conducting endangered and threatened species surveys along the final selected ROW and implementing specific avoidance and minimization measures to reduce impacts to listed species. For example, selected tower sites may be aligned to avoid listed plant populations or minimize impacts to listed animal feeding, breeding, and sheltering sites. In this manner, incidental take of listed animal species may be minimized or even avoided and the anticipated levels of incidental take more appropriately specified following the evaluation of the survey information and a determination by SDG&E in coordination with the Service, BLM, and the USFS of site-specific conservation measures to implement.

In addition, the Service has determined that the actions proposed by SDG&E are process-oriented in nature because the project includes a long-term operation and maintenance program whereby future actions may require project-level consultation as additional project-specific details become available or change over the life of the project. For example, while the general effects of emergency repairs and vegetation management are considered in this opinion, impacts to listed species are anticipated to be minor and do not include specific information regarding habitat losses beyond those considered during the project construction phase. If additional habitat losses are anticipated from emergency repairs or other actions during ongoing operations and maintenance (O&M) activities, project-level consultation may be warranted. The Service will continue to coordinate with SDG&E and the BLM and USFS, as appropriate, to determine if future activities require project-level consultation. We anticipate future consultations for site-specific actions may be streamlined and any required incidental take statement appended to this biological and conference opinion. A flow chart identifying the coordination process for this biological and conference opinion is provided as Appendix A and B.

Finally, through NEPA and CEQA processes three projects were identified that were closely related to the proposed project and considered part of the project for the purposes of NEPA and CEQA analysis. These projects include: 1) a Sempra Generation (Sempra) wind project in northern Mexico's La Rumorosa area with associated transmission and substation improvements in the U.S.; 2) the Stirling Energy Systems solar facility, and 3) the Esmeralda-San Felipe Geothermal Project. All of these projects require Federal approval through the Department of Energy and will be subject to separate NEPA and CEQA environmental review. These projects were not evaluated or considered under this consultation.

In addition, the Central East Substation is designed to accommodate four 230kV and one 500 kV transmission lines in addition to the two 230 kV and one 500 kV lines included as part of the SRPL Project. These future transmission lines will also undergo separate review under NEPA and CEQA and are not evaluated or considered under this consultation. In the *Biological Assessment for the Sunrise Powerlink Project, October 2008* (SDG&E *et. al* 2008) (Biological Assessment or BA), the BLM did not consider, and the Service concurs, that the actions described above and not evaluated under this consultation are not interrelated or interdependent actions nor should they be evaluated as indirect effects of the SRPL Project.

We received your request dated November 5, 2008, for formal section 7 consultation on the SRPL Project on November 6, 2008. Your consultation request and accompanying BA indicated that ten federally listed species and their designated and proposed critical habitats, where appropriate, would be adversely affected by the SRPL Project including two federally threatened species, the San Diego thornmint (*Acanthomintha ilicifolia*) and the coastal California gnatcatcher (*Polioptila californica californica*; "gnatcatcher") and its designated critical habitat, and eight federally endangered species: the least Bell's vireo (*Vireo bellii pusillus*; "vireo"), southwestern willow flycatcher (*Empidonax traillii extimus*; "flycatcher"), Quino checkerspot butterfly (*Euphydryas editha quino*; "Quino") and its designated and proposed critical habitat, arroyo toad (*Bufo californicus*), Peninsular bighorn sheep (*Ovis canadensis nelsoni*); "PBS") and its designated critical habitat, San Bernardino bluegrass (*Poa atropurpurea*), Laguna Mountains skipper (*Pyrgus ruralis lagunae*; "LMS"), and Stephens' kangaroo rat (*Dipodomys stephensi*; "SKR").

Based on information provided by SDG&E on December 3, 2008, and our review of other available information for the San Bernardino bluegrass, LMS, and flycatcher, including known species occurrence data, we have determined that the SRPL Project is not likely to adversely affect these three species or their designated critical habitat. In addition, since the proposed SRPL Project is located outside the known range of the SKR, we believe the SRPL Project will not impact the SKR[1]. Finally, although critical habitat has been designated for the San Diego thornmint, arroyo toad, flycatcher, and vireo, no designated critical habitat for these species will be impacted by the SRPL Project.

Designated critical habitat for the gnatcatcher and PBS and designated and proposed critical habitat for Quino were recognized in the BA as being affected by the SRPL Project. The project also affects proposed critical habitat for PBS. In summary, six species and their designated critical habitats, as appropriate, are evaluated within this biological opinion, including the federally threatened San Diego thornmint and gnatcatcher and its designated critical habitat and the federally endangered vireo, arroyo toad, Quino and its designated critical habitat, and PBS and its designated critical habitat. We have also evaluated the impacts of the project on proposed critical habitat for the Quino and PBS; thus, this opinion also serves as a conference opinion that addresses impacts of the SRPL Project on these two proposed designations.

[1] If preconstruction surveys for SKR, flycatcher, or San Bernardino bluegrass detect any of these or other listed species not addressed in this biological or conference opinion, consultation should be reinitiated.

This biological opinion is based on information provided in the: (1) *The Sunrise Powerlink Project Final Environmental Impact Statement/Environmental Impact Report* (EIR/EIS), dated October, 2008; (2) Biological Assessment, dated, October, 2008; (3) the Service's Species Occurrence Database; (4) the California Natural Diversity Database (CNDDB); (5) numerous electronic mails and telephone conversations between the Service, SDG&E, BLM, and the USFS; and (6) various other documents as cited herein.

CONSULTATION HISTORY

This consultation spans an initial time period of informal consultation between September 13, 2006, and October 15, 2008, when the Service met, provided informal guidance, and prepared and provided written comments to the California Public Utilities Commission (CPUC), BLM, and SDG&E during preparation and formal review of the Draft EIR/EIS and the re-circulated Draft EIR/EIS. The numerous meetings, guidance, and comments addressed the Service's concerns for the overall environmental impacts associated with the various transmission line alternatives being evaluated and also specifically addressed endangered and threatened species issues. During this extended period of informal consultation, the Service, BLM, USFS, and SDG&E jointly developed proposed conservation measures to avoid, minimize, and offset impacts to listed species and their designated and proposed critical habitats.

The BLM provided the Service the Biological Assessment for the SRPL Project and requested initiation of formal section 7 consultation in a letter dated November 5, 2008, received by the Service on November 6, 2008, to address the effects of the selected transmission line alternative, the Final ESSR, on federally listed endangered and threatened species. The BLM requested an expedited timeframe for Service issuance of the biological opinion by January 2, 2009, rather than the normal 135-day regulatory timeframe for issuance of March 20, 2009. This request was made to accommodate timely completion of BLM's NEPA process (*i.e.*, the BLM's Record of Decision on ROW approval for the transmission line). Due to the significant coordination through NEPA and informal consultation processes over a two-year period, the Service agreed informally during subsequent telephone conversations to accommodate this request by January 16, 2009.

Between our November 6, 2008, receipt of the BLM's request for consultation, and our issuance of this biological and conference opinion, we spoke almost daily, and at least weekly, with the BLM and SDG&E to clarify information in the BA. Although a formal draft of the opinion was not provided due to time constraints, the Project Description section of the opinion was provided to SDG&E for review and comment, and their comments on this important section of the document were incorporated into this final biological and conference opinion.

The complete administrative record for this consultation is on file at the Carlsbad Fish and Wildlife Office.

PROJECT DESCRIPTION

The proposed action is the issuance of a ROW permit by the BLM and a Special Use Authorization by the USFS to SDG&E to facilitate the construction and O&M of the SRPL Project through Federal lands in accordance with the Federal Land Policy Management Act of 1976 (43 U.S.C. 1761). The SRPL Project includes the proposed transmission line ROW, the Final ESSR, and related facilities, as identified in the Final EIR/EIS for the project prepared by the CPUC, as the lead State agency under CEQA, and the BLM as the lead Federal agency under NEPA, and issued in October 2008.

The entire project will traverse approximately 193 km (120 mi) between the El Centro area of Imperial County and southwestern San Diego County, in southern California. The proposed ROW for the project crosses Federal lands (BLM, USFS, and Department of Defense) for about 113 km (70 mi) of its 193-km (120-mi) length . In addition, one new substation, Modified Route D (MRD) and three system upgrades (reconductors from Sycamore Canyon Substation to Pomerado, Scripps, and Elliott substations) will be required to reliably operate the new transmission line. The entire route and upgrades are shown in Figure 1.

The proposed ESSR ROW has been assigned mileposts (MP), which range from the Imperial Valley Substation (MP 0) to the Sycamore Canyon Substation (MP 119). The SRPL Project is described in three separate segments or "links" according to the following geographical locations: Desert South Link, Cleveland National Forest (CNF) South Link, and Inland Valley South Link (See General Environmental Baseline Section below).

PROJECT CONSTRUCTION PHASE

1. System Upgrades

Several system upgrades will be required to allow for full use of the proposed new transmission line, which includes substation improvements, reconductoring (*i.e.*, changing smaller capacity wires to larger capacity wires), and regrading and clearing access roads and pulling pads/staging areas to facilitate the upgrades. At the Sycamore Canyon and Encina substations, new transformers will be installed. A third 230/69 kV transformer will be installed within the existing fence line at the Sycamore Canyon Substation. At the Encina Substation, a new 230/138 kV transformer will be installed within the existing substation boundaries. Substation breakers and disconnects within the Scripps, Sycamore Canyon, and Pomerado substations will also be upgraded.

Reconductoring actions will occur along the Sycamore-Scripps, Sycamore-Pomerado, and Sycamore-Elliott 69 kV lines. Portions of the Sycamore-Scripps line across Marine Corps Air Station (MCAS) Miramar will be reconductored using the existing overhead transmission line structures, with the exception of the overhead to underground transition structures. Three existing underground portions of this line will be upgraded from single to bundled cable and

require new underground trench construction along 283 m (930 ft) to relocate a portion of the line into city streets. Along 3 km (2 mi) of the Sycamore-Pomerado line, conductors will be replaced using existing transmission structures, and along 13 km (8 mi) of the Sycamore-Elliott line, work will include replacing overhead conductors, 11 wood poles, and changing insulators and/or pole tops on 24 wood poles within the existing ROW. To facilitate the reconductor and repair work along these three existing 69 kV transmission lines, existing access roads may need to be cleared and regraded, vegetation cleared around poles, and temporary trails created to poles that lack existing foot or vehicular access. Some vegetation clearing may also be needed for pulling pads/staging areas.

2. New Substation

The MRD Substation will be constructed on about 16 ha (40 ac) and located on private land west of Japatul Valley Road. The substation will accommodate four potential future 230 kV circuits exiting the substation when demand growth justifies the need for additional lines. It will also accommodate a future 500 kV circuit. At the MRD Substation, the 500 kV line will convert to 230 kV. The 230 kV line will exit the substation overhead, then continue northwest for approximately 1 mi (2 km) where it transitions to the Inland Valley South Link about 8 km (5 mi) east of the village of Alpine near MP 92.

3. Transmission Line Construction Features

The SRPL Project will include a number of permanent and temporary features necessary to construct and support the proposed transmission line including staging areas, access and spur roads, tower pads and structures, wire installation, pull sites, and underground construction (*e.g.*, trenching). Ground disturbance acreage estimates for these features and the new substation are provided in Table 1.

Staging/Fly Yard Areas and Access and Spur Roads

Staging/fly yard areas are used to store and assemble cconstruction equipment and parts and to shuttle crews back and forth to work pads via carpooling or helicopter. They are typically 4 to 12 ha (10 to 30 ac) in size, and some may be used for the duration of construction while others may be used for only 6 months. In all areas, vegetation will be cleared. In some areas, the staging/fly yard area may need to be scraped by a bulldozer and a temporary layer of rock put down to provide an all weather surface. Unless otherwise directed by the landowner, the rock will be removed from the staging area upon completion of construction, and the area will be restored to its original condition. All staging/fly yard areas will be fenced for security.

New access or access spur roads will be constructed using a bulldozer or grader, followed by a roller to compact and smooth the ground. Front-end loaders will be used to move the soil locally or offsite. Typically for transmission access roads, 4-m-wide (14-ft-wide) straight sections of

Table 1. Project Feature Ground Disturbance

Link and Milepost	Feature Type	No. of Structures/ Miles	Permanent Ground Disturbance (acres)	Temporary Ground Disturbance (acres)
Desert South Link				
MP 0.0-MP 29.6	Lattice Towers	98	27.14	106.94
	Access Roads[1]	12.48	30.81	0.00
	Helipads	42	0.60	0.00
	Staging Areas	7	0.00	155.54
	Pull Sites	15	0.00	31.79
Subtotal			58.55	294.27
CNF South Link				
MP 29.6-MP 91.0	Lattice Towers	240	66.61	69.63
	Access Roads	45.19	110.62	0.00
	Helipads	88	1.26	0.00
	Staging Areas	28	0.00	602.31
	Pull Sites[2]	60	2.14	121.78
Subtotal			180.63	793.72
Inland Valley South Link				
MP 91.0-MP 119.3	Lattice Towers/Poles/Risers	95/29/4	35.04	8.69
	Access Roads	26.5	64.35	0.00
	Helipads	14	0.20	0.00
	Staging Areas	8	0.00	101.75
	Pull Sites	36	0.00	42.21
Subtotal			99.59	152.65
	New MRDA Substation[3]		150.25	0.00
Subtotal			*150.25*	*0.00*
	Reconductor Pole Replacements	11	0.00	0.10
	Pull sites	8	0.00	3.67
Subtotal			0.00	3.77
TOTAL			**489.02**	**1244.41**

1 Includes manufactured slopes and wide-turn radii; road is assumed to end at permanent pad

2 There is only one permanent pull site in the project area

3 Includes Substation pad, impact area, access road, and laydown area

road and 5-6-m-wide (16-20-ft-wide) sections at curves will be required to facilitate safe movement of equipment and vehicles. Existing access roads may be improved for project use, as required. The MRD Substation access road will require a 10-m-wide (32-ft-wide) section of road to facilitate safe movement of equipment and vehicles.

Tower Pads and Structures

There are various configurations of the pad areas for both 500 kV and 230 kV tower structures throughout the SRPL Project alignment, which are identified as Drawings 1 through 7 in Appendix C of the BA. The 500 kV structures that will be built without helicopters will have a temporary 61-122-m (200-400-ft) workspace that will be cleared and graded for construction. These areas will be re-contoured at the extremities after construction to blend in to the original grade. At each structure location, a permanent area approximately 31-m by 31-m (100-ft by 100-ft) will be cleared and graded within the above-described 61-m by 122-m (200-ft by 400-ft) area using a bulldozer or backhoe. Additionally, a permanent 11-m by 23-m (35-ft by 75-ft) flat graded pad will be cleared and graded immediately adjacent to the 31-m by 31-m (100-ft by 100-ft area). These adjacent areas are permanently cleared areas for use during future maintenance and operation activities.

The 500 kV structures that will be built with helicopters will not have a temporary 61-m by 122-m (200-ft by 400-ft) workspace. These areas will include a permanent area approximately 31-m by 31-m (100-ft by 100-ft) and the 11-m by 23-m (35-ft by 75-ft) pad. In addition, these segments will require two 6-m by 6-m (20-ft by 20-ft) helicopter pads or two 6-m by 6-m (20-ft by 20-ft) elevated helicopter platforms per structure with a footpath to the structure. The helicopter pads may be cleared and graded for construction and future line maintenance. The elevated helicopter platforms may be wood or steel platforms.

Helicopters

Helicopters will be used to support construction activities in areas where access is limited (*e.g.*, no suitable access road, limited pad area to facilitate onsite structure assembly area) or there are environmental constraints to accessing the project area with standard construction vehicles and equipment. Helicopters will be used for project activities in portions of all links.

Blasting, Hammering, and Rock-hauling

Where solid rock is encountered, blasting, rock-hauling, or the use of a rock anchoring or mini pile system may be required. The rock anchoring or mini-pile system will be used in areas where site access is limited or adjacent structures could be damaged as a result of blasting or rock-hauling activities. In environmentally sensitive areas, a HydroVac, which uses water pressure and a vacuum, will be used to excavate material into a storage tank. In areas where it is not possible to operate large drilling equipment due to access or environmental constraints, hand

digging may be required. Reinforcing steel anchor bolt cages and concrete will be installed after excavation and prior to structure installation.

Wire Installation and Pull Sites

Insulators and stringing sheaves are installed to pull conductors (*i.e.*, wires) along the line. Additionally, temporary clearance structures will be erected, where required, prior to stringing any transmission lines. The temporary clearance structures are used to prevent contact during stringing activities and typically consist of vertical wood poles with cross arms that are erected at road crossings or crossings with other energized electric and communication lines. Bucket trucks may also be used to provide temporary clearance. The conductors are pulled along a sock line through the sheaves along the same path the SRPL transmission line will follow. Pulling the sock line is accomplished with a small helicopter that moves along the ROW. Following the initial stringing operation, pulling and tensioning the line will be required.

Pulling and tensioning sites will be required every 2 to 6 km (1 to 2 mi) along the ROW and will encompass approximately 0.4 to 0.8 ha (1 to 2 ac) each to accommodate required equipment. Equipment at these sites will include tractors and trailers with spooled reels that hold the conductors and trucks with the tensioning equipment. Pulling and tensioning sites are located within the ROW except at angle structures where the pulling site must be in line with the conductor. Depending on topography, minor grading may be required at some sites to create level pads for equipment. Vegetation will be cleared throughout the pull site area, but after use, the entire area will be restored and re-vegetated except for two permanent pulling sites proposed for the crossing of I-8.

Underground Construction

Underground construction is proposed in the area in and around Alpine from MP 94 to MP 100. The 230 kV lines will require a trench approximately 1 to 2 m (3 to 7 ft) wide and 2 km (6 ft) deep. Underground segments involve trenching and duck bank and vault installations. Two trenches, separated by 6 m (20 ft), will be excavated for the double circuit 230 kV underground segments within the Inland Valley South Link. Excavated materials not temporarily stored to use for backfill will be hauled offsite to a materials storage yard. Based on the anticipated rate of construction progress (91 to 152 m [300 to 500 ft] open at one time), approximately 306 cubic meters (400 cubic yards) of excavated material will be off-hauled per day.

OPERATIONS AND MAINTENANCE PROGRAM FEATURES

Following project construction, O&M of the new line will commence and is anticipated to continue for the life of the SRPL Project. Operation and maintenance activities will include 1) transmission line maintenance; 2) substation maintenance; 3) emergency response; and fire protection and security.

1. Transmission Line Maintenance

Overhead transmission lines will be inspected for corrosion, equipment misalignment, loose fittings and other mechanical problems, and the need for vegetation management. Aerial inspection (visual and infrared) of the entire system and climbing inspections of transmission structures will be conducted annually. The aerial inspections will require the use of helicopters. Ground inspections, including underground components, will be conducted by up to three crewmembers every three years.

Electrical equipment such as conductors, switches, and transformers, may require replacement or repair over time and include four-person crews using boom line trucks, aerial trucks, and assist trucks. Routine washing of insulators to prevent arcing will also be conducted as a routine maintenance activity. Insulator washing uses two crew members with high pressure hoses and a water truck and will occur about two times per year. Each insulator washing takes about 30 minutes per transmission structure.

ROW repairs include grading or repairing maintenance access roads and work areas, permanent pulling sites, and helicopter platforms and spot repair of sites subject to flooding or scouring. ROW repair is generally conducted after the rainy season to address erosion problems using heavy equipment such as rubber-tired graders, backhoes, and four-wheeled drive trucks and steel tracked cat loaders. Access roads will be maintained on a 2-year schedule.

SDG&E will maintain a minimum clearance of 3 m (10 ft) around the base or foundation of all electrical transmission structures and work areas adjacent to access roads and electric transmission structures for vehicle and equipment access necessary for operations, maintenance and repair will be maintained free of vegetation. Shrubs and other obstructions will be regularly removed near structures to facilitate inspection and maintenance of equipment and to ensure system reliability. In addition, vegetation with a mature height of 5 m (15 ft) or taller will not be allowed to grow within 3 horizontal m (10 horizontal ft) of any overhead conductor or working area in order to protect system reliability and public safety. Vegetation will be removed using mechanical equipment such as chain saws, weed trimmers, rakes, shovels, mowers and brush hooks. The duration of activities and the size of crew and equipment required will be dependent on the amount and size of the vegetation to be trimmed or removed. Most vegetation removal or tree trimming activities can be completed in one day.

2. Substation Maintenance

Substation maintenance includes scheduled equipment repairs, cleaning, and testing to prevent service interruptions. Routine maintenance activities will require about 6 trips annually to each substation by a two to four person crew. In addition, a major maintenance inspection will be conducted annually and require 20 personnel for about a week. Some operations functions of substations are performed remotely, but normal operations also require 1 or 2 persons in a light truck to visit each substation on a weekly basis.

3. Emergency Response

Emergencies are events or actions that require immediate response by SDG&E personnel such as car-to-pole contacts, downed poles, fires, transformer outages, downed wires etc. Emergencies may be caused by extreme weather conditions. Responding crews and equipment needs vary depending on the size and severity of the emergency. In general, four-person crews with line, aerial lift, and assist trucks will respond to make emergency repairs. In remote areas with limited or no access, helicopters may be required to immediately respond to emergencies.

4. Fire Protection and Security

SDG&E employs a full time Fire Coordinator and Pole Protection Crews who work with local fire protection jurisdictions to implement fire safety requirements and protocols related to fire prevention. Specific practices aimed at preventing fires during construction and maintenance/repair activities include: brush clearing prior to work, stationing water trucks at job sites to keep the ground and vegetation moist during extreme weather conditions, enforcing red flag warnings, and providing "fire behavior" training to personnel. While SDG&E personnel do not directly fight fires, they will extinguish any remaining pole fires once a fire has passed through the work area.

CONSERVATION MEASURES

The SRPL Project includes the following conservation measures and/or design features that will be implemented to avoid, minimize, and offset potential adverse effects to listed species. These measures were developed and coordinated with the BLM, USFS, and SDG&E and based on information in the SRPL BA, Final EIR/EIS, and supplemental material provided during the consultation process. Conservation measures will be implemented during the project construction phase and during long-term O&M of the project. To facilitate future coordination on these conservation measures they are identified as General Conservation Measures (G-CM) or Species-Specific Conservation Measures (SS-CM) and numbered sequentially in this document.

General Conservation Measures

General Conservation Measures were developed during NEPA/CEQA process and in coordination with the California Department of Fish and Game (CDFG). General Conservation Measures minimize the impacts of the SRPL Project on wildlife resources in broad manner and are included here because of their overall benefit to the natural landscapes and habitats supporting federally endangered and threatened species. A few General Conservation Measures address species not specifically covered in this biological and conference opinion but are retained to facilitate coordination with State requirements for protection of wildlife resources or address additional survey needs.

1. Project Construction Phase

G-CM-1 A qualified biologist[2] will monitor all work areas to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the Conservation Measures are met by being present during construction activities including all initial grubbing and clearing of vegetation. The qualified biologist will conduct monitoring for any area subject to disturbance from construction activities. The qualified biologist will perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies (the Service and CDFG, collectively), depending on the sensitivity of the resources. The qualified biologist will send weekly monitoring reports to the CPUC and BLM and will record any reduction or increase in construction impacts so that compensation requirements can be revised accordingly. The final impact calculations will be submitted to the CPUC, BLM, USFS (for sections of the Project that require monitoring on National Forest lands), and Wildlife Agencies for review and approval.

- SDG&E, its contractors and subcontractors, and their respective project personnel, will refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (*e.g.*, Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations.
- The qualified biologist will have the authority to issue stop work orders if any part of the Conservation Measures are being violated. The qualified biologist will immediately notify the CPUC, BLM, USFS and Wildlife Agencies of any significant events discovered during the monitoring. Reinitiation of work following a stop work order will only occur when the CPUC, BLM, USFS, and Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts will be made, and that any additional protection measures they deem necessary will be undertaken.

G-CM-2 Throughout the construction process all crews will use the SDG&E Water Quality Construction Best Management Practices Manual (BMPs) (SDG&E 2002). Following are some of the general guidelines:

- Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams;
- Surface water, riparian areas, and floodplains will be spanned where feasible; A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented;

[2] A qualified biologist or biological monitor must have (1) a bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) previous experience with applying the terms and conditions of a biological opinion; and (3) approval of the Service if conducting focused or protocol surveys for federally listed species.

Storm Water BMPs for construction will be implemented per the requirements of the project's SWPPP;

- Silt fencing, straw mulch, and straw bale check dams will be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures will be implemented.

- The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction.

- Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands, and floodplains; and

- Structures will not be placed in streambeds or drainage channels to the extent feasible.

G-CM-3 SDG&E will secure any required General Permit for Storm Water Discharges Associated with Construction Activity (National Pollutant Discharge Elimination System (NPDES permit) authorization from the State Water Resources Control Board and/or the Regional WQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts.

G-CM-4 Prior to construction, all of SDG&E's contractors, subcontractors, and project personnel will receive training regarding the appropriate work practices necessary to effectively implement the Conservation Measures and to comply with the applicable environmental laws and regulations including appropriate wildlife avoidance and impact minimization procedures, the importance of these resources, and the purpose and necessity of protecting them.

G-CM-5 In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities, which could interfere with plant photosynthesis, a 24 km (15 mi) per hour speed limit will be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse.

G-CM-6 The area limits of project construction and survey activities will be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings, with activity restricted to and confined within those limits. In addition, survey personnel will keep survey vehicles on existing roads. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats occur. Any impacts associated with unauthorized activity (*e.g.*, exceeding approved construction limits) will be mitigated at a 5:1 ratio (5.5:1 in Flat-tail Horned Lizard (FTHL) Management Area (MA)). Restoration of the unauthorized impacts will be credited at a 1:1

ratio (*i.e.*, offset by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) will be acquired offsite.

G-CM-7 During project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat will require prior approval from the project biological monitor in conformance with the Conservation Measures. Hiking off roads or paths for survey data collection is allowed year-round as long as applicable Conservation Measures to minimize impacts are met.

G-CM-8 Stringing of new wire and reconductoring for the project will be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on project access roads. Where stringing requires that conductor drop within brush or drag on or through the brush or ground or vehicles leave project access roads, SDG&E will perform a site survey(s), to determine presence or absence of nesting migratory birds (including the three federally listed bird species subject to this consultation) or other listed species in the work area. Details of protocol survey requirements are outlined in the species-specific measures below. SDG&E will submit results of this survey(s) to the Wildlife Agencies, prior to dropping wire in brush, dragging wire on the ground or through brush, or taking vehicles off project access roads.

G-CM-9 Project personnel will not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris will remain in the ROW following completion of construction. All refuse will be placed in appropriate wildlife-proof containers and removed from job sites daily.

G-CM-10 Repairs may be required during the construction of the project to address emergency situations (*e.g.*, downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs, all Conservation Measures will be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage will be reported to the project biological monitor, who will promptly submit a written report of such impacts to the Wildlife Agencies and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological monitor will develop a reasonable and feasible mitigation plan consistent with the Conservation Measures and any permits previously issued for the project by the governmental agencies.

G-CM-11 In areas designated as sensitive by SDG&E or the Wildlife Agencies, to the extent feasible, structures and access roads will be designed to minimize impacts to sensitive features. These areas of sensitive features include, but are not limited to, high-value wildlife and plant habitats, sensitive vegetation communities, and habitat occupied by listed species. If the sensitive features cannot be completely avoided or spanned, structures and access roads will be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in designated sensitive areas, SDG&E will perform a site survey to determine presence or absence of endangered species in sensitive habitats as

required in G-CM-32 below. SDG&E will submit results of this survey to the Wildlife Agencies prior to constructing structures or access roads.

G-CM-12 In construction areas where grading or re-contouring is not required, vegetation will be left in place wherever possible to avoid excessive root damage and allow for re-sprouting. Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil located in areas containing sensitive habitat will be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation. Topsoil located in developed or disturbed areas is excluded from this measure. Disturbed soils will be restored based on a Habitat Restoration Plan per G-CM-16.

G-CM-13 Night lighting within the project area adjacent to preserved habitat will be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable. Vehicle traffic associated with project activities may not exceed 24 km (15 mi) per hour to prevent mortality of nocturnal wildlife species that may be moving about.

G-CM-14 To the extent practicable, surface-disturbing components of the project will be located in previously disturbed areas or where habitat quality is poor to minimize disturbance of vegetation and soils.

G-CM-15 Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist. The construction mats will not be left on the ground for more than three weeks. Use of construction mats will be considered a temporary impact to vegetation and will be incorporated into the Habitat Restoration Plan per conservation measure **G-CM-16.**

G-CM-16 SDG&E will prepare and implement a Habitat Restoration Plan, approved by the CPUC, BLM, USFS, and Wildlife Agencies, for all temporarily impacted project areas. The Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (*i.e.*, weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period of five years (or less if the restoration meets all success criteria). The compensation ratios listed in Table 2 will apply to impacts from emergency repairs during the construction phase. In cases where the impacts to sensitive vegetation communities occur on lands previously preserved to offset impacts from other projects, the mitigation ratios will be doubled, as is standard practice in San Diego County.

- Areas to be restored will include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Restoration of some habitats in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and

vegetation. In those instances, impacts will be considered permanent, and the compensation will consist of offsite land acquisition and preservation. Where onsite restoration is planned, SDG&E will identify a qualified habitat restoration specialist to be approved by the CPUC, BLM, USFS, and Wildlife Agencies. The habitat restoration specialist will prepare and implement the Habitat Restoration Plan. Hydroseeding, drill seeding, or an otherwise proven restoration technique will be use on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, BLM, USFS, and Wildlife Agencies to restore the area to its original condition. The Habitat Restoration Plan will incorporate the measures identified in the May 25, 2006, Memorandum of Understanding (MOU) among Edison Electric Institute, USFS, BLM, Service, National Park Service, and Environmental Protection Agency (EPA) (Edison Electric Institute *et al*. 2006), where applicable.

- For restoration of temporary impacts to desert scrub and dune habitats, a separate Habitat Restoration Plan will be developed for desert vegetation communities and incorporate Desert Bioregion Revegetation/Restoration Guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

- The restoration of habitat will be maintained and monitored for five years after installation by an experienced, licensed habitat restoration contractor, or until established success criteria identified in the Restoration Plan (*e.g*., specified percent cover of native and nonnative species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance, monitoring, and reporting will be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (*e.g*., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) will be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring will extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, USFS and Wildlife Agencies. For areas where habitat restoration cannot meet restoration requirements, as determined by the habitat restoration specialist in coordination with the CPUC, BLM, USFS (for sections of the project with restoration on National Forest lands), and Wildlife Agencies, off-site purchase and dedication of habitat will be provided at the ratios provided in Table 2.

G-CM-17 SDG&E will purchase/dedicate suitable habitat for preservation, at ratios identified in Table 2, to offset permanently impacted areas. A Habitat Management Plan(s) will be required for all offsite parcels and must be approved, in writing, by the CPUC, BLM, USFS, and Wildlife Agencies prior to the initiation of any vegetation clearing activities. The Habitat Management Plan(s) shall include, but will not be limited to:

- Legal descriptions of all parcels approved by the CPUC, BLM, USFS, and Wildlife Agencies;

- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to the CPUC, BLM, USFS, and Wildlife Agencies;

- Baseline biological data for all parcels;

- Designation of a land management entity approved by the CPUC, BLM, USFS, and Wildlife Agencies to provide in-perpetuity management;

- A Property Analysis Record (PAR) prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan; and

- Designation of responsible parties and their roles (*e.g.*, provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity).

All off-site compensation parcels will be approved by the CPUC, BLM, USFS, and Wildlife Agencies and must be acquired or their acquisition must be assured through a mechanism such as a performance bond prior to ground disturbing activities. To demonstrate that such parcels will be acquired, SDG&E will submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan will be submitted to the CPUC, BLM, Wildlife Agencies, and USFS for review and approval and will include, but not be limited to: legal descriptions and maps of all parcels proposed to be acquired; acquisition schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities relative to acquisition; and assurance mechanisms (*e.g.*, performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities. SDG&E will fully fund an endowment for in-perpetuity management of all parcels acquired to off-set the permanent impacts of this project. The endowment will be based on the PAR included in the Habitat Management Plan(s) for these parcels and will be fully funded within three (3) months of the approval of the Habitat Management Plan(s).

G-CM-18 To reduce adverse impacts from unnatural wildfire (type conversion, proliferation of exotic weed species), SDG&E will re-seed disturbed areas after a transmission line–caused fire. Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the SRPL Project, SDG&E will re-seed all natural areas—both public and private— that are burned as a result of the project-caused fire. Re-seeding will be required for areas that have been burned within the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan will be developed with input from Cal Fire, the USFS, BLM, CPUC and Wildlife Agencies. Seeds shall be raked into the soil to avoid seed predation, and reseeding will be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. SDG&E will provide a written report documenting all re-seeding activities to the BLM, CPUC, USFS, and Wildlife Agencies. SDG&E will make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort will be submitted to the above mentioned agencies upon request. Specific re-seeding requirements stipulated in this conservation measure will be subject to approval and modification by any public landowning agency.

G-CM-19 SDG&E will prepare and implement a Raven Control Plan, approved by the Wildlife Agencies, for portions of the SRPL Project route. The raven control plan will include the use of raven perching and nesting deterrents. The plan will identify the purpose of conducting raven control; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; describe raven control methods to be employed along the route; and describe procedures for documenting the activities on an annual basis.

G-CM-20 SDG&E will prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. The Weed Control Plan will be approved by the BLM, USFS, and Wildlife Agencies before implementation Where SDG&E owns the ROW property, the Weed Control Plan will include specific weed abatement methods, practices, and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC). On the ROW easement lands administered by public agencies (BLM, USFS, and Wildlife Agencies), the Weed Control Plan will incorporate all appropriate and legal agency stipulated regulations. The Weed Control Plan will be submitted to the ROW landholding public agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands will include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, SDG&E will work with the landowners to obtain authorization of the weed control treatment that is required. Developed land will be excluded from weed control.

The Weed Control Plan will include the following:

- A pre-construction weed inventory will be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured), as well as at all ancillary facilities associated with the Project, for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]). These populations will be mapped and described according to density and area covered. These plant species will be treated (where access and permission can be secured) prior to construction or at a time when treatments will be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, as appropriate.

- For areas directly impacted by the Project, a pre-construction weed inventory will be conducted for those weed populations rated 'High' or 'Moderate' for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006). These weed species will be treated prior to construction or at a time when treatments will be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal- IPC.

- Weed control treatments will include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides will be in compliance with all State and Federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment will be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner, and Cal-IPC with the goal of controlling populations before they start producing seeds.

- For the lifespan of the project (*i.e.*, as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area will be taken as follows:

    - The survey areas described above would be surveyed annually to monitor previously-identified and treated populations and to identify new invasive weed populations._The treatment of weeds will occur on a minimum annual

basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, and Cal-IPC.

- During project construction, all seeds and straw materials will be certified weed free, and all gravel and fill material will be certified weed free by the San Diego County Agriculture Commissioner's Office.

- During project construction, vehicles and all equipment will be washed (including wheels, undercarriages, and bumpers) at an off-site washing facility (*e.g.*, a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. will be washed at an off-site washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. Vehicles, tools, and equipment will be washed at an off-site washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). All washing will take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort will be made to use wash facilities that use recycled water. A written daily log will be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log will include the signature of a responsible staff member. Logs will be available to the CPUC, BLM, USFS (for Project sections within National Forest lands), Wildlife Agencies, and biological monitor for inspection at any time and will be submitted to the CPUC on a monthly basis during construction.

G-CM-21 Project construction activities will be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Where revegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix, approved by the Wildlife Agencies, will be done on slopes.

In addition to the measures above, the following erosion control procedures will be implemented:

- Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance.

- In agricultural areas, topsoil will be left in roughened condition.

- When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity.

- Disturbed areas will be returned to their pre-construction contours and allowed to revegetate naturally, or will be reseeded with an appropriate seed mixture if necessary.

- Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations.

G-CM-22 In areas where ground disturbance is substantial or where re-contouring is required (*e.g.*, marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and revegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or recontouring will be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor.

G-CM-23 To limit impact to existing vegetation, appropriately sized equipment (*e.g.*, bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities.

G-CM-24 To suppress dust during Project construction, SDG&E will prepare and file with the Imperial County Air Pollution Control District, San Diego Air Pollution Control District, BLM, and CPUC, a Dust Control Plan. The Dust Control Plan will include a description of how the plan will be implemented and monitored at all locations of the project and contain the following measures:

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area;

- Pre-water sites for 48 hours in advance of clearing activities;

- Reduce the amount of disturbed area where possible;

- Spray all dirt stock-pole areas daily as needed;

- Cover loads in haul trucks or maintain at least 15.24 cm (six in) of free-board when traveling on public roads;

- Pre-moisten, prior to transport, import and export dirt, sand, or loose materials;

- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets;

- Plant vegetative ground cover in disturbed areas as soon as possible following construction; and

- Apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days).

In addition to the Dust Control Plan, the following dust reduction measures will be implemented:

- Prohibit construction grading on days when the wind gusts exceed 40.2 km per hour (25 mph), to the extent feasible, to control fugitive dust;

- All trucks hauling soil and other loose material will be covered or maintain at least 0.61 km (two feet) of freeboard;

- Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E;

- Vehicle speeds will be limited to 24.1 km per hour (15 mph) on unpaved (no gravel or similar surfacing material) roads;

- Unpaved roads will be treated by watering as necessary;

- Soil stabilizers will be applied to inactive construction areas on an as-needed basis; and

- Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered, treated with soil binders, or covered as necessary.

G-CM-25 Except when not feasible due to physical or safety constraints, all project vehicle movement will be restricted to existing access roads and access roads constructed as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads.

G-CM-26 All limits of construction will be delineated with orange construction fencing. During and after construction, entrances to access roads will be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads will be posted on these gates.

G-CM-27 To the extent feasible, access roads will be built at right angles to the streambeds and washes. Where it is not feasible for access roads to cross at right angles, SDG&E will limit roads constructed parallel to streambeds or washes to a maximum length of 500 ft at any one transmission line crossing location. Such parallel roads will be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or waters of the state. Culverts will be installed where needed for right angle crossings, but rock crossings will be utilized across most right angle drainage crossings. All construction activities will be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and stream banks (e.g., structures will not be located within a stream channel, construction activities will avoid sensitive features). Up to 30 days prior to construction in streambeds and washes, SDG&E will perform a pre-activity survey(s) to determine the presence or absence of threatened or endangered riparian species. Details of protocol survey requirements are listed in the species-specific measures below.

G-CM-28 To limit new or improved accessibility into the area, SDG&E shall coordinate with the authorized officer for the applicable Federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on existing and new access roads, especially trails that will be used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

G-CM-29 To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.

G-CM-30 To limit new or improved accessibility into the area, all new access roads or spur roads constructed as part of the project that are not required as permanent access for future project maintenance and operation will be permanently closed. Where required, roads will be permanently closed, with the concurrence of the underlying landowner and the governmental agency having jurisdiction, using the most effective feasible and least

environmentally damaging methods (e.g., stockpiling and replacing topsoil or rock replacement) appropriate to that area. All permanently closed access roads and spur roads will be restored with native vegetation following closure.

G-CM-31 Mowing shall be used when permanent access is not required since, with time, total re-vegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing will be necessary to maintain permanent access. In such instances, SDG&E will mow at least once every two years. The project biological construction monitor will conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 4-m-wide (14-foot-wide) area on straight portions of the road and a 5-6-m-wide (16 to 20-ft-wide) area at turns, and that the mowing height is no less than 10 cm (4 in) from finished grade.

G-CM-32 Prior to construction activities, SDG&E will conduct on-the-ground surveys (following Service protocols where they exist) for the following listed species where such surveys had not been conducted in 2007 and 2008, or for those species for which surveys in 2007 and 2008 were not reliable due to lack of sufficient rainfall.

- San Diego Thornmint (*Acanthomintha ilicifolia*)
- San Bernardino Bluegrass (*Poa atropurpurea*)
- Willowy Monardella (*Monardella viminea)*
- Quino Checkerspot Butterfly (*Euphydryas editha quino*)
- Arroyo Toad (*Bufo californicus*)
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Coastal California Gnatcatcher (*Polioptila californica californica*)
- Stephen's Kangaroo Rat (*Dipodomys stephensi*)

G-CM-33 Prior to construction, plant population boundaries designated as listed or proposed by the Wildlife Agencies and other resources designated as listed or proposed by SDG&E and other resource agencies will be clearly delineated with visible flagging or fencing, which will remain in place for the duration of construction. Flagged areas will be avoided to the extent practicable during construction activities in that area. Where these areas cannot be avoided, focused surveys for covered plant species will be performed.

Notification of presence of any covered plant species to be removed in the work area will occur within ten (10) working days prior to construction activity, during which time the Wildlife Agencies may remove such plant(s) or recommend measures to minimize or reduce the impact. If neither the Service nor CDFG has removed such plant(s) within ten (10) working days following written notice, SDG&E may proceed with work. In such cases, SDG&E will move plants to a nursery and hold them for up to one year while the Wildlife Agencies determine a specific relocation program.

G-CM-34 To offset the loss of native trees or native tree trimming, SDG&E shall (1) acquire and preserve habitat where the trees occur and/or (2) restore (*i.e.*, planting) trees on land that will not be subject to vegetation clearing (either in SDG&E's ROW and/or on land acquired and preserved). Any land to be used for this compensation shall be approved by the CPUC, BLM, USFS (for loss of trees on National Forest lands), and Wildlife Agencies. For habitat acquisition and preservation, the compensation ratios shall follow those in Table 2.

For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no compensation shall be required.

For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed:

Native trees that are removed shall be replaced in-kind (by species) as follows:

- Trees less than 12.7 cm (5 in) diameter at breast height (DBH) shall be replaced at 3:1
- Trees between 13 and 31 cm (5 and 12 in) DBH shall be replaced at 5:1
- Trees between 31 and 91cm (12 and 36 in) DBH shall be replaced at 10:1
- Trees greater than 91 cm (36 in) DBH shall be replaced at 20:1

Native trees that are trimmed shall be replaced in-kind (by species) as follows:

- Trees less than 30 cm (12 in) DBH shall be replaced at 2:1
- Trees greater than 30 (12 in) DBH shall be replaced at 5:1

All native tree restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, USFS, and Wildlife Agencies.

G-CM-35 Plant species identified as rare by the land managing agency will be salvaged where avoidance is not feasible. Generally, salvage may include removal and stockpiling for replanting on site; removal and transplanting out of surface disturbance area; removal and salvage by private individuals; and removal and salvage by commercial dealers; or any combination. Plant or wildlife species will not be collected except by biological monitors specifically directed by the Wildlife Agencies to do so.

G-CM-36 No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms will be prohibited in all Project areas except for those used by security personnel.

G-CM-37 Feeding of wildlife by SDG&E personnel or contractors is prohibited.

G-CM-38 To minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations, Project personnel are not allowed to bring pets into any project area.

G-CM-39 All steep-walled trenches or excavations used during construction will be covered at all times except when being actively utilized. If the trenches or excavations cannot be covered, exclusion fencing (*i.e.*, silt fencing) will be installed around the trench or excavation, or it will be covered to prevent entrapment of wildlife. Open trenches, or other excavations that could entrap wildlife will be inspected by the qualified biologist a minimum of three times per day and immediately before backfilling. Should a dead or injured listed species be found in a trench or excavation or anywhere in the construction zone or along an access road, the qualified biologist will contact the CPUC, BLM, USFS, and Wildlife Agencies within 48 hours of detection. The qualified biologist will report the species found, the location of the finding, the cause of death (if known), and will submit a photograph and any other pertinent information. Construction holes left open over night will be covered. Covers will be secured in place nightly, prior to workers leaving the site, and will be strong enough to prevent livestock or wildlife from falling through and into a hole. Holes and/or trenches will be inspected prior to filling to ensure absence of mammals and reptiles. Excavations will be sloped on one end to provide an escape route for small mammals and reptiles.

G-CM-40 Employees and contractors will look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment will be moved until the animal has left voluntarily or is removed by the qualified biologist.

G-CM-41 The applicant will ensure that the following conditions are implemented during project construction:

- Disposal or temporary placement of excess fill, brush or other debris will not be allowed in waters of the United States or their banks;

- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur in designated areas outside of waters of the United States within the fenced project impact limits. These designated areas will be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering waters of the United States, and will be shown on the construction plans. Fueling of equipment will take place within existing paved areas or designated fueling areas designed to contain fuel drips greater than 30.5 m (100 ft) from waters of the United States. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. "No-fueling zones" will be designated on construction plans and/or within the stormwater pollution prevention plan.

G-CM-42 A minimum of a 30.5-m (100-ft) riparian buffer will be maintained between all construction/staging areas, except where the access roads cross riparian areas.

2. Operations and Maintenance Phase

General Conservation Measures G-CM 2, G-CM 4, G-CM-5, G-CM-8 to G-CM-10, G-CM-12 to G-CM-16, G-CM-21, G-CM-23, G-CM-25, and G-CM-31 to G-CM-41 will also be implemented during the O&M phase of the SRPL Project.

G-CM-43 A qualified biologist employed by SDG&E will be present during maintenance involving ROW repair requiring ground disturbance (*i.e*., grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). The qualified biologist will send annual monitoring reports of maintenance activities to the CPUC, BLM, and USFS (for sections of the project that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were impacts that required mitigation.

G-CM-44 The area limits of Project maintenance and survey activities will be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings, with activity restricted to and confined within those limits, within SDG&E's ROW. In addition, survey personnel would keep survey vehicles on existing roads. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or maintenance activity where any sensitive biological resources or wildlife habitats occur.

G-CM-45 SDG&E will purchase/dedicate suitable habitat for preservation to offset areas permanently impacted by O&M activities. The preservation for O&M activities will be at the same ratios provided in Table 2 for construction activities. A Habitat Management Plan(s) will be required for all off-site parcels and must be approved in writing by the CPUC, BLM, USFS, and Wildlife Agencies. SDG&E may choose to establish conservation banks or purchase conservation credits from existing conservation banks, other than the conservation

bank established for SDG&E's Subregional Plan (SDG&E 1995), to provide an efficient process to offset the anticipated minor impacts resulting from O&M activities.

G-CM-46 All O&M activities will be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and stream banks. Up to 30 days prior to O&M activities in streambeds and washes, SDG&E would perform a pre-activity survey(s) to determine the presence or absence of threatened or endangered riparian species. Details of protocol survey requirements are listed below in the species-specific measures.

G-CM-47 As part of the environmental training program, field crews will be trained to recognize the importance of invasive plant species control, and will be informed of the measures designed to control the spread of invasive species. Deliberate introduction of invasive plants or animals into any project site is prohibited. Heavy equipment will be inspected for invasive plant seeds or other plant material prior to entering an access road or a project site. Any plant seeds or other plant material discovered on heavy equipment will be manually removed. All seeds and straw materials used during O&M activities will be certified weed free, and all gravel and fill material would be certified weed free by the San Diego County Agriculture Commissioner's Office.

G-CM-48 Access roads shall be maintained once every two years. If this schedule is not adhered to, loss of habitat due to maintenance of access roads will be considered a new permanent impact and compensated according to the ratios provided in Table 2.

G-CM-49 Brush clearing around any project facilities (*e.g.*, structures, substations) for fire protection, visual inspection, or project surveying in areas that have been previously cleared or maintained within a two-year or shorter period would not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing will not be conducted during the breeding season (March through August) without a pre-activity survey for vegetation containing active nests, burrows, or dens. The pre-activity survey performed by the on-site biological resource monitor will make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work will be avoided until after the nesting season, or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance-level survey, soil in the brush clearing area will be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.

G-CM-50 Brush clearing and other construction activities will occur outside the general avian breeding season. All vegetation clearing, except tree trimming or removal, will take place between September 16 and February 14 (*i.e.*, outside of the general avian breeding season of February 15 through September 15), when feasible. Tree trimming or removal will only take place between September 16 and December 31 (*i.e.*, outside the raptor breeding season of January 1 through September 15). For brush clearing and/or other construction activities that cannot occur outside the above-listed breeding seasons, a

qualified biologist will work with a qualified acoustician to determine if a the construction activity will meet or exceed the 60 dB(A) Leq hourly noise threshold where nesting territories of the gnatcatcher and vireo occur. If the noise threshold will not be met or exceeded at the edge of their nesting territories, then brush clearing and/or other construction activities may proceed. If the noise threshold will be met or exceeded at the edge of their nesting territories, pre-construction surveys for nests of these species will be conducted by a qualified biologist (Service-approved biologist for gnatcatcher, vireo, and flycatcher) within 91 m (300 ft) of the construction area no more than seven days prior to initiation of construction that will occur between February 15 and August 31 for the gnatcatcher, March 15 and September 15 for the vireo, April 15 and September 15 for the flycatcher.

- If active nests are found, work may proceed provided that methods, determined by the qualified acoustician to be effective, are implemented to reduce noise below the threshold. These methods include, but are not limited to, turning off vehicle engines and other equipment whenever possible and/or installing a protective noise barrier between a nesting territory and maintenance activities. If the qualified acoustician determines that no methods will reduce noise to below the threshold, maintenance will be deferred until the nestlings have fledged or the nest has failed, as determined the qualified biologist. Where noise-reducing methods are employed, active nests will be monitored by the qualified biologist on a weekly basis until maintenance is complete or until the nestlings fledge or fails, whichever comes first. The qualified biologist will be responsible for documenting the results of the pre-maintenance nest surveys and the nest monitoring and for reporting these results to the CPUC, BLM, USFS, and Wildlife Agencies.

G-CM-51 Maintenance activities will occur outside the general avian breeding season, where feasible. For other maintenance activities that cannot occur outside the above-listed breeding seasons, SDG&E will follow the requirements in G-CM-50 for noise reduction at nest sites.

Species-Specific Conservation Measures

1. Project Construction Phase

San Diego Thornmint

SS-CM-1 No impacts will occur to the thornmint population at and adjacent to MP 116 or to any thornmint occurrences between MP 114 and 119. To ensure the avoidance of impacts, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (e.g., towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) between MP 114 and MP 119. In other areas where suitable thornmint habitat (i.e., gabbro and calcareous soils and a slope of 0 to 25 percent) exists, the area to be impacted will be surveyed for thornmint before any impacts may occur, per G-CM-32. All permanent and temporary impact areas will be sited at least 100 feet away

from any known thornmint occurrences. SDG&E will implement the Weed Control Plan described in G-CM-20 to ensure that intact thornmint populations are not impacted by non-natives that could be introduced by this project.

SS-CM-2 Impacts to San Diego thornmint will first be avoided where feasible, and where not feasible due to physical or safety constraints, impacts will be compensated through salvage and relocation via a restoration program, at a 1:1 ratio, and/or off-site acquisition and preservation of habitat, at a 2:1 ratio, containing the plant. The CPUC, BLM, USFS and Wildlife Agencies will decide whether the applicant can restore San Diego thornmint populations or will acquire habitat with San Diego thornmint (locations to be approved by the CPUC, BLM, USFS and Wildlife Agencies). A qualified biologist will prepare a Restoration Plan that will indicate where restoration will take place. The restoration plan will identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The applicant will work with the CPUC, BLM, Wildlife Agencies, and USFS until a plan is approved by all parties.

Quino Checkerspot Butterfly

SS-CM-3 A biologist permitted by the Service will delineate suitable/occupied habitat areas that will be impacted by project construction. Suitable habitat is defined as areas containing the primary constituent elements (PCEs) as outlined in the January 17, 2008, proposed revision to critical habitat (73 FR 3328) (see the "Status of the Species/Critical Habitat" section below for a discussion of the PCEs for Quino). Occupied Quino habitat is defined as contiguous suitable habitat containing the PCEs within 2 kilometers of a known Quino occurrence ("habitat-based population distribution") (73 FR 3328). Delineated suitable/ occupied habitat and the results of the Quino protocol presence/absence surveys will be submitted to the Service for review and approval before an incidental take permit may be issued for this species. Impacts to Quino habitat will be determined by the amount of suitable/unoccupied habitat and/or occupied habitat that is proposed to be impacted indirectly and directly.

SS-CM-4 A pre-construction, Service protocol presence/absence survey for the adult Quino will be conducted within the delineated suitable/occupied habitat in the construction zone. Any surveys will be conducted in a year where Quino is readily observed at Service Quino-monitored reference sites to determine what areas are occupied by Quino (*i.e.*, any suitable habitat within 1 km (0.6 mi) of a current Quino sighting is considered occupied) and what areas are not occupied. The biologist will record the precise locations of Quino larval host plants and nectar sources within the construction zone (and 10 meters beyond) using GPS technology.

- If the protocol pre-construction Quino survey is determined by the Service to be conclusive, then areas found to be unoccupied by Quino will not require species-specific compensation.

- If the Service determines that the protocol pre-construction survey is not conclusive for determining Quino absence (due to limited detectability per the 2002 protocol, for example), then all suitable habitat areas will be considered potentially occupied. SDG&E will avoid siting any permanent or temporary impacts within 1 km (1 mi) of any known or newly discovered Quino occurrences. If the SDG&E believes that impacts to Quino are unavoidable, it will provide evidence to such an effect to the Service for review and approval. Any approved impacts to Quino occupied or Quino suitable habitat will require compensation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15), stays at least 10 m (33 ft) away from all host plant locations, and does not impact suitable habitat then no compensation is required (Service 2007a). If construction occurs between October 16 and May 31, is within 10 m (33 ft) of host plant locations, or removes suitable habitat then, (1) temporary impacts to the habitat will be mitigated at 2:1 through 1:1 on-site restoration of temporarily disturbed areas and 1:1 offsite acquisition and preservation of an equal sized, contiguous area of Quino-occupied habitat, and (2) permanent impacts will be compensated through 3:1 off-site acquisition and preservation of Quino-occupied habitat (or Quino-designated critical habitat for impacts to designated critical habitat). Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies. A Service approved biologist will be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same compensation will apply where the protocol pre-construction survey was conclusive for determining that the Quino is present and where construction will occur in designated critical habitat. Impacts to Quino critical habitat must be off-set within the same Critical Habitat Unit where the impacts occur.

- If host plant mapping is not possible during the pre-construction survey (*e.g.*, drought prevents plant germination), then all suitable habitat (*i.e.*, non-excluded habitat per the 2002 protocol) will be considered occupied by the Quino and compensated under the assumption that Quino is present.

SS-CM-5 Any Service-approved restoration of impacted habitat will be conducted in areas with appropriate topographical and biological features to be determined by the Service, BLM, USFS and SDG&E. The details of the restoration shall be based on Appendix II of the Recovery Plan for the Quino Checkerspot Butterfly (Service 2003a) and described in a plan to be reviewed and approved by the Service. The restoration plan shall include, but not be limited to: (1) larval host plants (local stock, if possible) to be planted; (2) nectar resources; (3) irrigation needs and/or other establishment procedures; (4) timeline for implementation; (5) success criteria; (6) contingency measures for success criteria that are not met; (7) weed control measures; (8) monitoring program; and (9) implementation schedule. The restoration plan will be prepared and submitted to the Service prior to commencement of ground disturbance associated with the proposed project. The proposed project will not commence until the restoration begins. The restoration plan actions will be completed no later than

completion of project construction. Success criteria will be modeled on undisturbed native plant communities in the vicinity of the proposed project and sites within the area known to be occupied by Quino.

SS-CM-6 Due the extreme importance of the Quino population located in the Jacumba Unit of Quino critical habitat, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (*e.g.*, towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) within Quino critical habitat. SDG&E will work with the Service to ensure that no larvae or adults within critical habitat will be impacted by this project.

SS-CM-7 No new construction will occur during the Quino flight season within 1 km (1 mi) of any known or newly discovered Quino occurrence. If it is not feasible to construct outside of the flight season in these instances, SDG&E must obtain written consent from the Service to proceed with construction.

Arroyo Toad

SS-CM-8 A pre-construction, Service protocol, survey will be conducted for the arroyo toad by a biologist approved by the Service to handle the toad) in all areas of the project located within suitable arroyo toad breeding habitat.

- The removal of toad riparian breeding habitat will occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

SS-CM-9 SDG&E will develop an arroyo toad translocation monitoring program to be implemented during all construction activities that have the potential to adversely affect the arroyo toad. This program will be coordinated with the Service, USFS, and BLM and finalized prior to initiation of construction activities. The program will include the following requirements:

- Prior to clearing, grubbing, and construction activities, Service-permitted biologists will monitor arroyo toad breeding activity in those project areas containing or adjacent to breeding habitat. The biologists will determine when egg clutches or larvae are no longer present in the waterway (generally late May at lower elevation, June at higher elevation). When sign of breeding is no longer evident, an exclusionary fence will be installed and clearance surveys initiated.

- Prior to clearing, grubbing, and grading activities, arroyo toad temporary exclusionary fence will be constructed along the perimeter of the project footprint within or immediately adjacent to arroyo toad habitat (breeding and aestivation). The intent of the fence is to fully contain the area(s) to be impacted and to remove and exclude arroyo toads. Exclusionary fence in aestivation habitat will not be installed

prior to May 1. The Service-permitted biologist will be present during the exclusionary fence installation, reconfigurations, breach repairs, and weekly during the breeding season. The fence will consist of fabric or plastic at least 0.6 m (2 ft) high, staked firmly to the ground with the lower 0.3 m (1 ft) of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of the fence and all materials shall be removed when the Project is complete. The removal of some vegetation, without disturbing the soil, within the project footprint to aid in the observance and collection of arroyo toads is acceptable. All fencing materials (*i.e.*, mesh, stakes, etc.) will be removed following construction. Ingress and egress of construction equipment and personnel will be kept to a minimum, but when necessary, equipment and personnel will use a single access point to the site. This access point will be as narrow as possible and will be closed off by exclusionary fencing when personnel are not on the project site.

- Prior to clearing, grubbing, and grading activities, but after exclusionary fencing has been installed, Service-approved biologists will perform a minimum of three nighttime surveys inside the exclusionary fence and remove all arroyo toads found within its perimeter. The approved biologist will continue until there have been two consecutive nights without arroyo toads inside the fencing. Any breach in the exclusionary fence during times when arroyo toads area active above ground, will result in repeating the 3-day minimum clearance surveys for that particular area.

- If conditions do not occur that result in sufficient arroyo toad emergence and movement, a Service-approved biologist will attempt to elicit a response from the arroyo toads during nights late in the known breeding season, with temperatures above 50^{o}F, by spraying the area inside the exclusionary fence with water to a depth of approximately 2 to 5 cm (1 to 2 in) to simulate a rain event.

- Whether or not a simulated precipitation event is done, arroyo toads found within the project footprint will be captured and translocated by Service-approved biologists to the closest area of suitable habitat. The Service-approved biologist will coordinate with the appropriate property owner(s) and the Service on where the arroyo toads will be placed.

- Service-approved biologists will maintain a complete record of all arroyo toads encountered and moved from harms way during translocation efforts. The date and time of capture, sex, physical dimensions, and coordinates/specific location of capture will be recorded and provided to the Service, within 30 days of the completion of translocation. In addition to reporting on the translocation effort, monthly reports (including photographs of impact areas) will be submitted to the Service during construction activities within areas demarcated by arroyo toad exclusion fencing. The monthly reports will document general compliance with all applicable conditions

and report all incidents not in compliance with this biological opinion. The reports will also outline the duration of arroyo toad monitoring, the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, sex, observed behavior, and remedial measures employed to avoid, minimize, and mitigate impacts to arroyo toads. All field notes and other documentation generated by the Service-approved biologist will be made available upon request to the Service.

- To avoid transferring disease or pathogens between aquatic habitats during surveys and handling of arroyo toads, the approved biologists will follow the Declining Amphibian Population Task Force's Code of Practice (DAPTF, 1991) or newer version when available.

- After the clearance surveys outlined above have been completed, daily surveys will be conducted each morning prior to the continuation of construction activity. Any toads found will be relocated per the translocation plan.

- The applicant will submit, in writing, the names, any permit numbers, résumés, and at least three references (of people who are familiar with the relevant qualifications of the proposed biologist), of all biologists who might need to handle, move, or monitor arroyo toads for the proposed project. This information will be submitted to the Service for approval at least 15 days prior to the initiation of any arroyo toad surveys. Proposed activities will not begin until an authorized biologist has been approved by the Service.

SS-CM-10 To offset the loss of occupied and suitable arroyo toad habitat within the project area, and to offset indirect effects of the project on arroyo habitat, SDG&E will develop and implement an arroyo toad predator control program on USFS lands. The scope and methods for this program will be developed in consultation with the Service and USFS.

SS-CM-11 Compensation for the loss of arroyo toad-occupied habitat will be implemented as follows. Permanent impacts to occupied arroyo toad breeding habitat will include 3:1 off-site acquisition and preservation of occupied arroyo toad breeding habitat. Permanent impacts to occupied upland burrowing habitat will include 2:1 off-site acquisition and preservation of occupied upland burrowing habitat. Temporary impacts to occupied breeding habitat will include 1:1 on-site restoration and 2:1 off-site acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied upland burrowing habitat will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied upland burrowing habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-12 To avoid and minimize impacts to arroyo toads, access road construction and use, with the exception of emergency situations, will occur during daylight hours (from 2 hours after sunrise to 2 hours before sunset) when amphibian movement is less frequent.

SS-CM-13 No construction activities will take place during the arroyo toad breeding season (March 15-July 31) within suitable arroyo toad breeding habitat.

SS-CM-14 To avoid long-term impacts to wildlife movement, including, but not limited to arroyo toad movement on the project site, all temporary arroyo toad exclusion fencing and temporary construction fencing will be removed at the conclusion of construction activities.

SS-CM-15 Towers, pads, pull stations, access roads, staging areas, and fly yards will not be located within suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the extent feasible. In cases where the applicant determines it is not feasible to fully avoid suitable/potential arroyo toad habitat, the applicant will consult with the Service to identify a site for the above-listed features that would avoid and minimize impacts to suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the maximum extent.

Least Bell's Vireo

SS-CM-16 During construction, all grading or brushing taking place within riparian habitats occupied by the vireo will be conducted outside the vireo breeding season (defined as March 15 through September 15). When conducting all other construction activities during the breeding season within 152 m (500 ft) (Service 2007b) of occupied or suitable habitat, a biologist approved by the Service will survey for vireos within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

- During construction, if vireos are present, a Service-approved biologist will survey daily for nesting vireos within 152 m (500 ft) of the construction area, for the duration of the activity in that area during the breeding season. If an active nest is located, a 91-m (300-ft) no-construction buffer zone will be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. SDG&E will contact the Wildlife Agencies to determine the appropriate buffer zone. No construction will take place within this buffer zone until the nest has fledged or is no longer active. If construction must take place within the buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied vireo habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that construction activities are disturbing nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies, BLM and USFS, to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The Service-approved biologist will monitor the nest daily until activities are no longer within 91-m (300 ft) of the nest, or the fledglings become independent of their nest or the nest has failed.

- Impacts to aquatic resources under the jurisdiction of the Corps of Engineers, Regional Water Boards, State Water Board, and CDFG will be avoided to the extent feasible. The avoidance of these resources will further minimize impacts to vireo.

SS-CM-17 To avoid impacts to vireo, towers, pads, pull stations, access roads, staging areas, and fly yards will be located outside of riparian vegetation, including occupied vireo habitat, where feasible. If avoidance is not feasible, compensation for the loss of suitable vireo habitat will be implemented as follows. Permanent impacts to suitable habitat will include 3:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of occupied habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-18 To minimize adverse impacts from loss of occupied habitat in the Cleveland National Forest, and to minimize predation and parasitism, SDG&E will develop and implement a brown-headed cowbird (*Molothrus ater*) trapping program, in consultation with the USFS.

California Gnatcatcher

SS-CM-19 All brushing or grading taking place within occupied habitat of the gnatcatcher (defined as within 152 m (500 ft) of any gnatcatcher sightings (Service 2007b)) during construction will be conducted outside of the gnatcatcher breeding season (February 15 through August 31). When conducting all other construction activities during the gnatcatcher breeding season, within occupied habitat, the following avoidance measures will apply.

- Vegetation clearing outside of the breeding season (October 1 through February 14) will take place in the presence of a biological monitor approved by the Service. The monitor will walk ahead of vegetation removal equipment and ensure that gnatcatchers are not killed or injured as a direct result of vegetation removal activities. The monitor will have the authority to halt/suspend all activities until appropriate corrective measures have been completed. The monitor will also be required to report violations immediately to the Service and CDFG. This measure is required for construction activities only.

- A Service-approved biologist will survey for gnatcatchers within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If gnatcatchers are present, a Service-approved biologist will survey for nesting activity approximately once per week within 152 m (500 ft) of the construction area for the duration of the activity.

- If an active nest is located, a 91-m (300-ft) no-construction buffer (Service 2007b) will be established around each nest site; however, there may be a reduction of this

buffer zone depending on site-specific conditions or the existing ambient level of activity. The applicant will contact the Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction will take place within this buffer zone until the nest is no longer active. However, if construction must take place within the 91-m (300-ft) buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting gnatcatchers and the activities, and working in other areas until the young have fledged.

SS-CM-20 Compensation for the loss of occupied gnatcatcher habitat will be implemented as follows. Permanent impacts to occupied habitat will include 2:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 onsite restoration and 1:1 off-site acquisition and preservation of occupied habitat. Impacts to occupied gnatcatcher designated critical habitat must be compensated within the same Critical Habitat Unit where the impacts occurred. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-21 Compensation for the loss of unoccupied designated critical habitat for the gnatcatcher will be implemented as follows. Permanent impacts to unoccupied designated critical habitat will include 2:1 offsite acquisition and preservation of designated critical habitat. Temporary impacts to unoccupied designated critical habitat will include 1:1 onsite restoration. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

Peninsular Bighorn Sheep

SS-CM-22 Construction activities (including the use of helicopters) in bighorn sheep designated critical habitat will be limited to outside the lambing season (January 1 through June 30) and the period of greatest water need (June 1 through September 30) as defined in the Recovery Plan. Construction activities in designated critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.

SS-CM-23 Compensation for the loss of occupied bighorn sheep habitat will be implemented as follows. Permanent impacts to designated critical habitat will include 5:1 offsite acquisition and preservation of critical habitat. Temporary impacts to designated

critical habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of critical habitat. Any acquired habitat will be approved by the CPUC, BLM, and Wildlife Agencies.

SS-CM-24 A biological consultant approved by the Wildlife Agencies will be retained by SDG&E to collect data on bighorn sheep movements in the area during the construction phase. Prior to construction the biologist shall submit a bighorn sheep monitoring plan that meets the approval of the Wildlife Agencies. Helicopters shall follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying "short-cuts" or sight-seeing trips away from the project site. Helicopters shall avoid flying within 0.6 mi (1 km) of bighorn sheep water sources. Helicopter landing areas, vehicle parking sites, and fly yards shall be cited at least 0.6 mi (1 km) from bighorn sheep water sources and other key resource areas identified by the biologist. When bighorn sheep are detected within the I-8 Island, construction operations shall cease until bighorns leave the area as verified by the biologist.

SS-CM-25 To help reconnect desert bighorn sheep subpopulations and at least partially offset impacts to the overall population caused by the project, SDG&E will:

- Fund the design and construction of an overpass or underpass (for sheep), or tunnel (for vehicles) to facilitate desert bighorn sheep movement across a highway at a location determined by the Service (in coordination with CDFG). Tunnel or overpass design must be approved by the Wildlife Agencies, and construction of the facility will be completed prior to connecting and energizing the proposed project to the grid.
- Fund, design, and construct a system of fences to prevent bighorn sheep from crossing on the surface of westbound Interstate 8. The fencing shall be designed in consultation with Caltrans and the Wildlife Agencies to facilitate bighorn sheep movement through/across the island using structures currently present, such as the bridges spanning Devil's Canyon, and the culverts/low bridge along eastbound Interstate 8.
- Fund removal of tamarisk, fountain grass, other invasive species, and hazardous fences for the life of the project in the action area, and install and maintain water sources per direction and at locations specified by the Wildlife Agencies for the life of the project.
- Fund a minimum 10-year-long program to monitor the effects of the project on bighorn sheep behavior, movements, and dispersal in the area from Carrizo Gorge south to the international boundary (10 years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program will be designed and implemented by the Wildlife Agencies following construction. Funding for the project will be provided prior to completion of project construction and is estimated to cost $150,000 per year in 2008 dollars.

- The project proponent will provide sufficient funds to CDFG, or a third party designated by CDFG, to ensure five complete biennial aerial surveys from Carrizo Gorge to the international boundary, for the 10-year period beginning with the scheduled 2010 CDFG survey.

- Water used for operation and maintenance purposes will not be obtained from water sources used by bighorn sheep or other wildlife.

2. Operations and Maintenance Phase

Species-Specific Conservation Measures SS-CM-1 to SS-CM-23 will also be implemented during the O&M phase of the SRPL Project.

Quino Checkerspot Butterfly

SS-CM-26 If access roads in Quino-occupied or suitable habitat are maintained (*i.e.*, regraded) and vegetation around structures is cleared at least once every two years, then no additional compensation will be required for this ongoing maintenance. If more than two years pass without re-grading or clearing, then the maintenance will be considered a new impact to Quino and would be compensated based on SS-CM-2.

SS-CM-27 Some O&M activities associated with the project may need to be conducted on emergency basis. Under these circumstances, no pre-activity survey will be conducted and no Quino adult surveys will be conducted. SDG&E may take action immediately and must contact the Service within 24 hours after undertaking the activity to provide information on the location and emergency nature of the activity. Unavoidable impacts that occurred during emergency O&M activities will be mitigated at a 2:1 ratio.

GENERAL ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 Federal Register §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Action Area

The Sunrise Powerlink traverses a wide range of vegetation communities from the eastern edge of the City of San Diego, in San Diego County, to the Imperial County desert west of El Centro. The "action area" is defined (according to 50 CFR. § 402.02, and pursuant to section 7 of the Act) as all areas directly or indirectly affected by the Federal action and not merely the

immediate area involved in the action. For this consultation, the action area encompasses approximately 1,685 ha (4,165 ac) and is defined as the three segments, described below, that make up the approximately 193-km (120-mi) Environmentally Superior Southern Route (ESSR) in southern San Diego and Imperial counties (Figure 1).

The action area consists of the transmission line ROW and the area within 91 m (300 ft) of the center line of the ROW. This distance is consistent with other section 7 consultations in our geographic area of jurisdiction in Southern California as a distance within which indirect effects (*e.g.*, noise) may affect listed species, especially birds. In addition, because PBS are large wide-ranging mammals that use the landscape at a much larger scale than other listed species occurring in the project area, the action area was enlarged to account for the expanded scale at which PBS perceive their environment.

To address PBS, the action area was delineated on an aerial photo by following ridgelines that encompass the basin containing the project area. The action area includes portions of both In-Ko-Pah Gorge and Devil's Canyon. It was assumed that helicopters will be visible and in proximity to bighorn sheep present within the area delineated. Animals crossing over ridgelines or already located outside the action area should feel secure due to being out of the direct line-of-sight and having a greater distance between them and the project area (Light and Weaver 1973).

The action area also includes new access roads, temporary work areas, pull and tension sites, fly yards, and staging areas that are beyond or located outside 91 m (300 ft) of the ROW (Figure 1). Finally, the action area will encompass any specific conservation areas protected to offset impacts to listed species as a result of and during the course of implementing this biological and conference opinion. The conservation areas are expected to have only beneficial effects to the six species addressed in this consultation, and their descriptions will be appended to this opinion once specific locations are known.

Most of the action area is located within Federal lands managed by the BLM (approximately 42 percent) and USFS (approximately 16 percent); however, a small amount (approximately 2 percent) of the transmission line is within lands owned by the Department of Defense (DoD). Private lands encompass the remaining 40 percent of the action area (Figure 1).

Desert South Link

The Desert South Link (Figure 1) will consist of a 500 kilovolt (kV) transmission line, with a 61 m (200 ft) ROW, that would be located adjacent to the existing 500 kV Southwest Powerlink (SWPL) transmission line, separated by an average of 122 m (400 ft) between ROW centerlines. This segment would generally parallel Interstate 8 (I-8), passing through BLM and private land, for approximately 48 km (30 mi). The route would begin at the Imperial Valley Substation, 6 km (4 mi) southwest of El Centro, cross I-8 at MP 22.8, passing adjacent to the BLM's Jacumba Federal Wilderness Area, paralleling the SWPL to a point where it crosses the San Diego/Imperial County line. The Desert South Link would be located in the Colorado Desert

bioregion consisting primarily of desert scrub habitats. The total length of this link would be approximately 48 km (30 mi).

Cleveland National Forest South Link

The CNF South Link (Figure 1) continues to parallel the SWPL from the San Diego/Imperial County line. Approximately 0.8 km (0.5 mi) from the County line, the line turns due west to follow along the south side of I-8. The line would continue west on private land for another mile, pass through approximately 2.4 km (1.5 mi) of BLM land, and re-enter private land for another approximately 5 km (3 mi) before turning southwest for approximately 2.4 km (1.5 mi). The line then turns northwest, crossing the I-8 freeway just west of the BLM Carrizo Gorge Wilderness Area and 2 km (1 mi) east of the community of Boulevard. It follows the western edge of the Carrizo Gorge Wilderness for approximately 16.9 km (10.5 mi) where it turns due west.

At approximately MP 52, the line enters the Cleveland National Forest turning south-southwest and continues to traverse USFS land in the mountainous area of south eastern San Diego County for approximately 21 km (13 mi). The line turns to run east-west through the Potrero area between BLM's Hauser Mountain Wilderness area and the CNF's Hauser Wilderness. Most of this route segment follows an existing 69 kV line to the west, in remote and rugged terrain just south of the CNF's southern boundary. The line then turns north, passing the existing Barrett Substation and enters the CNF where it continues for approximately 23 km (14 mi) and connects with the proposed MRD Substation. In this link, the SRPL alignment would be 61-m-wide (200-ft-wide) and contain a single circuit 500 kV transmission line. The vegetation along this link is dominated by chaparral communities.

Inland Valley South Link

The Inland Valley South Link (Figure 1) consists of a proposed double circuit 230 kV line that will be contained within a 91-m-wide (300-ft-wide) easement (except at underground portions) until MP 114 where it transitions to 31 m (100 ft) and will be located in an existing SDG&E ROW. At MP 94, the line will transition to underground and traverse along Star Valley Road to Alpine Boulevard. The route will then continue west underground within the Alpine Boulevard ROW. It will remain underground and cross under I-8 at Peutz Valley until MP 100 where the route will transition to overhead.

West of the underground section, the line will continue northerly through private and San Diego County land for 2 mi. At MP 102, the route would turn northwest and run along the downstream edge of the El Capitan Reservoir in the CNF. At MP 104 the route would turn west, passing through private and BLM land, for approximately 5.6 km (3.5 mi), cross Wildcat Canyon Road, and turn northwest through private land at MP 109. It would continue through private lands and lands owned by the City of San Diego, San Diego County Water Authority, and San Diego County for approximately 8 km (5 mi), generally paralleling Highway 67 near the San Vicente Reservoir.

From the area near San Vicente Reservoir, the line then heads west, transitioning from a 91-m (300-ft) easement to an existing 31-m-wide (100-ft-wide) easement, traversing the northern side of the Sycamore-Goodan Open Space Preserve. It then heads southwest for approximately 2.4 km (1.5 mi), turns west again at the MCAS Miramar boundary where it terminates at the existing Sycamore Canyon Substation. The vegetation along this link is dominated by chaparral and coastal sage scrub communities; portions of the vegetation burned in the 2007 Witch Wildfire (between MP 104 and MP 105) and 2003 Cedar Wildfire (between MP 98 and MP 119). The total length of this segment would be approximately 45 km (28 mi).

Other Consultations in the Action Area

BLM

On September 30, 2008, the Service provided the BLM with a programmatic non-jeopardy biological and conference opinion on the Eastern San Diego County Resource Management Plan (FWS-SDG-08B0465-08F0507; ESDRMP). The consultation addressed the effects of BLM's proposed updates to the ESDRMP, originally approved in 1981, on Quino, vireo, and PBS. The consultation addressed the BLM's land use plan for 41,630 ha (102,869 ac) of public land in eastern San Diego County within portions of the Desert South Link and the CNF Link of the action area. The ESDRMP is used by the BLM to guide land use planning decisions, including the identification of allowable extractive, commercial, passive, and recreational uses for approximately the next fifteen years. The ESDRMP provides programmatic guidance regarding future project-specific actions, their effects on listed species, and compliance with the Act. Although the ESDRMP provides direction for future uses, specific projects are not authorized. Therefore, most future project-specific actions will require additional review under the Act by the Service.

USFS

USFS section 7 consultations within the action area include the 2005 programmatic non-jeopardy biological and conference opinions (FWS-773.9) that addressed the Revised Land Management Plans for the CNF within the action area, and three other national forests in Southern California. The 2005 biological and conference opinions analyzed the effects of the Revised Land Management Plans on multiple species, including the six species addressed in this consultation. These plans provided descriptive management direction to guide and limit project design and impacts to federally-listed, proposed, and candidate species; however, they did not specify what management actions would be carried out, or when and where actions would occur. Therefore, we did not provide exemption for incidental take as provided for in section 7(o)(2) of the Act. In addition, non-jeopardy biological and conference opinions (1-6-00-F-773.2) were issued in 2001 that addressed continued implementation of Land and Resource Management Plans for the four southern California national forests, including the CNF, as modified by new interim management direction and conservation measures, and for some ongoing activities. The consultation analyzed effects to all six of the species addressed in this consultation. Incidental

take was authorized for 1 individual gnatcatcher/year, no incidental take was authorized for PBS or Quino; and no additional incidental take of arroyo toad and vireo was authorized, beyond that authorized in the Riparian Obligates biological opinion (1-6-99-F-21), discussed below. Primary activities addressed in the 2001 opinions included road and trail use and maintenance, some existing recreation sites and facilities, existing administration facilities, fuel breaks, dispersed recreation, non-commercial collection of forest products.

Also in 2001, we issued a livestock grazing non-jeopardy opinion (1-6-01-F-1694) that addressed the impacts of livestock grazing on the CNF on the California gnatcatcher, Quino, arroyo toad, vireo, and other species. The livestock grazing biological opinion did not anticipate direct injury or mortality of gnatcatchers and did not anticipate any incidental take of Quino. The exact number of arroyo toads that could be incidentally taken was unknown; however, the incidental take statement included a threshold whereby take would be exceeded if two arroyo toad egg masses were destroyed by cattle activity in breeding pools. Similarly, the incidental take statement included a threshold whereby take of vireo would be exceeded if, in any one year, more than two vireo nests were parasitized by brown-headed cowbirds (*Molothrus ater*) and the nests hatched or fledged cowbird young.

The Riparian Obligates non-jeopardy biological opinion (1-6-99-F-21), issued in 2000, addressed the effects of most ongoing USFS activities on the vireo, arroyo toad, and other riparian species in the CNF. No direct mortality of vireo was authorized. However, incidental take of 11 adult arroyo toads, 160 metamorphs and tadpoles, and 8 egg masses was authorized.

Habitat Conservation Plans within the action area

Within the Inland Valley South Link, the transmission line will cross lands within the existing and proposed Multiple Species Conservation Program (MSCP) preserve. These lands, located within the existing County and City of San Diego MSCP subareas, address potential impacts and conservation for 85 listed and sensitive species, including all of the species addressed in this consultation, except Quino and PBS. The housing, commercial, and infrastructure development addressed by these habitat conservation plans (HCPs) and evaluated within the biological opinions for the County and City of San Diego's incidental take permits, along with the habitat conservation and management measures included in the HCPs, are considered part of the environmental baseline for this and future section 7 consultations.

The biological opinion for the County of San Diego's HCP anticipated the loss of up to 11,733 ha (28,993 ac) of gnatcatcher habitat within the County of San Diego's HCP and all gnatcatchers within that area; however, approximately 29,947 ha (74, 000 ac) of gnatcatcher habitat was anticipated to be conserved within the MSCP subregion. No incidental take was anticipated for vireos; however, it was anticipated that 456 ha (1,128 ac) would be conserved and managed in the County of San Diego's Multiple Habitat Planning Area (*i.e.*, the preserve; MHPA). In addition, it was anticipated that no arroyo toads would be incidentally taken through implementation of the HCP; however, 553 ha (1,366 ac) of arroyo toad breeding habitat was

anticipated to be conserved and managed in the County of San Diego's MHPA.
The biological opinion for the City of San Diego's HCP anticipated the loss of up to 2503 ha (6,185 ac) of gnatcatcher habitat and all gnatcatchers within that area; however, approximately 29,947 ha (74,000 ac) of gnatcatcher habitat was anticipated to be conserved within the MSCP subregion. No incidental take was authorized for vireos; however, it was anticipated that 1,590 ha (3,930 ac) would be conserved and managed in the City of San Diego's MHPA. In addition, it was anticipated that an unquantifiable number of arroyo toads would be lost through implementation of the HCP; however, an estimated 1,684 ha (4,162 ac) of arroyo toad breeding habitat was anticipated to be conserved and managed in the City of San Diego's MHPA.

Access road and tower pad construction for the project will permanently impact 27 ha (66.1 ac) of MSCP preserve lands, including lands within both the City and County of San Diego. In addition, 21.9 ha (54.2 ac) of temporary impacts are anticipated within the MSCP preserve from staging and fly yards, pull sites, and tower pads. However, utility lines and roads are considered compatible uses with the biological objectives of the MSCP and are conditionally allowed in the MSCP preserve. Within the MSCP preserve, SDG&E will follow the siting guidelines outlined in the County and City of San Diego's HCPs.

The CNF South and Inland Valley South Links are also included within the plan area for SDG&E's Subregional Natural Community Conservation Plan\HCP and their Low-effect Quino HCP, which address potential impacts from SDG&E's O&M activities and new construction on 111 federally listed and other sensitive species, including all of the species addressed in this consultation, except PBS. The SRPL Project is outside the scope of SDG&E's existing HCP. Up to 162 ha (400 ac) of habitat for covered species was expected to be lost over a 55-year period as a result of implementation of the HCP; however, 101 ha (250 ac) of habitat for covered species was conserved that contributed toward regional conservation planning goals.

Some of the area within the Inland Valley South Link and much of the area within the CNF South Link is located within the proposed East County MSCP HCP. This habitat conservation planning effort will guide development and provide for the conservation of over 150 species and is expected to be conducted over the next two years. Permit processing for this HCP will undergo separate section 7 consultation; thus, this HCP planning effort is not considered part of the Environmental Baseline for the proposed action.

GENERAL EFFECTS OF THE ACTION

Habitat loss and fragmentation, alteration of the quality of adjacent habitats, an increase in the potential for wildfires, and type conversion of native habitat from increased fire frequency and/or invasive plants are general effects associated with the initial construction and long-term O&M of the SRPL Project that will likely result in direct mortality and/or relocation of federally listed flora and fauna from the area of the transmission line and related facilities. To offset and minimize these impacts to listed species and their designated and critical habitats, SDG&E will conduct endangered and threatened species surveys along the final selected ROW and implement

specific avoidance and minimization measures to reduce impacts to listed species. For example, selected tower sites may be aligned to avoid listed plant populations or minimize impacts to listed animal feeding, breeding, and sheltering sites. SDG&E has also committed to replace suitable endangered and threatened species habitats, including designated critical habitat, at specific ratios as identified in Table 2. These and other conservation measures are described in the project description and fully considered in the species-specific effects analyses of this biological and conference opinion.

Habitat Loss

Construction of the project will result in loss of approximately 862 ha (1,729 ac) of habitat including 240 ha (489 ac) of permanent impacts and 622 ha (1,240 ac) of temporary impacts (Table 3). Of these total habitat losses, we have determined that 70 ha (173 ac) of the permanent impacts and 220 ha (543 ac) of the temporary impacts support or are likely to support endangered and threatened species (Table 2). Permanent impacts to listed species habitat will result from construction of towers, tower pads, access roads, spur roads, and a new substation. Temporary impacts will result from construction of pull sites, fly yards, and staging areas. Road maintenance could cause loss of plants and habitat that are on or immediately adjacent to the road; this can occur when heavy equipment is used to re-grade the road or clear debris off the roadway, create drainage leadouts, or clear culverts. O&M activities including access and spur road repair and maintenance and fuel clearing around towers and other structures are anticipated to include only minor impacts to listed species and do not include additional habitat losses beyond those identified for project construction. However, if O&M activities that result in additional habitat losses are identified, SDG&E has committed offset these losses at the same ratios as those identified in Table 2.

Habitat Fragmentation

Habitat fragmentation as a result of transmission line construction is expected, especially where new access roads and spur roads are needed. In southern California the effects of fragmentation have been shown to decrease the number of resident bird species, decrease the diversity of small rodents, and decrease the diversity and cover of native plant species (Soulé *et al.* 1988, Bolger *et al.* 1991, Alberts *et al.* 1993, Bolger *et al.* 1997a). Fragmentation can result in landscapes with many small habitat patches rather than few large patches. Small habitat patches tend to have altered species composition, reduced

Table 2. Summary of Construction Impacts and Associated Offsetting Measures

Impacts to Listed Species and Required Mitigation								
	PERMANENT			TEMPORARY				Total Offsite Mitigation (Acres)
Listed Species	Impact (Acres)	Ratio	Offsite Mitigation (Acres)	Impact (Acres)	Ratio	Onsite Restoration (Acres)	Offsite Mitigation (Acres)	
San Diego Thornmint								
Suitable Thornmint Habitat	**17.90**	2:1	**35.80**	**32.10**	1:1	**32.10**	0.00	**35.80**
Arroyo Toad								
Assumed Occupied Breeding Habitat	0.20	3:1	0.60	0.00	2:1	0.00	0.00	0.60
USFS Suitable Upland Habitat	20.21	2:1	40.42	108.00	1:1	108.00	108.00	148.42
USFS Occupied Upland Habitat	5.48	2:1	10.96	74.78	1:1	74.78	74.78	85.74
Total	**25.89**		**51.98**	**182.78**		**182.78**	**182.78**	**234.76**
California Gnatcatcher								
Designated Critical Habitat	11.33	2:1	22.66	18.74	2:1	18.74	18.74	41.40
USFS Suitable Habitat	23.39	2:1	46.78	62.52	2:1	62.52	62.52	109.30
USFS Occupied Habitat	0.00	2:1	0.00	0.00	2:1	0.00	0.00	0.00
USFWS Occupied Habitat	8.30	2:1	16.60	12.70	2:1	12.70	12.70	29.30
CNDDB Habitat	10.56	2:1	21.12	12.23	2:1	12.23	12.23	33.35
Total	**53.58**		**107.16**	**106.19**		**106.19**	**106.19**	**213.35**
Least Bell's Vireo								
USFS Suitable Habitat	7.39	3:1	22.17	12.28	3:1	12.28	24.56	46.73
USFS Occupied Habitat	0.94	3:1	2.82	0.00	3:1	0.00	0.00	2.82
Total	**8.33**		**24.99**	**12.28**		**12.28**	**24.56**	**49.55**
Quino Checkerspot Butterfly								
Existing Designated Critical Habitat or	15.60	3:1	46.80	39.69	2:1	39.69	39.69	86.49
Proposed Designated Critical Habitat	8.45	3:1	25.35	6.64	2:1	6.64	6.64	31.99
Occupied Habitat	24.67	3:1	74.01	53.94	2:1	53.94	53.94	127.95
Total [1]	**40.27**		**120.81**	**93.63**		**93.63**	**93.63**	**214.44**
Desert Bighorn Sheep								
[2] *Bighorn Sheep Habitat/Critical Habitat*	**27.34**	5:1	**136.70**	**116.05**	3:1	**116.05**	**232.10**	**368.80**
Grand Total	**173.31**		**477.44**	**543.03**		**543.03**	**639.26**	**1,116.70**

[1] This total is for existing designated critical habitat (CH); the numbers will be lower if Proposed CH is designated as final CH

[2] While impact acres were assessed based on 2001 designated critical habitat, we acknowledge that proposed critical habitat, if designated as final CH, could be lower. For purposes of the effects analysis for bighorn sheep, we have assumed 368.80 acres of bighorn sheep habitat will be conserved.

Table 3. Vegetation Community Construction Impacts

	PERMANENT			TEMPORARY				Total Offsite Mitigation
Vegetation Communities	**Impact**	**Ratio**	**Offsite Mitigation**	**Impact**	**Ratio**	**Onsite Restoration**	**Offsite Mitigation**	
Non-Native Vegetation, Developed Areas, and Disturbed Habitat								
Developed	5.24	0.00	0.00	25.05	0.00	0.00	0.00	0.00
General agriculture	0.00	0.00	0.00	17.34	0.00	0.00	0.00	0.00
Extensive agriculture – field/pasture, row crops	1.00	0.00	0.00	57.11	0.00	0.00	0.00	0.00
Intensive agriculture – dairies, nurseries, chicken ranches	0.00	0.00	0.00	13.91	0.00	0.00	0.00	0.00
Unvegetated habitat - badlands	13.16	0.00	0.00	25.61	0.00	0.00	0.00	0.00
Unvegetated habitat - desert pavement	8.01	0.00	0.00	39.47	0.00	0.00	0.00	0.00
Subtotal	**27.40**	**0.00**	**0.00**	**178.48**	**0.00**	**0.00**	**0.00**	**0.00**
Desert Scrub and Dune Habitats								
Desert saltbush scrub	0.23	2:1	0.46	0.00	2:1	0.00	0.00	0.46
Flat-topped buckwheat scrub	1.54	2:1	3.08	2.72	2:1	2.72	2.72	5.80
Sagebrush scrub	0.49	2:1	0.98	2.47	2:1	2.47	2.47	3.45
Sonoran creosote bush scrub	31.40	2:1	62.80	196.37	2:1	196.37	196.37	259.17
Sonoran desert mixed scrub	5.09	2:1	10.19	33.71	2:1	33.71	33.71	43.90
Sonoran desert scrub	0.56	2:1	1.12	5.00	2:1	5.00	5.00	6.12
Sonoran mixed woody and succulent scrub	4.57	2:1	9.14	32.50	2:1	32.50	32.50	41.65
Sonoran mixed woody scrub	6.05	2:1	12.11	9.28	2:1	9.28	9.28	21.38
Sonoran wash scrub	1.02	2:1	2.03	4.93	2:1	4.93	4.93	6.96
Subtotal	**50.95**		**101.91**	**286.99**		**286.99**	**286.99**	**388.89**
Coastal and Montane Scrub Habitats								
Big sagebrush scrub	1.61	1.5:1	2.42	40.26	1:1	40.26	0.00	2.42
Coastal sage-chaparral scrub	10.82	1.5:1	16.23	18.08	1:1	18.08	0.00	16.23
Diegan coastal sage scrub	53.30	1.5:1	79.95	29.93	1:1	29.93	0.00	79.95
Diegan coastal sage scrub – Inland form	8.75	1.5:1	13.13	61.73	1:1	61.73	0.00	13.13
Subtotal	**74.49**		**111.73**	**150.01**		**150.01**	**0.00**	**111.73**
Grasslands and Meadows								
Non-native grassland	11.09	1:1	11.09	225.35	1:1	225.35	0.00	11.09
Valley needlegrass grassland	1.15	2:1	2.30	0.17	1:1	0.17	0.00	2.30
Subtotal	**12.24**		**13.39**	**225.53**		**225.53**	**0.00**	**13.39**
Chaparrals								
Chamise chaparral	51.40	1:1	51.40	68.21	1:1	68.21	0.00	51.40
Northern mixed chaparral	124.76	1:1	124.76	110.18	1:1	110.18	0.00	124.76
Red shank chaparral	4.80	1:1	4.80	2.48	1:1	2.48	0.00	4.80
Scrub oak chaparral	4.11	1:1	4.11	3.67	1:1	3.67	0.00	4.11
Semi-desert chaparral	33.14	1:1	33.14	98.31	1:1	98.31	0.00	33.14
Southern mixed chaparral	97.64	1:1	97.64	69.83	1:1	69.83	0.00	97.64
Subtotal	**315.86**		**315.86**	**352.69**		**352.69**	**0.00**	**315.86**
Woodlands and Forests								
Coast live oak woodland	6.51	3:1	19.53	30.50	2:1	30.50	30.50	50.03
Englemann oak woodland	0.34	3:1	1.01	2.69	2:1	2.69	2.69	3.70
Peninsular juniper woodland and scrub	0.46	2:1	0.93	0.44	2:1	0.44	0.44	1.36
Subtotal	**7.31**		**21.47**	**33.62**		**33.62**	**33.62**	**55.09**
Herbaceous Wetlands, Freshwater, and Streams								
Freshwater seep	0.03	3:1	0.08	6.22	2:1	6.22	6.22	6.30
Non-vegetated channel	0.12	3:1	0.36	5.28	2:1	5.28	5.28	5.64
Subtotal	**0.14**		**0.43**	**11.50**		**11.50**	**11.50**	**11.94**
Riparian Scrubs								
Southern willow scrub	0.00	3:1	0.00	0.73	2:1	0.73	0.73	0.73
Subtotal	**0.00**		**0.00**	**0.73**		**0.73**	**0.73**	**0.73**
Riparian Forests and Woodlands								
Riparian woodland	0.14	3:1	0.41	0.00	2:1	0.00	0.00	0.41
Southern coast live oak riparian forest	0.27	3:1	0.81	0.24	2:1	0.24	0.24	1.05
Southern riparian forest	0.11	3:1	0.32	0.00	2:1	0.00	0.00	0.32
Southern cottonwood-willow riparian forest	0.11	3:1	0.33	0.00	2:1	0.00	0.00	0.33
Subtotal	**0.62**		**1.87**	**0.24**		**0.24**	**0.24**	**2.10**
GRAND TOTAL	**489.02**		**566.65**	**1239.78**		**1061.30**	**333.08**	**899.73**

community diversity, and smaller population sizes for individual species. Species with greater susceptibility to the effects of reduced habitat patch size are more likely to be extirpated from these small patches.

Reduced community diversity and altered species composition can change natural ecological functions, which can result in unpredictable effects given the complexity of community dynamics. Smaller populations are more susceptible to extirpation due to random fluctuations in population dynamics or catastrophic events (Ewens *et al.* 1987, Shaffer 1987). Small habitat patches also have high perimeter to area ratios, which increases edge effects that can result in even smaller populations. If small populations are isolated from nearby populations, they will be susceptible to deleterious genetic effects of inbreeding depression (Lande and Barrowclough 1987), and extirpated populations may not be replaced by dispersing individuals from other populations (Gilpin 1987).

Fragmentation studies by Soulé *et al.* (1988) and Crooks and Soulé (1999) concluded that the decline of top predators in fragmented landscapes could lead to the release of smaller predators that, in turn, strongly limit populations of prey species. This phenomenon, known as mesopredator release, has been implicated in the decline and extinction of prey species worldwide (Willis and Eisenmann 1979, Matthiae and Stearns 1981, Whitcomb *et al.* 1981, Wilcove *et al.* 1986, Soulé *et al.* 1988, Terborgh 1988, Sovoda *et al.* 1995, Crooks and Soulé 1999, Haas and Crooks 1999).

Alteration of Adjacent Habitats

Construction and maintenance of the project could result in degradation of habitats adjacent to the project through erosion, dust, pollution, sedimentation, light, and noise. Changes in water runoff patterns could result from road construction and maintenance (*i.e.*, repeated road grading) and lead to erosion. For example, roads that run straight up hillsides can promote soil erosion and the development of rills and gullies. In addition, roads that run parallel to elevation contours can also alter runoff patterns because berms on the edge of the road can redirect water along the road edge to low points, after which water continues on down slope in a more concentrated stream than otherwise would have occurred. This process concentrates channels at higher slope positions (Montgomery 1994), resulting in more elongated first-order drainage basins, and accelerated rates of soil erosion (Forman and Alexander 1998).

Roads with dirt surfaces can be a significant source of dust. Dust generated by motorized vehicles can cover plants and interfere with physiological functions ultimately affecting plant vigor, reproduction, and survival. Dust is likely to be generated from project construction (*e.g.*, during access and spur road construction and during tower construction) and during O&M activities, particularly during road re-grading activities and patrols.

Road maintenance could also affect threatened and endangered species and their designated and proposed critical habitats through the deposition of oil, fuel, or other toxic substances into

waterways, which could result in mortality of amphibian eggs and young. In addition, runoff from project construction and road maintenance could cause stream and waterway sedimentation adjacent to the project area. The effect of this sedimentation would vary depending on the amount of sediment introduced into the stream, the amount of stream flow, gradient and several other instream factors.

Project construction could result in increased noise and light if construction is conducted at night within or adjacent to the ROW. Noise could affect wildlife species, particularly birds, by reducing their ability to communicate. For example, Reijnen *et al.* (1995) documented a reduced ability of male willow warblers close to highways to attract and keep mates possibly due to the distortion of the song by traffic noise. Helicopter activity, in particular, has been shown to have a detrimental effect on sheep. Night lighting could increase predation in areas adjacent to the ROW by making individuals more visible, and thus more vulnerable to predators. In addition, night lighting could cause animals (*e.g.*, arroyo toads) to become disoriented and thus more vulnerable to depredation.

Fire

Fire frequency is expected to increase as a result of the operation of the SRPL Project. Electrical transmission lines have been shown to be the ignition source for large catastrophic wildfires. For example, in October of 2007, the Witch Fire in San Diego County, California, was ignited by arcing electrical transmission lines (California Department of Forestry and Fire Protection Investigation Report, dated July 1, 2008; Case No. 07-CDF-570). In addition to sparks generated from arcing wires during high winds, transmission lines can ignite fires through the following:

- Vegetation contact with conductors
- Exploding hardware such as transformers and capacitors
- Floating or wind-blown debris contact with conductors or insulators
- Conductor-to-conductor contact
- Wood support poles being blown down in high winds
- Dust or dirt on insulators
- Bullet, airplane, and helicopter contact with conductors or support structures
- Other third-party contact, such as Mylar balloons, kites, and wildlife.

According to the final EIR for the project, SDG&E indicates that from 2004-2007, no fires were associated with 500 kV lines. Although the majority of the fires during this period were associated with electrical distribution systems, 14 percent (15 ignitions) were associated with transmission lines. In addition, the majority of the proposed project will be located in a remote area, making access, patrol, fire detection, and response more difficult.

Some species are dependent on fire and experience population increases immediately following fires, but for most species, fire causes at least a temporary degradation in habitat quality. Depending on the frequency of fires in a particular environment and how fire-adapted the species and habitats in the fire footprint are, fire-related impacts can last from a few years to many years. If fires are too frequent, plant communities can be "permanently" converted from a stable native vegetation community, such as coastal sage scrub or chaparral, to non-native annual grassland (Keeley *et al.* 2005).

Type Conversion\Invasive Species

A change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provides minimal habitat value for native plant and animal species, especially those of special status. Invasion of grasses may also alter fire frequency by rapid production of highly flammable fuel, thus leading to more frequent fires and potentially to conversion of shrub lands to grasslands (D'Antonio and Vitousek 1992).

Type conversion occurs when multiple disturbances allow the colonization of non-native plant species into a landscape previously dominated by native vegetation. When multiple disturbances, such as wildfires, occur at an intensity and frequency outside of the natural range of variability of a native ecosystem, these conditions tend to suppress regrowth of native vegetation and favor long-term dominance of non-native, early-successional plants. Because chaparral is typically dominated by nonsprouting obligate seeding species and requires a minimum time to develop an adequate seed bank for regeneration, this sensitive vegetation type is vulnerable to fires at intervals of less than 10 years.

Construction and O&M of the project could result in an increase in invasive plant species, such as non-native grasses. Access and spur road construction, road maintenance, and road use could introduce and promote invasive plants. Vehicular routes are a primary pathway for plant invasions into arid and semi-arid ecosystems (Johnson *et al*. 1975, Amor and Stephens 1976, Brooks and Pyke 2001, Gelbard and Belnap 2003). Vehicles serve as dispersal vectors for alien plant propagules (Clifford 1959, Schmidt 1989, Lonsdale and Lane 1994), and disturbances within vehicular route corridors facilitate establishment of invading ruderal plants (Greenberg *et al*. 1997). In addition, fuel break construction and maintenance could promote the dispersal and expansion of exotic species into adjoining habitat through frequent disturbance to roadside habitats associated with maintenance of fuel breaks and the function of vehicles as vectors for seed dispersal (Forman and Alexander 1998).

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. About 60 percent of the SRPL Project crosses Federal lands (BLM, USFS, DoD), and a majority of the remaining line crosses lands under the jurisdiction of the County and City of San Diego's existing and proposed MSCP. The housing, commercial, and infrastructure development addressed by authorized HCPs have already undergone section 7 consultation during section 10(a)(1)(B) permit processing under the Act. Any future actions under the control of the BLM, USFS, and the DoD will require separate section 7 consultations. Thus, we are unaware of any non-Federal actions affecting listed species that are reasonably certain to occur in the action area considered by this biological and conference opinions.

SPECIES BY SPECIES EVALUATIONS AND CONCLUSIONS

Threatened Species

San Diego Thornmint (*Acanthomintha ilicifolia*)

Status of the Species

Listing Status

San Diego thornmint was federally listed as threatened on October 13, 1998 (63 FR 54938). Critical habitat was designated for this species on August 26, 2008 (73 FR 50454). A recovery plan has not been prepared for the San Diego thornmint.

Species Description

San Diego thornmint is an annual member of the mint family. It is a low annual, with stems branching from the base. This plant ranges in height from 5 to 15 cm (2 to 6 in) and has white, two-lipped, tubular flowers with rose-colored markings on the lower lip (Jokerst 1993). Members of this genus have paired leaves and several sharp, spiny bracts (modified leaves) below whorled flowers. San Diego thornmint can be distinguished from other members of its genus by its flower, which has hairless anthers and style. The tubular, two-lipped corollas (petals) are white with rose markings on the lower lip. The only other *Acanthomintha* species occurring in southern California (*A. obovata*) has four fertile, woolly, or pubescent anthers and is known from north Ventura County (Bittman 1991).

Within the geographical area known to be occupied by San Diego thornmint, one primary constituent element was identified in the final critical habitat rule (73 FR 50454):
clay lenses that provide substrate for seedling establishment and space for growth and development of San Diego thornmint that are:

1) Within chaparral, grassland, and coastal sage scrub;

2) On gentle slopes ranging from 0 to 25 degrees;

3) Derived from gabbro and soft calcareous sandstone substrates with a loose, crumbly structure and deep fissures approximately 30 to 60 cm (1 to 2 ft); and

4) Characterized by a low density of forbs and geophytes, and a low density or absence of shrubs.

All areas designated as critical habitat for San Diego thornmint are occupied, occur within the species' historic geographic range, and contain the primary constituent element required to support at least one life history function of the thornmint (73 FR 50454).

Distribution

San Diego thornmint is a clay soil endemic (Beauchamp 1986, Bittman 1991) found only in San Diego County, California south to San Telmo in northern Baja California, Mexico. In San Diego County, the species is known from Carlsbad and San Marcos south to Sweetwater and Otay Mesa, and east to Alpine (Beauchamp 1986, Service 1998b). Bittman (1991) reported the elevational range for this species as 8 to 1,067 m (25 to 3,500 ft); however, J.D. Jokerst (1993) reported that it occurred below 900 m (2,953 ft).

Populations of this species range from just a few individual to several thousand plants. The majority of the known populations range from 50 to 2,000 plants. Yet, there are four populations that stand out as the largest, each having greater than 25,000 plants. These large populations are vital for the conservation of this species and occur within large blocks of open space that are less likely to be impacted by edge effects associated with the smaller populations in highly urbanized areas. Therefore, the conservation of these large populations will increase the persistence of the species across its range and the overall recovery of this species. The four largest populations and the estimated population at each location are: Sycamore Canyon, 31,000 plants; Slaughterhouse Canyon, 60,000 plants; Viejas and Poser Mountains, 29,650 plants; and Hollenbeck Canyon, 100,000 plants. These four populations represent approximately 75 percent of the total known plants of this species. Populations of this species are also known from the southeast portion of the City of Carlsbad; the Manchester Avenue Mitigation Bank; Los Peñasquitos Canyon; Sabre Springs; McGinty Mountain San Marcos; Poway; the Lake Hodges area; El Capitan; and Jamul (Service Geographic Information system (GIS) database).

Abundance

Approximately 40 percent of the 52 historic populations in the United States have been extirpated (Service 1998b). Reports indicate there are approximately 150,000 to 170,000 individuals in 32 populations in the United States, ranging from Carlsbad and San Marcos east to Alpine and south to Otay Mesa in San Diego County (Bittman 1991, Reiser 1996, Service 1998b). This species occupies an estimated 162 ha (400 ac), with approximately 75 percent of the reported individuals concentrated in four populations (Sycamore Canyon, Slaughterhouse Canyon, and two populations on Viejas Mountain). At least nine sites in Baja California are known to have recently supported San Diego thornmint; however, the current status of the species in Mexico is uncertain.

Habitat Affinity

San Diego thornmint is generally associated with vernal pools, grassland habitats, and widely scattered, discrete open patches in coastal sage scrub and chaparral. San Diego thornmint occurs on heavy, vertisol clay substrates, which are often derived from metavolcanic substrates (Munz 1974, Bittman 1991, Service 1998a).

San Diego thornmint usually occurs on heavy clay soils in open areas surrounded by shrubby vegetation. These openings are generally found within coastal sage scrub, chaparral, and native grassland of coastal San Diego County and south to San Telmo in northern Baja California, Mexico (Beauchamp 1986, Reiser 1996). San Diego thornmint is frequently associated with gabbro soils, which are derived from igneous rock, and gray calcareous clays derived from soft calcareous sandstone (Oberbauer and Vanderwier 1991). The soils derived from gabbro substrates are red to dark brown clay soils, and those derived from soft calcareous sandstone are gray clay soils. San Diego thornmint occurs on isolated patches of these clay soils known as "clay lenses."

In San Diego County, California, and northern Baja California, Mexico, clay lenses are known to support a variety of narrow endemic (restricted to a specific geographic area) plants. Clay lenses tend to have an open or unpopulated look because many common species cannot tolerate living on these clay soils. Clay lenses are typically devoid of woody, perennial shrubs (Oberbauer and Vanderwier 1991. Due to the absence of most common native vegetation from clay lenses, the areas where San Diego thornmint occurs appear as open areas surrounded by areas populated by denser vegetation.

In addition to the characteristics discussed above, the texture and structure of the clay lenses are essential for supporting the seedling establishment and growth of San Diego thornmint. This soil provides many small pockets and deeper fissures where seeds from San Diego thornmint become lodged as they fall from decomposing plants (Bauder and Sakrison 1999). The seeds stay in the soils until the temperatures become cooler in the winter months and the soil becomes saturated with the winter rains (Bauder and Sakrison 1997). The seedlings then germinate and grow to

mature plants. These plants do best when they are not crowded or shaded by other plants (Bauder and Sakrison 1999). The loose, crumbly texture of the soil provides the proper substrate to hold the seed bank and allow for root growth.

Clay lenses are generally inhabited by a specific flora that consists of forbs, native grasses, and geophytes (perennial plants propagated by buds on underground bulbs, tubers, or corms, such as lilies, iris, and onions) (Oberbauer and Vanderwier 1991), which are better adapted to the harsh conditions mentioned above. Native plant species that characterize the vegetation found with San Diego thornmint on clay lenses include *Hesperevax sparsiflora* var. *sparsiflora* (erect evax), *Harpagonella palmeri* (Palmer's grappling-hook), *Convolvulus simulans* (bindweed), *Apiastrum angustifolium* (mock parsley), and *Microseris douglasii* ssp. *platycarpha* (small flowered microseris) (Bauder *et al*. 1994, McMillan 2006, Vinje 2006a).

Clay lenses generally form on gentle slopes. An analysis of 20 sites where San Diego thornmint was observed found that the slopes range from 0 to 25 degrees, with the majority of the sites having slopes below 20 degrees (Bauder *et al*. 1994). This study found that many thriving, natural populations were on slopes that faced southeast, south, southwest, and west (Bauder *et al*. 1994). The known populations of San Diego thornmint range in elevation from sea level to 914 m (3,000 ft). San Diego thornmint occurs on soils mapped as Las Posas, Olivenhain, Redding, Huerhuero, Altamont, Cieneba, and Linne (Service GIS database; soils described by Bowman 1973).

Life History

San Diego thornmint flowers from April to May (Munz 1974, Bittman 1991) and remains erect and retains its distinct shape well into the dry season (Reiser 1996). San Diego thornmint is an outcrosser that is insect pollinated (Wyatt 1983) and may rely on animal vectors, in part, for seed dispersal. While this annual can be raised from seed, suitable friable clay microhabitats are uncommon and place strict limitations on the establishment of new populations (Reiser 1996).

The breeding system of San Diego thornmint has not been studied, but it has been determined that other members of the genus *Acanthomintha* are self-compatible (Steek 1995). A 1996 study (Bauder and Sakrison 1997) found that several insect species visited the flowers and moved from plant to plant. These insects represented possible pollinators of San Diego thornmint; however, none were thought to represent species-specific pollinators (Bauder and Sakrison 1997).

Threats

Threats to San Diego thornmint include urbanization, the presence of exotic plant species, off-road vehicles (ORVs), mining, trampling and grazing.

Urban development near San Diego thornmint populations may alter the habitat characteristics required by this species. The destruction of habitat can change the slope and aspect of a site,

making it uninhabitable for San Diego thornmint. The proximity of development to populations of San Diego thornmint may affect other aspects of the site. For example, increased water runoff from developments may erode the clay lense and change the topography of the site (Bauder *et al*. 1994).

The introduction of exotic plant species, such as Maltese star-thistle (*Centaurea melitensis)*, can drastically change the species present in, and eliminate the open character of, the clay lense habitat. *C. melitensis* has been shown, in field and greenhouse experiments, to negatively effect the biomass (growth) and seed production (reproduction) of San Diego thornmint (Bauder and Sakrison 1999). Populations of San Diego thornmint that are close to urbanized areas or in areas that are heavily grazed generally have a high density of exotic plant species. In disturbed soils, *C. melitensis* is a common weed. When this and other exotic plant species become established, they can out-compete San Diego thornmint for light, water, nutrients, and space. San Diego thornmint often grows larger and at a higher density when competition with exotic weeds is reduced (Bauder and Sakrison 1999, Vinje 2007).
In recent years, the impacts associated with the use of mountain bikes have been documented to cause similar impacts (Vinje 2006b). Trampling, off-road vehicle activity, and mountain bike use in San Diego thornmint habitat can compact the loose, crumbly soils. Repeated travel over a trail or track degrades the habitat of San Diego thornmint by: (1) displacing soil and (2) compacting soil. These activities, in turn, can destroy individual plants and can reduce the amount of water that can percolate into the soil, thus reducing the plant's ability to grow and reproduce.

Mining is documented as a threat at three sites (*i.e*., the middle of McGinty Mountain, eastern Tierrasanta, Slaughterhouse Canyon) known to support San Diego thornmint (63 FR 54938, Bauder *et al*. 1994, 72 FR 11955). Mining can alter many aspects of San Diego thornmint habitat. Heavy machinery can compact or remove clay lenses or alter the slope of an area. The grading of large areas adjacent to San Diego thornmint habitat can make those areas vulnerable to invasion by exotic plant species and lead to the subsequent crowding and shading of San Diego thornmint habitat. These impacts may in turn lead to the disruption of the growth and reproduction of San Diego thornmint.

The protection of habitat for San Diego thornmint from development is the first measure of protection needed for populations of this species. The control of exotic plant species, the maintenance and enhancement of clay lense habitat, the control of incompatible and often illegal activities, such as OHV use and other unauthorized recreational impacts, and careful oversight of adjacent activities, such as mining, will help to ensure the long-term conservation for San Diego thornmint and its habitat.

Rangewide Conservation Needs

This species is protected from immediate extinction because of the conservation of several populations on public and private land following the State and Federal listing of this species.

Despite the protection from most direct impacts related with development, San Diego thornmint is now threatened by competition from non-native plants throughout its range. This species is also threatened by the increasing impacts caused by recreational users of conserved lands. The following priority actions are needed.

1) Establish a range-wide working group for San Diego thornmint to coordinate conservation efforts. Some goals for this working group would be to:

    a) Census all accessible populations annually over a number of years, using a standard methodology to assess the variation in population footprint sizes and location throughout the range.

    b) Work with land mangers to set up threats-based management objectives for each conserved population of San Diego thornmint.

    c) Develop a list of BMPs for managing non-native weeds and recreational use in preserved areas based on research and the experiences of land managers.

2) Report all data to CNDDB, including annual reports from preserved occurrences. Make sure all responsible jurisdictions have access to this information.

3) Rank the conservation value of as yet non-conserved sites and prioritize these sites for possible acquisition and preservation.

4) List, evaluate, and prioritize research needs for this species. Work to obtain funding for the highest priority research needs.

Environmental Baseline

This species was not observed within the proposed ROW or other potential impact areas of the SRPL Project during SDG&E's focused rare plant surveys in 2007 or 2008. However, not all suitable habitat within the proposed impact areas was surveyed due to project redesign after the 2008 rare plant surveys had been conducted. In the absence of complete survey data, we relied on the species data provided in the BA, the CNDDB, soil maps for San Diego County, and the Service's knowledge of the species to identify potential San Diego thornmint habitat in the action area.

Following information on soil types published in the final critical habitat rule and elsewhere (73 FR 50466, Oberbauer and Vanderwier 1991), we calculated the acreage of all gabbro and calcareous soils with a 0 to 30 percent[3] slope that fall within the action area to determine the extent of suitable habitat. Based on our GIS analysis, approximately 52.0 ha (128.4 ac) of

[3] In our GIS analysis, we used a 30 percent slope variable in lieu of 25 percent due to the constraints of the GIS soil layer.

suitable San Diego thornmint habitat exist within the SRPL Project footprint in the CNF South Link and the Inland Valley South Link at MP 75, between MP 79-81 and 88-89, east of MP 91, between MP 94-97, south of MP 103, between MP 105-107, and from MP 115 to the Sycamore Canyon Substation (Figure 2).

Given that gabbro and calcareous soils will not always support a San Diego thornmint population, we believe this is the maximum amount of suitable San Diego thornmint habitat in the action area and SRPL Project footprint. Within this suitable habitat, some areas will have a higher or lower likelihood of supporting San Diego thornmint and/or greater or lesser importance to the species as a whole. The following paragraphs describe the likelihood and importance of San Diego thornmint in four segments of the action area.

Segment 1: MP 78 to MP 91 (CNF South Link)

The BA notes specifically that several areas within the CNF South Link at MP 78.6; between MPs 80.65 and 81.75; between MPs 82.45 and 83.2; between MPs 84.1 and 84.9, all of which support gabbro soils of the Las Posas series, were not surveyed. However, in 2008 near this segment of the SRPL Project, rare plant surveys were conducted along the MRD Alternative as proposed within the Draft EIR/EIS. Although these surveys did not observe San Diego thornmint, the action area deviates from the MRD Alternative in several areas by several hundred feet. Thus, the BA concludes that there is the potential for San Diego thornmint to occur in this unsurveyed portion of the action area.

Although suitable San Diego thornmint habitat is based on the presence of appropriate gabbro soils, this portion of the action area is several miles east of the eastern-most known location (Hollenbeck Canyon) of the San Diego thornmint in this portion of San Diego County. For these reasons, the potential for occurrence in this unsurveyed portion of the action area is considered to be low.

Segment 2: MP 91 to MP 102 (CNF South Link and the Inland Valley South Link)

Populations of San Diego thornmint are known to occur in the vicinity of the action area on USFS lands and the Viejas Reservation between MP 91 and MP 102 (near Viejas and Poser mountains). Within the USFS lands near the action area, there are four occurrences of San Diego thornmint on Viejas Mountain and two occurrences on Poser Mountain, all within the Descanso Ranger District (Service GIS database). These occurrences represent the known eastern peripheral extension of the species' range. All four of these occurrences are located within designated San Diego thornmint critical habitat (Subunits 3b-f). The action area lies approximately 0.05 km (0.3 mi) to the south of Subunits 3b and 3c. Subunits 3d-f are located approximately 2.4 km to 4.8 km (1.5 mi to 3 mi) to the northwest of MP 94 (73 FR 50454). The known locations of San Diego thornmint in these subunits are interspersed in clay patches in a mosaic of relatively undisturbed habitat. Due to the proximity of these occurrences and the fact that the habitat is not fragmented by any manmade barriers, the individuals in these subunits are

considered to be a single population of San Diego thornmint. This population is estimated to have greater than 30,000 plants (72 FR 11956). The action area in the vicinity of this population traverses developed land with no populations or suitable habitat present and a buffer of urban development between the action area and San Diego thornmint critical habitat.

Segment 3: MP 102 to MP 112 (Inland Valley South Link)

Between MP 102 and MP 112, suitable habitat has not been surveyed extensively due to problems with accessibility. However, this segment of the action area lies within the species range and contains suitable gabbro soils and conditions that could support San Diego thornmint.

Segment 4: MP 112 to MP 117 (Inland Valley South Link)

One known occurrence of San Diego thornmint exists within the action area. The occurrence intersects the action area approximately 0.05 km (0.03 mi) to the southwest of MP 116. This occurrence was not identified in the BA, and little is known about the size or status of the occurrence. However, we believe that it is likely still extant based on CNDDB records and because of its proximity to two other significant occurrences described below.

On approximately 124 ha (306 ac) of public and private lands in and adjacent to the Goodan Ranch and Sycamore Canyon Open Space County Park, an occurrence is approximately 372 m (1,200 ft) east of the action area, slightly to the north of MP 116 and suitable habitat is known to occur less than 18.3 m (60 ft) from the center line of the SRPL footprint. This occurrence is one of the largest recorded populations of San Diego thornmint. The population was estimated at 31,000 plants in 1994. The location of this occurrence is covered under the County's MSCP Subarea Plan and is within an area designated as a hardline conservation area under the plan.

The second San Diego thornmint population adjacent to the action area is located on 31 ha (77 ac) of private lands in Slaughterhouse Canyon, approximately 1,595 m (1 mi) to the west of MP 111. With an estimated 60,000 plants in 1993, this occurrence is one of the largest recorded populations of San Diego thornmint. Threats to this occurrence include exotic plant species and recreational activities (72 FR 11955). The occurrence is on land designated as open space adjacent to a sand and gravel mining operation and is covered under the County's MSCP Subarea Plan as a hardlined preserve area.

Effects of the Action

For the purpose of this biological opinion, we addressed potential impacts to San Diego thornmint in the action area where appropriate gabbro soils are present with a slope between 0 and 30 percent. Potential effects during construction of the SRPL Project and from long-term O&M activities are included in our analysis. Conservation Measures CM-1 and SS-CM-2 are particularly relevant to SDG&E's commitment to avoid, minimize, and offset direct impacts to the San Diego thornmint are repeated here for ease of reference.

SS-CM-1 No impacts will occur to the thornmint population at and adjacent to MP 116 or to any thornmint occurrences between MP 114 and 119. To ensure the avoidance of impacts, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (*e.g.*, towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) between MP 114 and MP 119. In other areas where suitable thornmint habitat (*i.e.*, gabbro and calcareous soils and a slope of 0 to 25 percent) exists, the area to be impacted will be surveyed for thornmint before any impacts may occur, per G-CM-32. All permanent and temporary impact areas will be sited at least 100 ft away from any known thornmint occurrences. SDG&E will implement the Weed Control Plan described in G-CM-20 to ensure that intact thornmint populations are not impacted by non-natives that could be introduced by this project.

SS-CM-2 Impacts to San Diego thornmint will first be avoided where feasible, and where not feasible due to physical or safety constraints, impacts will be compensated through salvage and relocation via a restoration program, at a 1:1 ratio, and/or off-site acquisition and preservation of habitat, at a 2:1 ratio, containing the plant. The CPUC, BLM, USFS and Wildlife Agencies will decide whether the applicant can restore San Diego thornmint populations or will acquire habitat with San Diego thornmint (locations to be approved by the CPUC, BLM, USFS and Wildlife Agencies). A qualified biologist will prepare a Restoration Plan that will indicate where restoration will take place. The restoration plan will identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The applicant will work with the CPUC, BLM, Wildlife Agencies, and USFS until a plan is approved by all parties.

1. Construction Activities

Direct Effects

Construction of the transmission line and associated facilities such as towers, pads, access roads, staging areas, pull down areas, and helipads will result in the loss of suitable thornmint habitat including no more than 7.2 ha (17.9 ac) of permanent impacts and 13.0 ha (32.1 ac) of temporary impacts.

Between MP 78 to MP 91 in the CNF South Link project area, suitable San Diego thornmint habitat is identified based on the presence of appropriate gabbro soils; however, because this portion of the ROW is several miles east of any known San Diego thornmint occurrences, the potential for new occurrences to be identified and impacted by the SRPL Project is considered to be low.

Between MP 91 and MP 102 in the CNF South Link and the Inland Valley South Link project area, one of the largest populations of San Diego thornmint occurs on USFS lands just outside the action area. No impacts to this population are anticipated from the SRPL Project. Moreover, the action area in the vicinity of this population traverses developed land with no populations or

suitable habitat present and a buffer of urban development between the action area and the large population located on USFS lands. Thus, the likelihood of San Diego thornmint occurrences between MP91 and MP 102 is remote.

Suitable habitat for the thornmint occurs between MP 102 and MP 112 in the Inland Valley South Link area, and within this part of the action area, surveys have been limited due to accessibility issues. Thus, new occurrences of San Diego thornmint may be identified through preconstruction surveys in this part of the action area. Suitable habitat for the thornmint also occurs between MP 114 and MP 119 also in the Inland Valley South Link project area, and the ROW intersects one known occurrence at MP 116.

For the known occurrence at MP 116 and in areas where thornmint is identified by pre-construction surveys, SDG&E will attempt to avoid losses of individual plants by relocating required structures in consultation with the Service. If avoidance is not feasible, losses will be minimized or offset through a relocation/restoration program at a 1:1 conservation to impact ratio for temporary impacts or through protection of occupied habitat at a 2:1 conservation to impact ratio for permanent impacts, consistent with SS-CM-2.

Indirect Effects

Within or adjacent to the action area, San Diego thornmint occurrences and suitable habitat may be indirectly affected by construction activities that increase invasive species, siltation, erosion, fugitive dust, and human disturbance (*e.g.*, trampling). These effects are discussed under the General Effects of the Action section above. Because of the relatively small amount of habitat destruction to new permanent features, the location of these permanent features adjacent to an existing transmission line, and the relative porous nature of transmission lines (act as more a filter than a hard barrier), indirect impacts from habitat fragmentation and isolation are not anticipated.

SDG&E will implement several General Conservation Measures to minimize these impacts including, G-CM-20, which addresses weed control; G-CM-24 which identifies dust reduction procedures; G-CM-2 and 22, which identify erosion control measures and BMPs; and G-CM-4, G-CM-9, and G-CM-35 - G-CM-38, which address human disturbance (*e.g.*, personnel training, prohibition on littering, collecting of plants, and harming wildlife).

2. Operations and Maintenance Activities

Adverse effects to San Diego thornmint occurrences could occur from vegetation management and ROW repair. ROW repairs include grading or repair of existing maintenance access roads and work areas, and spot repair of sites subject to flooding or scouring. Activities related to ROW repair are usually conducted after the rainy season, when water has caused erosion damage. San Diego thornmint individuals immediately adjacent to structures and access roads could be affected by vegetation management activities (*e.g.*, mowing) and ROW repair. SDG&E will implement General Conservation Measures G-CM-21, G-CM-31, and G-CM-43 to minimize these impacts.

Temporary indirect impacts to San Diego thornmint could arise from insulator washing and fugitive dust from operational and maintenance activities that occur within the action area. However, insulator washing is not expected more than twice a year and would require only 300 gallons of water per structure and 3,000 gallons of water per day. Much of the water dissipates and evaporates as water vapor and does not reach the soil surface, thus not posing a threat of erosion and siltation. Thus, insulator washing is not anticipated to adversely affect individuals near the structures. Likewise it is anticipated that the limited additional vehicular traffic from the operation and maintenance activities would not substantially increase the amount of fugitive dust above current levels.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the San Diego thornmint. We based this conclusion on the following:

1) Four populations of San Diego thornmint represent 75 percent of the total known individuals of this species; the SRPL Project is not anticipated to impact any of these populations or designated critical habitat for the species;

2) Loss of suitable San Diego thornmint habitat will include no more than 7.2 ha (17.9 ac) of permanent impacts and 13.0 ha (32.1 ac) of temporary impacts, which likely represents only a small portion of the species occupied habitat, which is currently estimated at 162 ha (400 ac);

3) SDG&E will avoid or minimize impacts to known and any newly identified occurrences of the San Diego thornmint and offset unavoidable impacts to the species; and surveys for San Diego thornmint in the action area and any actions to avoid, minimize and provide for the long-term conservation of occupied habitat will add to our knowledge of
4) San Diego thornmint's distribution and contribute to the range-wide conservation (recovery) of this species.

California Gnatcatcher (*Polioptila californica californica*)

Status of the Species

Listing Status

The Service listed the coastal California gnatcatcher as threatened on March 30, 1993 (58 FR 16742). Habitat loss and fragmentation resulting from urban and agricultural development as well as fire, invasive plants, and predation all contributed to the listing decision. Additionally, the Service issued a special rule, in conjunction with the listing decision pursuant to section 4(d) of the Act, defining the conditions under which take of the gnatcatcher would not be a violation of section 9 (58 FR 65088). This special rule recognized the State's Natural Community Conservation Planning (NCCP) Program, and several local governments' ongoing multi-species conservation planning efforts (*e.g.*, the MSCP] that intend to apply the Act standards to activities affecting the gnatcatcher.

Critical Habitat

A final revised critical habitat designation for the gnatcatcher was published on December 19, 2007. This final designation included 78,227 ha (197,303 ac) of Federal, State, local, and private land in Los Angeles, Orange, Riverside, San Bernardino, Ventura, and San Diego Counties, California (72 FR 72010). This revised final designation constitutes a reduction of 120,795 ha (298,492 ac) from the 2003 revised proposed rule.

A total of 13 critical habitat units are identified in the final rule, although Unit 4 was exempted from the revised final designation under section 4(a)(3)(B) of the Act, and all lands in Unit 11 were removed. Several qualitative criteria were used in the selection of specific areas or units, including focusing on areas (1) throughout the geographical and elevational range of the species; (2) within various occupied plant communities, such as Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub; and, (3) in documented areas of large, contiguous blocks of occupied habitat, or in areas that link essential populations areas (*i.e.,* linkage areas) (72 FR 72036).

The proposed Project occurs within Unit 1 and Unit 2 of designated critical habitat for the gnatcatcher. Unit 1, South San Diego County, encompasses approximately 6,029 ha (14,898 ac) within the MSCP planning area of which about half is under Federal ownership (San Diego National Wildlife Refuge and BLM) and the other half is under private ownership. Lands essential to the conservation of the gnatcatcher within the cities of El Cajon, and Santee; major amendment areas within the San Diego County MSCP Subarea Plan; and water district lands owned by Sweetwater Authority, Helix Water District, Otay Water District, the San Diego National Wildlife Refuge, and BLM lands on Otay Mountain are included in this unit. Populations in this unit occur in high-quality coastal sage scrub and persist in high densities.

Unit 2, Upper San Diego River and El Capitan Linkage, encompasses approximately 5,871 ha (14,508 ac) of which the majority are under Federal (USFS) and private ownership within the MSCP planning area in southwestern San Diego County. Unit 2 includes an essential population of gnatcatchers on the Cleveland National Forest south of State Route 78 near the upper reaches of the San Diego River, as well as canyons and corridors that provide linkages to MSCP Multiple Habitat Preserve Area (MHPA) lands adjacent to this unit. Additionally, this unit provides for connectivity and genetic interchange among core populations and contains large blocks of high-quality habitat capable of supporting persistent populations of gnatcatchers. The population within this Unit is the easternmost within the species' range and occurs at one of the highest elevations known. Individuals within this population likely contain unique genetic or behavioral adaptations that allow them to persist, which is essential to the species survival and recovery as environmental conditions change through time.

Species Description

The gnatcatcher is a small (length: 11 cm (4.33 in); weight: 6 g (0.28 oz)), long-tailed member of the old-world warbler and gnatcatcher family Sylviidae (AOU 1998). The bird's plumage is dark blue-gray above and grayish-white below. The tail is mostly black above and below. The male has a distinctive black cap which is absent during the winter. Both sexes have a distinctive white eye-ring.

The gnatcatcher is one of three subspecies of the California gnatcatcher (*Polioptila californica*) (Atwood 1991). Prior to 1989, the California gnatcatcher was classified as a subspecies of the black-tailed gnatcatcher (*Polioptila melanura*). Atwood (1980, 1988) concluded that the species was distinct from *P. melanura*, based on differences in ecology and behavior.

Habitat Affinity

Gnatcatchers typically occur in or near coastal sage scrub habitat. Coastal sage scrub is patchily distributed throughout the range of the gnatcatcher, and the gnatcatcher is not uniformly distributed within the structurally and floristically variable coastal sage scrub vegetation community. Rather, the subspecies tends to occur most frequently within California sagebrush (*Artemisia californica*), dominated stands on mesas, gently sloping areas, and along the lower slopes of the coast ranges (Atwood 1990). An analysis of the percent gap in shrub canopy supports the hypothesis that gnatcatchers prefer relatively open stands of coastal sage scrub (Weaver 1998). Gnatcatchers occur in high frequencies and densities in scrub with an open or broken canopy, and are typically absent from scrub dominated by tall shrubs; they occur in low frequencies and densities in short scrub with a closed canopy (Weaver 1998). Territory size increases as vegetation density decreases and with distance from the coast, probably due to food resource availability.

Gnatcatchers also use chaparral, grassland, and riparian habitats where theses habitats occur adjacent to sage scrub (Campbell *et al.* 1998). The use of these habitats appears to be most

frequent during late summer, autumn, and winter, with smaller numbers of birds using such areas during the breeding season. These non-sage scrub habitats are used for dispersal, although data on dispersal use are largely anecdotal (Campbell *et al.* 1998). Probable dispersing gnatcatchers have been documented in vegetation dominated by such species as wild mustard (*Brassica* spp.), annual grasses, Russian thistle (*Salsola tragus*), mule fat (*Baccharis salicifolia*), willow (*Salix* spp.), and salt cedar (*Tamarix* spp.) (Campbell *et al.* 1998). Famolaro and Newman (1998) suggest that habitat along linear features such as highways and power-line corridors may be of significant value in linking populations of the gnatcatchers. Although existing quantitative data may reveal relatively little about gnatcatcher use of chaparral, grassland, and riparian habitats, these areas may be critical during periods of drought for dispersal and foraging opportunities (Campbell *et al.* 1998). Breeding territories have also been documented in non-sage scrub habitat. Campbell *et al.* (1998) discuss likely scenarios explaining why habitats other than coastal sage scrub are used by gnatcatchers including food source availability, dispersal areas for juveniles, temperature extremes, fire avoidance, and lowered predation rate for fledglings.

Life History

The gnatcatcher is primarily insectivorous, non-migratory, and exhibits strong site tenacity (Atwood 1990). Fecal sample analyses reveal a diet composed predominantly of leaf- and plant-hoppers and spiders (Burger *et al.* 1999). True bugs, wasps, bees, and ants are minor components of the diet (Burger *et al.* 1999). Gnatcatcher adults selected prey to feed their young that is larger than expected given the distribution of arthropods available in their environment. Both adults and young consume more sessile than active prey items (Burger *et al.* 1999).

The gnatcatcher becomes highly territorial by late February or early March each year, generally when males become more vocal (Mock *et al.* 1990). In southwestern San Diego County the mean breeding season territory size ranged from 4.9 to 10.9 ha (12 to 27 ac) per pair and non-breeding season territory size ranged from 4.9 to 17.0 ha (12 to 42 ac) per pair (Preston *et al.* 1998). During the non-breeding season, gnatcatchers have been observed to wander in adjacent territories and unoccupied habitat increasing their home range size to approximately 78 percent larger than their breeding territory (Preston *et al.* 1998).

The breeding season of the gnatcatcher extends from mid-February through the end of August, with peak nesting activity occurring from mid-March through mid-May. The gnatcatcher's nest is a small, cup-shaped basket usually found 0.3 to 0.9 m (1 to 3 ft) above the ground in a small shrub or cactus. Clutch size ranges between 3 and 5 eggs. Juvenile birds associate with their parents for several weeks (sometimes months) after fledging (Atwood 1990). Nest building begins in mid-March with the earliest recorded egg date of March 20 (Mock *et al.* 1990). Post-breeding dispersal of fledglings occurs between late May and late November. Gnatcatchers are persistent nest builders and often attempt multiple broods, which suggest high reproductive potential. However, this is typically offset by high rates of nest predation and brood parasitism (Atwood 1990; Grishaver *et al.* 1998).

Gnatcatchers typically live for 2-3 years, although ages of up to 5 years have been recorded for some banded birds (Dudek and Associates 2000). Observations indicate that gnatcatchers are highly vulnerable to extreme cold, wet weather (Mock *et al.* 1990). Predation is greater in the upper and lower third of the nest shrub, and lower in nests with full clutch sizes (Sockman 1997).

Natal dispersal for a non-migratory bird (such as the gnatcatcher) is an important aspect of the biology of the species (Galvin 1998). The mean dispersal distance of gnatcatchers banded in San Diego County is reported at less than 3 km (1.9 mi), although this dispersal distance appears relatively low and birds were also documented moving up to 9.7 km (6 mi) from their natal territory (Bailey and Mock 1998). Additionally, dispersal of juveniles is difficult to observe and to document without extensive banding studies. Therefore, it is likely the few recent studies underestimate the gnatcatcher's typical dispersal capacity (Bailey and Mock 1998). Juvenile gnatcatchers are apparently able to traverse highly man-modified landscapes for at least short distances (Bailey and Mock 1998). Typically, however, the dispersal of juveniles requires a corridor of native vegetation that provides foraging and cover opportunities to link larger patches of appropriate sage scrub vegetation (Soulé 1991). These dispersal corridors may facilitate the exchange of genetic material and provide a path for recolonization of areas from which the species has been extirpated (Soulé 1991, Galvin 1998).

Distribution

The gnatcatcher occurs on coastal slopes in southern California, from southern Ventura southward through the Palos Verdes Peninsula in Los Angeles County through Orange, Riverside, San Bernardino, and San Diego counties to El Rosario in Baja California, Mexico, at approximately 30 degrees north latitude (Atwood 1991). Atwood (1990) reported that 99 percent of all gnatcatcher locality records occurred at or below an elevation of 300 m (984 ft). Atwood and Bolsinger (1992) reported that of 324 sites of recent occurrence, 272 (84 percent) were located below 250 m (820 ft) in elevation, 315 (97 percent) were below 500 m (1,640 ft), and 324 (100 percent) were below 750 m (2,460 ft). Since that time, additional data collected at higher elevations shows this species may occur as high as 914.4 m (3,000 ft) and that more than 99 percent of the known gnatcatcher locations occurred below 762 m (2,500 ft) (68 FR 20228).

Population Trend

The gnatcatcher was considered locally common in the mid-1940's, but by the 1960's this subspecies had declined substantially in the United States owing to widespread destruction of its habitat (Atwood 1990). Atwood (1980) estimated that no more than 1,000 to 1,500 pairs remained in the United States by 1980. In 1993 when the gnatcatcher was listed as threatened, the Service estimated that approximately 2,562 pairs of gnatcatchers occurred in the United States. Of these, 1,514 pairs (or 59 percent) occurred in San Diego County (58 FR 65088). In 1999, the total number of gnatcatchers in the United States was estimated at 4,966 pairs, after subtracting out all gnatcatcher pairs authorized for take under Habitat Loss Permits, approved Natural Community Conservation Plans, Habitat Conservation Plans, and section 7 consultations

(Winchell and Doherty 2006). These population estimates were intended to represent a coarse approximation of the number of gnatcatchers in southern California. Confidence intervals have not been calculated for these estimates and therefore, the precision is unknown.

Limited quantitative data exist on gnatcatcher abundance and distribution. Winchell and Doherty (2008) have implemented a long term study to expand on previous research and preliminary results suggest that slope, temperature, and precipitation variables associated with habitat models were stronger influences on occupancy than patch size. This suggests that coastal sage scrub patches are worth preserving regardless of size. As this study continues, more quantitative information about gnatcatcher population size and distribution would be developed.

Threats

Habitat Loss (including fires and invasive plants)

The loss, fragmentation, and adverse modification of habitat are the principal reasons for the gnatcatcher's federally threatened status (58 FR 16742). Coastal sage scrub habitat was developed rapidly from the 1940s to 1990s for agriculture, grazing, or urban areas. Habitat loss continues to remain the greatest threat due to the subspecies preferred habitat type (i.e., coastal, low-elevation, shallowly sloped or level lands) coinciding with coastal southern California's highest real estate value land areas.

The amount of coastal sage scrub available to gnatcatchers has continued to decrease during the period after the listing of the species. It is estimated that up to 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a-b; Barbour and Major 1977), and coastal sage scrub is considered to be one of the most depleted habitat-types in the United States (Kirkpatrick and Hutchinson 1977, O'Leary 1990). The elimination of nearby habitat may artificially increase populations in adjacent preserved habitat; however, these population surpluses may be lost in subsequent years due to crowding and lack of resources (Scott 1993). In addition, agricultural use, such as grazing and field crops, urbanization, air pollution, and the introduction of non-native plants have all had an adverse impact on extant sage scrub habitat. A consequence of urbanization that is contributing to the loss, degradation, and fragmentation of coastal sage scrub is an increase in wildfires due to anthropogenic ignitions. High fire frequencies and the lag period associated with recovery of the vegetation may significantly reduce the viability of affected gnatcatcher subpopulations (Dudek and Associates 2000).

Atwood *et al.* (1998a, 1998b) and Bontrager *et al.* (1995) found that extensive wildfires result in adverse impacts to gnatcatcher populations within unburned areas, as well as within the burn area, due to increased mortality resulting from excessive competitive interactions between resident birds within unburned areas and birds displaced by the fires. Studies conducted after the 1993 Laguna Fire in Orange County (Wirtz *et al.* 1995, Bontrager *et al.* 1995, Beyers and Wirtz 1995, Atwood *et al.* 1998b) suggest that post-fire gnatcatcher population recovery is likely

dependant on the amount of suitable vegetation remaining within the burned area, as well as the presence of gnatcatcher source populations in close proximity to areas affected by the fire.

In October 2003, severe wildfires throughout southern California affected 4 percent of known gnatcatcher occurrences, 16 percent of designated critical habitat acreage, and 28 percent of the Service's modeled habitat for the gnatcatcher (Bond and Bradley 2004). In October of 2007, severe wildfires burned throughout San Diego County, California. Based on GIS data generated by overlaying burned areas with land defined as high quality and very high quality habitat (using Technology Associates International Corporation [TAIC] models), the 2007 fires burned approximately 36 percent of high quality habitat in San Diego County. Also, an estimated 25 percent of very high quality habitat was lost in 2007 in San Diego County. Of these areas burned in 2007, about 9.5 percent of high and very high quality habitat were previously burned in the 2003 fires.

Increased fire frequency would limit regeneration of sage scrub ecosystems. Beyers and Wirtz (1995) found that following a fire, recovering coastal sage scrub would not be recolonized by gnatcatchers until total shrub cover approaches 50 percent, which is expected to take a minimum of 4 to 5 years. Due to the scope and intensity of the recent Southern California fires, the areas affected are expected to take several years to fully recover; therefore, any remaining gnatcatcher source populations, and remaining gnatcatcher habitat, are important to the survival and recovery of the species.

Furthermore, invasive plants tend to replace native coastal sage scrub vegetation after fires. Invasive plants (primarily non-native grass and annual forbs) are also more likely to dry out earlier in the summer and contribute to increased wildfire frequencies (Bunn *et al.* 2007). Fire frequency and burn size should be kept low where these exotic plants are well-established and where irreversible conversion of shrublands to grasslands is likely.

An important corollary of habitat fragmentation is reduction of opportunity for successful natal dispersal. Dispersal of gnatcatchers is critical for sustaining a robust demographic and genetic soundness of the population, and to the persistence of gnatcatchers in the fragmented habitat characteristic of coastal southern California. Landscape connectivity enhances population viability for many species, and, until recently, most species lived in well-connected landscapes (Beier and Noss 1998). Well-designed studies offer strong evidence that corridors provide sufficient connectivity to improve the viability of populations in habitats connected by corridors (Beier and Noss 1998). For relatively sedentary bird species such as gnatcatchers, connectivity of habitat patches is probably the most important landscape feature for maintaining species diversity of native biota (Soule *et al.* 1988). Corridors counteract the effects of fragmentation, and should eliminate or minimize the attrition of species over time by facilitating dispersal and recolonization (Willis 1974, Diamond 1975,Brown and Kodric-Brown 1977, Frankel and Soule 1981, Soule and Simberloff 1986, Noss and Harris 1986, Forman and Godron 1986,

Diamond *et al.* 1987; Noss 1987). Linkages that support resident populations of animals are more likely to function effectively as long-distance dispersal conduits for those species (Bennett 1990).

Predation and Brood Parasitism

Brood parasitism by the brown-headed cowbird and nest predation threaten the recovery of the gnatcatcher (Atwood 1980, Unitt 1984). Predation is the most common cause of gnatcatcher nest failure (Unitt 2004). Potential nest predators are numerous, including snakes, raccoons, and corvids (Grishaver *et al.* 1998). Parasitism by brown-headed cowbirds is also a current and increasing threat throughout the gnatcatchers range. Cowbirds thrive in human-altered habitats especially in agricultural and grazing areas because they are attracted to livestock droppings and feed (Bunn *et al.* 2007). Nest parasitism appears to decrease gnatcatcher nest success by increasing nest abandonment (Braden *et al.* 1997). Nest parasitism apparently has resulted in earlier nesting dates of the gnatcatcher which may help compensate for the negative effect of parasitism (Patten and Campbell 1998). However, the gains in nest success from decreased nest parasitism appear to be negated by increased nest abandonment due to predation before cowbirds migrate into the area (Braden *et al.* 1997).

Rangewide Conservation Needs

Based on the threats analysis above, the gnatcatcher has the following needs to survive and recover:

1) Functional habitat should be maintained in large, interconnected blocks sufficient to support viable, interconnected populations. In some cases, such areas may require enhancement or creation of new habitat.
2) Gnatcatcher habitat should be protected from changes in natural fire regimes as a result of fire suppression or increased fire frequency due to anthropogenic ignitions. Habitat should be managed to adequately mitigate those effects, should they occur.
3) The quality of gnatcatcher habitat should be maintained at high levels to include management of exotic plant and animal species (*e.g.*, brown-headed cowbirds, feral cats, etc.).

Environmental Baseline

Status of the Species within the Action Area

In the action area, the gnatcatcher occurs in the CNF South Link and Inland Valley Link from MP 75 to MP 120 within sage scrub patches dominated by California sagebrush (*Artemisia californica*), interspersed with sage scrub-grassland interface, below 762 m (2,500 ft) in elevation (Unit 2004, 68 FR 20228). Gnatcatcher suitable habitat in the action area occurs on

both public and private lands. Private lands in the action area are within the planning area of the either the MSCP or draft East County Multiple Species Conservation Program (ECMSCP). Focused protocol surveys were conducted for portions of the proposed project within the Inland Valley Link from MP 114 to MP 119 in the spring of 2007. Based on those surveys, two pairs of gnatcatchers were detected at the southern end of the Sycamore-Elliot Reconductor 69 kV line (Jones and Stokes 2008).

Additional focused protocol surveys were conducted in the CNF South Link and Inland Valley Link between MP 96 and MP 119 in spring 2007, but not all areas were surveyed where access was limited, and some surveys did not meet standard Service protocols for determining gnatcatcher presence or absence. However, historical and other survey records (CNDDB, Service database, Unit 2004) indicate gnatcatchers occupy suitable habitat at various locations along the alignment from MP 75 to MP 120 (Figure 3). A large population was detected between MP 109 and MP 111 during surveys conducted in 1997. Based on the survey report, the area supported 9 to 12 pairs of gnatcatchers (Affinis 1997).

The proposed route also falls within areas modeled as moderate, high, and very high quality gnatcatcher habitat (TAIC 2002). Additionally, suitable habitat exists for the gnatcatcher within the Cleveland National Forest based on habitat models developed for the forest. Small portions of the proposed project route fall within Unit 1 and Unit 2 of designated critical habitat for the gnatcatcher.

Factors Affecting the Species within the Action Area

Ongoing and potential threats to gnatcatcher populations and their habitat include urbanization, military training activities, cowbird parasitism, predation, habitat degradation, and fire (Service 1993, GWB 1997). Fire and the invasion of exotic vegetation, especially grasses and annual forbs, interact to threaten the gnatcatcher's habitat within the action area. The 2003 Cedar Fire burned gnatcatcher suitable habitat along the alignment from MP 98 to MP 120, the 2007 Harris Fire burned suitable habitat along the alignment from MP 75 to MP 82; and the 2007 Witch fire burned a small portion of gnatcatcher suitable habitat along the alignment near MP 104. Gnatcatcher detectability when the aforementioned surveys were conducted in 2007 may have been decreased because of drought conditions and recent wildfires that degraded suitable habitat potentially resulting in a temporary reduction in the number of gnatcatchers in the action area.

Effects of the Action

For the purpose of this process-oriented biological and conference opinion, we addressed potential impacts to gnatcatcher in the action area in the CNF South Link and Inland Valley Link from MP 75 to MP 120 within sage scrub patches dominated by California sagebrush, interspersed with sage scrub-grassland interface, below 762 m (2,500 ft) in elevation. Potential effects during construction of the SRPL Project and from long-term O&M activities are included in our analysis. Conservation Measures SS-CM-15 through SS-CM-19 are particularly relevant

to SDG&E's commitment to avoid, minimize, and offset impacts to the gnatcatcher and are repeated here for ease of reference.

SS-CM-19 All brushing or grading taking place within occupied habitat of the gnatcatcher (defined as within 152 m (500 ft) of any gnatcatcher sightings (Service 2007b)) during construction will be conducted outside of the gnatcatcher breeding season (February 15 through August 31). When conducting all other construction activities during the gnatcatcher breeding season, within occupied habitat, the following avoidance measures will apply.

- Vegetation clearing outside of the breeding season (October 1 through February 14) will take place in the presence of a biological monitor approved by the Service. The monitor will walk ahead of vegetation removal equipment and ensure that gnatcatchers are not killed or injured as a direct result of vegetation removal activities. The monitor will have the authority to halt/suspend all activities until appropriate corrective measures have been completed. The monitor will also be required to report violations immediately to the Service and CDFG.
- A Service-approved biologist will survey for gnatcatchers within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If gnatcatchers are present, a Service-approved biologist will survey for nesting activity approximately once per week within 152 m (500 ft) of the construction area for the duration of the activity.
- If an active nest is located, a 91-m (300-ft) no-construction buffer (Service 2007b) will be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The applicant will contact the Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction will take place within this buffer zone until the nest is no longer active. However, if construction must take place within the 91-m (300-ft) buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting gnatcatchers and the activities, and working in other areas until the young have fledged.

SS-CM-20 Compensation for the loss of occupied gnatcatcher habitat will be implemented as follows. Permanent impacts to occupied habitat will include 2:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 onsite

restoration and 1:1 off-site acquisition and preservation of occupied habitat. Impacts to occupied gnatcatcher designated critical habitat must be compensated within the same Critical Habitat Unit where the impacts occurred. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-21 Compensation for the loss of unoccupied designated critical habitat for the gnatcatcher will be implemented as follows. Permanent impacts to unoccupied designated critical habitat will include 2:1 offsite acquisition and preservation of designated critical habitat. Temporary impacts to unoccupied designated critical habitat will include 1:1 onsite restoration. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

1. Construction Activities

Direct Effects

Suitable habitat that has been surveyed, mapped or modeled between MP 75 and 120 (approximately 72.4 km (45 mi) in length) is likely to support gnatcatchers based on previous survey records. We anticipate no more than 21.7 ha (53.6 ac) of suitable habitat would be permanently impacted and 43.0 ha (106.2 ac) would be temporarily impacted. The total impact area of 64.7 ha (159.8 ac) includes 12.2 ha (30.0 ac) of designated critical habitat of which 4.6 ha (11.3 ac) are permanent impacts and 7.6 ha (18.7 ac) are temporary impacts (Table 2).

Habitat loss will occur during the installation of new tower pads and work areas; new road segments; and new staging and fly yards occurring intermittently along the route in small patches. The construction and placement of these facilities over such a long narrow area will likely affect small portions of many gnatcatcher territories. Construction activities that completely remove habitat will reduce availability of breeding, feeding, and sheltering sites for gnatcatchers in these areas and may lead to injury (*e.g*. reduced reproduction) or death of gnatcatchers depending on the quality and quantity of any remaining suitable habitat and the density of gnatcatchers in the area.

We do not anticipate that adult or juvenile gnatcatchers will be directly killed or injured during habitat removal since biological monitors will be present to locate and flush any gnatcatchers out of harms way from vegetation clearing or grubbing activities. We also do not expect any eggs or nestlings to be killed or injured during habitat removal since vegetation clearing will occur outside of the gnatcatcher breeding season. If habitat removal must occur within the gnatcatcher breeding season, biological monitors will survey the area for gnatcatcher nesting activity. If nesting activity is detected, the area will be avoided until the nest has either failed or the nestlings have fledged (SS-CM-19).

SDG&E will minimize the permanent loss of up to 21.7 ha (53.6 ac) of occupied gnatcatcher habitat through off-site acquisition and preservation of occupied gnatcatcher habitat at a 2:1 ratio; thus, compensation will consist of up to 43.4 ha (107.2 ac) of occupied gnatcatcher habitat.

Temporary impacts to up to 43.0 ha (106.2 ac) of occupied gnatcatcher habitat will be offset at a 2:1 ratio and will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied gnatcatcher habitat. Compensation for the temporary loss of occupied gnatcatcher habitat will consist of up to 43.0 ha (106.2 ac) of onsite restoration and 43.0 ha (106.2 ac) of offsite acquisition and preservation of occupied gnatcatcher habitat. Therefore, total offsite acquisition and preservation of occupied gnatcatcher habitat will be 86.3 ha (213.3 ac) (Table 2).

Critical Habitat

The proposed project will cause permanent impacts of up to 4.6 ha (11.3 ac) of gnatcatcher designated critical habitat and temporary impacts of up to 7.6 ha (18.7 ac) of gnatcatcher designated critical habitat in Units 1 and 2. (Table 2). In Unit 1, project construction will affect up to 6.2 ha (15.3 ac) of gnatcatcher critical habitat in small patches along a 0.55-km (0.34-mi) long, narrow band of habitat within the action area and include 0.90 ha (2.2 ac) of permanent impacts and 5.3 ha (13.1 ac) of temporary impacts. These impacts represent less than one percent of the 6,029 ha (14,898 ac) of designated critical habitat within Unit 1.

Similarly, in Unit 2, project construction will remove up to 6.0 ha (14.8 ac) of gnatcatcher critical habitat in small patches along a 3.6-km (2.2-mi) long, narrow band of habitat within the action area, and include 3.7 ha (9.1 ac) of permanent and 2.3 ha (5.7 ac) of temporary impacts. These impacts represent approximately one percent of the 5,871 ha (14,508 ac) of designated critical habitat within Unit 2.

SDG&E will minimize the permanent loss of up to 4.6 ha (11.3 ac) of gnatcatcher designated critical habitat through off-site acquisition and preservation of 9.2 ha (22.3 ac) of designated critical habitat (SS-CM-16). Temporary impacts of up to 7.6 ha (18.7 ac) of gnatcatcher designated critical habitat will be offset at a 2:1 ratio and will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of gnatcatcher designated critical habitat. Compensation for the temporary loss of gnatcatcher designated critical habitat will include up to 7.6 ha (18.7 ac) of onsite restoration and up to 7.6 ha (18.7 ac) of offsite acquisition and preservation of gnatcatcher designated critical habitat. The amount of designated critical habitat proposed for offsite acquisition and onsite restoration are included in the overall offsite and onsite conservation acreages specified above in the direct effects section.

The biological function of Unit 1 and Unit 2 to support persistent populations of gnatcatchers is expected to be maintained during and after project construction because of the relatively small amount of permanent impacts, the restoration of temporary impacts, and the habitat conservation measures described above.

Indirect Effects

1. Construction Activities

Construction activities that can cause potential short term impacts to gnatcatchers during the breeding season are activities such as surveying on foot, brush clearing for foot paths, and stringing of new wire and reconductoring, which may require dragging the conductor through habitat, and off road vehicle activities in occupied habitat. To eliminate or minimize indirect impacts by these types of construction activities, G-CM-8 requires confirmation from the biological monitor that gnatcatchers are not in harms way before these activities can occur in gnatcatcher habitat.

Noise from Construction Activities
Gnatcatchers in the action area may be subject to increased noise and disturbance levels associated with SRPL construction that may impair communication or other essential behaviors that reduce reproductive capacity. Noise-related effects are expected to occur while the transmission line is being constructed, a period of approximately 33 months. The measures discussed in SS-CM-19 are expected to effectively reduce potential effects from noise to nesting gnatcatchers.

Predation
Transmission lines and support structures provide potential perching opportunities for predatory groups of birds such as raptors and corvids in gnatcatcher-occupied habitat. Perch sites on pole or tower support structures may also attract brown-headed cowbirds. In areas where current perching sites are few or rare, the construction of a new transmission line increases the potential for raptor, corvid, and cowbird perching and hence, predation and nest parasitism opportunities in the project area (APLIC 2006, Jalkotzy *et al*. 1997). To minimize potential impacts by ravens and cowbirds, G-CM-19 requires the preparation and implementation of a raven control plan and SS-CM-18 requires the preparation and implementation of a cowbird control plan.

Personnel associated with the construction activities often leave food, trash and debris in the work area which can attract a higher concentration of predators to the area leading to increased predation. Predators such as common ravens, western scrub jays, and coyote can all be attracted to the work area by the above activities and have the potential to prey on gnatcatcher eggs and nestlings. To eliminate or minimize predator attraction to construction areas, SDG&E will prohibit littering of any food or waste in the project area and remove biodegradable or non-biodegradable debris from the ROW following completion of construction (G-CM-9).

Human Disturbance
Impacts from human disturbance during the gnatcatcher breeding season can include temporarily changing gnatcatcher breeding and nesting behavior, which can affect their ability to mate, build nests, and care for young. Many of the measures already mentioned in this section can eliminate or minimize disturbance to breeding or nesting gnatcatchers by project personnel. For human

disturbance from non-project personnel, G-CM-26 requires that entrances to access roads will be gated during and after construction to prevent the unauthorized use of these roads by the general public. Additionally, signs will be posted on the gates prohibiting unauthorized use of the access roads. G-CM-30 requires the permanent closure of access road not needed for maintenance and that closed roads be monitored and maintained to assure that unauthorized access by the public is not occurring.

Invasive Weeds

Gnatcatcher habitat would be protected from an increased risk of the spread of invasive weeds by the development and implementation of an Invasive Weed Control Plan (G-CM-20).

2. Operations and Maintenance

Standard O&M activities, such as road maintenance (grading), tree trimming, and structure replacement and repairs and increased human disturbance could potentially affect gnatcatcher behaviors. SDG&E will implement applicable conservation measures to ensure that potential adverse effects to the species are avoided and minimized.

These measures include, but are not limited to, the following:

- Conduct pre-activity surveys to determine presences/absence of gnatcatchers
- Minimize impacts
- Conduct activities outside the breeding season
- Employ an onsite biological monitor
- Fence or flag work space limits
- Restore onsite habitat
- Preserve off-site habitat

Measure SS-CM-19 will also help to minimize potential impacts from maintenance activities to gnatcatchers. This measure requires that SDG&E train all maintenance personnel on the sensitive resources associated with the project and the necessity to avoid and minimize impacts to them. The measure requires all vegetation clearing to occur outside of the bird breeding season if the vegetation has not been cleared in the last two years. All other maintenance activities are to occur outside of the bird breeding season if feasible. If it is not feasible to schedule maintenance activities outside of the bird breeding season, then a qualified biologist working with an acoustician would determine if a maintenance activity would meet or exceed the 60 db(A) Leq hourly noise threshold where nesting territories of gnatcatchers are detected. If

noise levels are below this threshold, then the maintenance activity can proceed, if not, then a survey to locate gnatcatcher nests would be conducted. If an active nest is found, then all necessary impact avoidance and minimization methods would be employed, such as a biological monitor on site, continued noise monitoring, and noise reduction methods, or waiting until the young has fledged from the nest.

Conclusion

After reviewing the current status of the gnatcatcher, the environmental baseline, effects of the proposed action, and cumulative effects, it is our opinion that the proposed action will not jeopardize the continued existence of the gnatcatcher or adversely modify its designated critical habitat. We reached this conclusion by considering the following:

1) Loss of gnatcatcher habitat will occur outside of the breeding season and adult gnatcatchers outside of the breeding season will be flushed from vegetation clearing and grubbing activities; therefore, we do not anticipate that gnatcatcher adults, eggs or nestlings will be killed or injured during habitat clearing or grading activities;

2) The permanent loss of up to 21.7 ha (53.6 ac) of gnatcatcher habitat, including designated critical habitat, is spread over 79 km (49 mi) and will occur in small isolated patches measured in square feet, thus minimizing effects to individual gnatcatcher territories and connectivity across the project area;

3) The temporary loss of up to 43.0 ha (106.2 ac) of gnatcatcher habitat, including designated critical habitat, is spread over 79 km (49 mi) and will occur in small isolated patches measured in square feet and will be restored to its original condition or better, thus minimizing effects to individual gnatcatcher territories, the loss of habitat, and connectivity across the project area;

4) The permanent loss of 4.6 ha (11.3 ac) of gnatcatcher designated critical habitat represents a small proportion of designated critical habitat within Units 1 and 2; thus, the ecological function and values of gnatcatcher designated critical habitat will be maintained in these units and within the overall designation;

5) Direct and indirect impacts to gnatcatchers will be avoided and minimized through the implementation of the conservation measures; and

6) The long-term conservation of gnatcatcher habitat, including designated critical habitat, to offset the impacts of the proposed action will support the range-wide conservation (recovery) of the species.

Endangered Species

Least Bell's Vireo (*Vireo bellii pusillus*)

Status of the Species

Listing Status

In response to the dramatic decline of the vireo population and widespread loss of its riparian habitat, the vireo was listed as endangered on May 2, 1986 (51 FR 16474). Critical habitat was designated for the vireo on February 2, 1994 (59 FR 4845), and encompasses about 15,379 ac (38,000 ac) at 10 locations in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties. No critical habitat is within the proposed project's action area. Primary constituent elements that support feeding, nesting, and sheltering are essential to the conservation of the least Bell's vireo and include riparian woodland vegetation that generally contains both canopy and shrub layers and some associated upland habitats (Service 1994a). A draft recovery plan was published in March 1998 (Service 1998c); no final plan has been published. We completed a five-year review for vireo in September 2006 in which we indicated that, due to new information on the species and an improved understanding of ongoing recovery actions to reduce threats, the recovery goals and strategies should be modified and refined. In addition, we recommended that the vireo should be downlisted from endangered status to threatened status because of a ten-fold increase in population size since its listing in 1986, expansion of locations with breeding vireo throughout southern California, and conservation and management of suitable breeding habitat throughout its range (Service 2006).

Species Description

The least Bell's vireo is a small migratory songbird that is olive-gray above and mostly white on its underparts, with a tinge of gray on the upper breast and yellow on the flanks (Coues 1866, Service 1998c). The vireo has indistinct white spectacles and two faint wing bars, with males and females having identical plumage. Male vireos are easily distinguished by their song, a rapid series of harsh, slurred notes that increase in intensity as the song progresses (Grinnell and Storer 1924, Pitelka and Koestner 1942, Barlow 1962, Beck 1996). Phrases of the vireo song are alternatively slurred upward and downward and exhibit a "question-and-answer" quality (Grinnell and Storer 1924, Beck 1996). The least Bell's vireo is in the family Vireonidae and is one of four subspecies of Bell's vireo (*Vireo bellii*) that have been recognized (AOU 1957), with each subspecies isolated from one another throughout the year (Hamilton 1962, Service 1998c).

Habitat Affinity

Vireos are obligate riparian breeders, typically inhabiting structurally diverse woodlands along watercourses that feature dense cover within 0.9-1.8 m (3-6 ft) of the ground and a dense, stratified canopy (Goldwasser 1981, Salata 1983, Gray and Greaves 1984, Service 1998c). The

understory within this riparian habitat is typically dominated by mulefat, California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversiloba*), sandbar willow (*Salix hindsiana*), young individuals of other willow species, and several perennial species (Service 1998c). Important canopy species include mature arroyo willows (*S. lasiolepis*) and black willows (*S. gooddingii*), and occasional cottonwoods (*Populus* spp.), western sycamore, or coast live oak (*Quercus agrifolia*). Vireos primarily forage and nest in riparian habitat, but they may also use adjoining upland scrub habitat (Salata 1983, Kus and Miner 1989).

Distribution

The vireo historically occupied willow riparian habitats from Tehama County, in northern California, southward to northwestern Baja California, Mexico, and as far east as Owens Valley, Death Valley, and the Mojave River (Grinnell and Miller 1944, Service 1998c). Although originally considered to be abundant locally, regional declines of this subspecies were noticeable by the 1940s (Grinnell and Miller 1944), and the vireo was believed to have been extirpated from California's Central Valley by the early 1980s (Franzreb 1989). Except for a few outlying pairs, the vireo is currently restricted to southern California south of the Tehachapi Mountains and northwestern Baja California (Wilbur 1980, Garrett and Dunn 1981, Franzreb 1989, U. S. Geological Survey (USGS) 2002). The largest current concentrations of vireos are in San Diego County along the Santa Margarita River on the Base and in Riverside County at the Prado flood control basin (Service 2006).

Historically, the San Joaquin and Sacramento Valleys were considered to be the center of the vireo's breeding range (60 to 80 percent of the historic population; 51 FR 16474), but the vireo has not yet meaningfully re-colonized those areas. In 2005 and 2006, the first breeding pair of vireos detected in the San Joaquin Valley since the listing of the vireo successfully bred at the San Joaquin National Wildlife Refuge in Stanislaus County (Service 2006). There have been no sightings of vireos in the Sacramento Valley since prior to the listing, and it is unlikely that any breeding vireos have occurred within recent years in the Sacramento Valley (Service 2006).

Greater than 99 percent of the remaining vireos were concentrated in southern California (Santa Barbara County and southward) at the time of the listing in 1986 (51 FR 16474), with San Diego County containing 77 percent of the population. Greater than 99 percent still remain in southern California, although the populations are now more evenly distributed in southern California with 54 percent of the total population occurring in San Diego County and 30 percent of the population occurring in Riverside County (Service 2006); however, there has been only a slight shift northward in the species' overall distribution. Thus, despite a significant increase in overall population numbers, the population remains restricted to the southern portion of its historic range (Service 2006).

Abundance

The vireo population in the U. S. has increased 10-fold since its listing in 1986, from 291 to 2,968 known territories (Service 2006). The population has grown during each 5-year period since the original listing, although the rate of increase has slowed over the last 10 years. Population growth has been greatest in San Diego County and Riverside County, with lesser but significant increases in Orange County, Ventura County, San Bernardino County, and Los Angeles County. The population in Santa Barbara County has declined since the listing in 1986, although it is uncertain whether this population was historically significant. Kern, Monterey, San Benito, and Stanislaus counties have had a few isolated individuals and/or breeding pairs since the original listing, but these counties have not supported any sustained populations (Service 2006).

Life History

Vireos primarily feed on invertebrates, especially lepidopteran larvae, within willow stands or associated riparian vegetation (Miner 1989, Brown 1993). Vireos occasionally forage in nonriparian vegetation such as coastal sage scrub, chaparral, and oak woodlands, although foraging in these other habitats usually occurs within 30.5 m (100 ft) of the edge of riparian vegetation (Salata 1983, Gray and Greaves 1984, Kus and Miner 1989). Vireo feeding behavior largely consists of gleaning prey from leaves or woody surfaces while perched or hovering, and less frequently by capturing prey by aerial pursuit (Salata 1983, Miner 1989). Vireos concentrate most of their foraging between 0 to 6.1 m (0 to 20 ft) above ground level (Salata 1983, Miner 1989).

Vireos generally arrive in southern California breeding areas by mid-March to early April, with males arriving before females and older birds arriving before first-year breeders (Service 1998c). Vireos generally remain on the breeding grounds until late September, although some post-breeding migration may begin as early as late July (Service 1998c). Male vireos establish and defend breeding territories through singing and physically chasing intruders (Barlow 1962; Beck 1996,Service 1998c). Although territories typically range in size from 0.2 to 3.0 ha (0.5 to 7.5 ac) (Service 1998c), no relationship appears to exist between territory size and various measures of territory quality (Newman 1992).

Nest building commences a few days after pair formation, with the female selecting a nest-site location and both sexes constructing the nest (Pitelka and Koestner 1942, Barlow 1962, Service 1998c). Nests are typically suspended in forked branches within 0.9 m (3 ft) above the ground with no clear preference for any particular plant species as the nest host (Nolan 1960, Barlow 1962, Gray and Greaves 1984, Service 1998c). Typically 3 or 4 eggs are laid on successive days shortly after nest construction (Service 1998c). The eggs are incubated by both parents for about 14 days with the young remaining in the nest for another 10-12 days (Pitelka and Koestner 1942, Nolan 1960, Barlow 1962). Each nest appears to be used only once with new nests constructed for each nesting attempt (Greaves 1987). Vireos may attempt up to five

nests within a breeding season, but they are typically limited to one or two successful nests within a given breeding season (Service 1998c).

Multiple long-term monitoring studies indicate that approximately 59 percent of nests successfully produce fledglings, although on average only 1.8 chicks fledge per nest (Service 1998c). Although vireo nests appear to be more accessible to terrestrial predators because of their relatively low placement (Franzreb 1989), western scrub-jays (*Aphelocoma californica*) have been documented to account for the majority of documented depredation events (Peterson 2002, Peterson *et al.* 2004); depredation by jays and other avian predators may have selected for relatively low nest placement (Ferree 2002). Predation rates can exceed 60 percent of the vireo nests in a given area within a year (Kus 1999), but typical nest predation rates average around 30 percent (Franzreb 1989), which is comparable to predation rates for other North American passerines (Martin and Clobert 1996, Grishaver *et al.* 1998, Ferree 2002).

Nest parasitism by cowbirds is another major source of failure for vireo nests (Franzreb 1989, Service 1998c, Kus 1999, 2002, Griffith and Griffith 2000, Sharp 2002); nests that are parasitized are either abandoned or fledge cowbird chicks rather than vireos. It is believed that cowbirds did not historically occur within the vireo's range, and therefore vireos have not evolved adequate defenses to avoid loss of productivity due to parasitism (Franzreb 1989, Kus 2002). Parasitism of vireo nests may exceed 42 percent in some locations (Kus 1999), but extensive cowbird trapping and focused nest monitoring can substantially reduce parasitism or its effects (Franzreb 1989, Service 1998c, Griffith and Griffith 2000, Kus 2002).

Some individual vireos have been documented to live at least 7 years (Brown 1993, Service 1998c), but the average lifespan for this species is substantially lower. First year survivorship has been estimated to average approximately 25 percent (Greaves and Labinger 1997, Service 1998c), typical for small passerines, with annual survivorship in subsequent years estimated to be approximately 47 percent (Service 1998c). Annual survival of females appears to be slightly lower than that for males, presumably due to the higher energetic costs of egg production by females (Service 1998c).

Fledgling vireos expand their dispersal distances from about 10.7 m (35 ft) the first day to about 70.0 m (200 ft) several weeks after fledging (Hensley 1950, Nolan 1960). This distance has been shown to increase to at least 1.6 km (1 mi) prior to their first fall migration (Gray and Greaves 1984). Banding records indicate that while most first-year breeding vireos return to their natal drainage after winter migration, some disperse considerable distances to other breeding locations (Greaves and Labinger 1997, Service 1998c, Kus and Beck 1998). Movement by vireos between drainages within San Diego County is not uncommon (Kus and Beck 1998). Additionally, several vireos banded as nestlings in San Diego County have been resighted as breeding adults in Ventura County, and the opposite movement from Ventura to San Diego has also been observed (Greaves and Labinger 1997). The maximum dispersal distance currently documented is approximately 209.2 km (130 mi) (Service 1998c), but this is probably an underestimate due to the limited number of vireos that are banded and insufficient re-sighting efforts. Although

movement between sites by older birds may occur, site fidelity by vireos after the first breeding season is generally high, and most dispersal between sites occurs between the time that vireos fledge from their nest and their first breeding season (Service 1998c).

Population Dynamics

Causes for decline of the least Bell's vireo included destruction or degradation of habitat, river channelization, water diversions, lowered water tables, gravel mining, agricultural development, and cowbird parasitism (Service 1986, 1994a, 1998c). Habitat losses had fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in part by increasing incidence of nest predation and parasitism (Whitcomb *et al.* 1981, Small and Hunter 1988, Yahner and DeLong 1992, Sharp 2002, Peterson 2002). Vireos nesting in areas containing a high proportion of degraded habitat have lower productivity (*e.g.,* hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992).

Threats and Conservation Needs

At the time of the listing, loss of habitat due to agricultural practices, urbanization, and exotic plant invasion was identified as a major threat to vireo populations. Since the listing of the vireo, destruction and modification of riparian habitat within its current range has been curtailed significantly, primarily as a consequence of protections provided by the original listing in 1986 (51 FR 16474), the subsequent designation of critical habitat in 1994 (59 FR 4845), and other Federal and State regulatory processes. Other efforts not driven by regulatory processes have also promoted increased conservation and restoration of riparian habitat since the listing of the vireo in 1986 (Service 2006).

Agriculture and grazing continue to threaten riparian habitat within the larger historic range, particularly the Salinas, San Joaquin, and Sacramento valleys (Service 1998c). Urbanization appears to have displaced former agriculture and grazing operations in many areas within southern California, thereby indirectly reducing riparian habitat degradation caused by these activities. On the other hand, occupied vireo habitat that is adjacent to highly urbanized areas or within major river systems continues to be impacted by flood control and water impoundment projects and may be subject to ongoing and future habitat loss or degradation (Service 2006).

Several large, regional Habitat Conservation Plans in southern California have addressed the effects of urban development on this species. These plans are expected to provide long-term protection of core occurrences of vireos in western Riverside, Orange, and San Diego counties. For example, for the San Diego MSCP and MHCP and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), between 85-100 percent of vireo locations were expected to be conserved; also for these plans and Central/Coastal Orange County HCP, 67-100 percent of vireo habitat acres were expected to be conserved. Compliance-driven and voluntary riparian restoration activities throughout the historic range may have contributed to an increase

in riparian habitat since the listing of the vireo (Service 2006), although this cannot be established without a thorough evaluation of riparian habitat within California. Starting in 2007, the Riparian Habitat Joint Venture ("RHJV"; a cooperative association of Federal, State, and private organizations) began systematically mapping existing riparian habitat in California starting (RHJV 2006), which should provide a more objective measure of ongoing changes to riparian habitat in California.

Within the past decade, control of giant reed and other exotic plants has been and continues to be systematically conducted on both the Santa Ana River and on the Base. Giant reed removal has also been initiated within several other watersheds within southern California (Natural Resources Conservation Service 2006, Service 2006). In general, giant reed removal has been effective but will require continued annual efforts to achieve local eradications and address new invasions. Although control of giant reed has made great progress since the original listing of the vireo, invasions by other exotic plants (*e.g.*, *Tamarix* species, perennial pepperweed (*Lepidium latifolium*)) continue to degrade existing riparian habitat (Kus and Beck 1998; Hoffman and Zembal 2006).

The 1986 listing rule identified brood parasitism by cowbirds as a substantial threat to the vireo, and it remains the most significant threat to the recovery of the vireo (Service 2006). Cowbird trapping has proven a successful tool to halt vireo population declines over the short term within a limited area, but Kus and Whitfield (2005) have argued that trapping may not be the best method for long-term recovery of the vireo because maintaining cowbird populations at low levels may not allow the vireo to evolve resistance to cowbird parasitism. It remains unclear as to the best way to manage this threat over the long term, and additional research is needed to determine whether there are any alternatives to the intensive cowbird trapping programs currently being implemented (Service 2006).

Environmental Baseline

Vireos were observed within the proposed ROW or potential impact areas of the SRPL Project during SDG&E's vireo surveys conducted by HELIX in 2007 for the then described Alternatives Portion of the proposed project (HELIX 2008b). However, not all suitable habitat was surveyed within the proposed impact areas due to the large size of the action area, the preponderance of private lands within the action area, access issues, treacherous site conditions, and changes to the selected route following completion of the surveys. Additionally, some of the 38 areas that were surveyed for vireo are no longer part of the action area for the SRPL Project.

In the absence of comprehensive survey data, we relied on the species data provided in the BA from the HELIX surveys, the CNDDB, a USFS habitat model for vireo, and the Service's knowledge of the species to identify the extent of suitable vireo habitat in the action area and whether these areas are likely occupied. Based on this information suitable habitat for vireo exists only in the Inland Valley South Link and in the CNF South Link portions of the project area (Figure 4).

HELIX's 2007 protocol survey locations and point data were analyzed in conjunction with the USFS modeled habitat data. These two data sets noted locations of potential vireo habitat at MP 69, 71.75, 72.5, 76, 78, 82, 83.5, 90, 92.75, 94-96, 101, and 103. Based on this survey information, there are approximately 34 ha (83 ac) of suitable vireo habitat, 29 ha (72 ac) of which fall within the USFS Modeled Habitat areas. Of the 38 areas surveyed by HELIX, vireos were found at 6 of these areas, but only 2 of the areas remain in the action area of the proposed project. In addition, vireos are known to occur within the action area around one of the SRPL Project's proposed helipads and may also occur near MP 99. The following paragraphs describe the likelihood and importance of vireo within these four segments of the action area.

Segment 1: Hauser Creek – MP 69 to MP 76 (CNF South Link)

In June 2007, vireos were observed along Hauser Creek within the ROW at MP 69 as Hauser Creek traverses the action area (HELIX 2008b). In addition, the CNDDB documents vireo along several portions of Hauser Creek, where it roughly parallels the action area to the north. Along this section of Hauser Creek, the occurrences are located approximately 4 km (3 mi) north of MPs 75 and 76 and approximately 0.8 to 4.0 km (0.5 mi to 2.5 mi) north of MP 70 through 72. Because site fidelity by vireos after the first breeding season is generally high (Service 1998c), there is a high likelihood that vireo will continue to occupy areas within and adjacent to the proposed ROW both where it crosses and parallels Hauser Creek.

Segment 2: Cottonwood Creek – MP 78 (CNF South Link)

Within the action area, vireos have been observed along Cottonwood Creek at MP 78 (Service GIS database). South of MP 78, vireos have been documented along a large stretch of Cottonwood Creek approximately 0.8 km (0.5 mi) south of Barrett Lake and north of Barrett Junction. Thus, presence of vireo in this portion of the action area is known and occupancy is likely to continue.

Segment 3: Alpine Creek - MP 99 (Inland Valley South Link)

The survey area at Alpine Creek (MP 98) contained suitable vireo habitat, but surveys in this area were started too late in the year to detect vireo. The USFS mapped suitable habitat within 1.4 km (0.9 mi) of this survey area, but the closest occurrence of vireo was located east of Harbison Canyon in the San Diego River and Sweetwater River areas approximately 4 km (3 mi) from MP 99. Thus, while suitable is present near MP 98, the presence of vireo is not confirmed in this area.

Segment 4: San Diego River – MP 108 (Inland Valley South Link)

Within the action area, vireos have been observed along the San Diego River adjacent to a proposed helipad approximately 4 km (3 mi) south of MP 108. This vireo location was observed within 91 m (300 ft) of this proposed helipad. Additional vireo occurrences are known west of

this helipad, along the San Diego River. Thus, presence of vireo in this portion of the action area is known, and occupancy is likely to continue.

Effects of the Action

For the purposes of this biological opinion, we addressed potential impacts to vireo in the action area based on suitable habitat (occupied habitat and suitable habitat modeled by the USFS) which includes: 1) permanent impacts to no more than 8.3 ac and temporary impacts to no more than 12.3 ac (Table 2). Potential effects during construction of the SRPL Project and from long-term O&M activities are included in our analysis.

Conservation Measures G-CM-5, G-CM-13, G-CM 24,G-CM-32, G-CM-46, G-CM-49, G-CM-50, G-CM-51, SS-CM-16, SS-CM-17, and SS-CM-18 are particularly relevant to SDG&E's commitment to avoid, minimize, and offset direct impacts to the vireo. The Species-Specific Conservation Measures are repeated here for ease of reference.

SS-CM-16 During construction, all grading or brushing taking place within riparian habitats occupied by the vireo will be conducted outside the vireo breeding season (defined as March 15 through September 15). When conducting all other construction activities during the breeding season within 152 m (500 ft) (Service 2007b) of occupied or suitable habitat, a biologist approved by the Service will survey for vireos within 10 days prior to initiating activities in an area. The results of the survey will be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

- During construction, if vireos are present, a Service-approved biologist will survey daily for nesting vireos within 152 m (500 ft) of the construction area, for the duration of the activity in that area during the breeding season. If an active nest is located, a 91-m (300-ft) no-construction buffer zone will be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. SDG&E will contact the Wildlife Agencies to determine the appropriate buffer zone. No construction will take place within this buffer zone until the nest has fledged or is no longer active. If construction must take place within the buffer, a qualified acoustician will monitor noise as construction approaches the edge of the occupied vireo habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that construction activities are disturbing nesting activities, the biologist will have the authority to halt construction and will consult with the Wildlife Agencies, BLM and USFS, to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The Service-approved biologist will

monitor the nest daily until activities are no longer within 91-m (300 ft) of the nest, or the fledglings become independent of their nest or the nest has failed.

- Impacts to aquatic resources under the jurisdiction of the Corps of Engineers, Regional Water Boards, State Water Board, and CDFG will be avoided to the extent feasible. The avoidance of these resources will further minimize impacts to vireo.

SS-CM-17 To avoid impacts to vireo, towers, pads, pull stations, access roads, staging areas, and fly yards will be located outside of riparian vegetation, including occupied vireo habitat, where feasible. If avoidance is not feasible, compensation for the loss of suitable vireo habitat will be implemented as follows. Permanent impacts to suitable habitat will include 3:1 offsite acquisition and preservation of occupied habitat. Temporary impacts to occupied habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of occupied habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-18 To minimize adverse impacts from loss of occupied habitat in the Cleveland National Forest, SDG&E will develop and implement a cowbird trapping program, in consultation with the USFS.

1. Construction Activities

Direct Effects

Construction of the transmission line and associated facilities, such as towers, pads, access roads, staging areas, pull down areas, and helipads will result in the permanent loss of no more than 3.4 ha (8.3 ac) of permanent impacts and 4.8 ha (12.3 ac) of temporary impacts to vireo habitat. Because construction-related grading and brushing will be conducted outside of the vireo breeding season, no impacts are anticipated to occur to breeding vireos, vireo eggs, and/or vireo nests. The permanent loss of up to 3.4 ha (8.3 ac) of suitable vireo habitat will be offset with the acquisition of up to 10 ha (25.0 ac) of suitable vireo habitat (Table 2). In addition, temporary impacts to suitable vireo habitat will be offset through on site restoration of 5 ha (12.3 ac) of suitable vireo habitat and the acquisition of 9.9 ha (24.6 ac) of suitable vireo habitat (Table 2).

Indirect Effects

Within or adjacent to the action area, vireos may be indirectly affected by degradation of vireo habitat through an increase in human activities, noise, dust, night lighting, and cowbird parasitism. Because of the small amount of habitat destruction from towers, tower pads, and other permanent features; the location of these permanent features adjacent to an existing transmission line; and the relative porous nature of transmission lines (*i.e.*, they act as more a filter than a hard barrier), indirect impacts from habitat fragmentation and isolation are not anticipated.

Human disturbance from noise and human activity could occur through construction activities during the breeding season such brush clearing for foot paths and reconductoring (*e.g.*, dragging the conductor through habitat). This impact will be minimized by establishing a buffer around vireo nests and restricting construction activity within the buffer and implementing noise attenuation measures, when appropriate (SS-CM-16).

Dust and night lighting could also impact vireos adjacent to construction activities. Dust generated from construction activities could decrease plant vigor within in adjacent vireo habitat. Dust will be minimized through implementating dust control measures, as described in the project description (G-CM-24.). In addition, lights will be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from habitat (G-CM-13).

Nest parasitism by brown-headed cowbirds could also impact vireos, as described in the vireo Status of the Species section above. To minimize adverse impacts to vireo from brown-headed cowbirds, SDG&E will develop and implement a cowbird trapping program, in consultation with the USFS Cleveland National Forest (SS-CM-18).

2. Operations and Maintenance Activities

Road maintenance, tree trimming, and structure replacement and repair could generate noise that could affect vireo, if the activities are conducted during the breeding season. However, these activities will occur outside of the breeding season, when feasible, which will minimize impacts to vireos. If these activities cannot occur outside the breeding season, noise attenuation measures will be implemented (SS-G-CM-16).

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the vireo. We based this conclusion on the following:

1) Loss of suitable vireo habitat will include no more than 3.4 ha (8.3 ac) of permanent impacts and 5 ha (12.3 ac) of temporary impacts;

2) Loss of occupied vireo habitat will include no more than 0.4 ha (0.9 ac) of permanent impacts.

3) SDG&E will avoid or minimize impacts to known and any newly identified occurrences of the vireo and offset unavoidable impacts to the species;

4) Surveys for vireo in the action area and any actions to avoid, minimize, and provide for the long-term conservation of occupied habitat will add to our knowledge of vireo distribution and contribute to the range-wide conservation (recovery) of this species;

5) Temporary impacts to vireo habitat will be offset through acquisition of 10.1 ha (25 ac) and on site restoration of 5 ha (12.3 ac) of suitable vireo habitat.

6) With implementation of the conservation measures, the impacts associated with the construction, operation, and maintenance of the proposed project are not expected to appreciably reduce the numbers, reproduction, or distribution of the vireo in the action area or throughout the species' range. The vireo populations in the drainages affected by the proposed project are anticipated to remain viable for the foreseeable future following project implementation.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)

Status of the Species

Listing Status

On August 4, 1994, the Service published a petition finding in the Federal Register (59 FR 39868) with a proposed rule to list the Quino as endangered. We published the final rule listing the species on January 16, 1997 (62 FR 2313). Critical habitat for the Quino was designated on April 15, 2002 (67 FR 18356). The Recovery Plan for this species was issued in August 2003.

Species Description

Quino is a recognized subspecies of Edith's checkerspot (*E. editha*), and is a member of the Nymphalidae family, the brush-footed butterflies, and the Melitaeinae subfamily, checkerspots and fritillaries. Quino differs from the other Edith's checkerspot subspecies in size, wing coloration, and larval and pupal phenotypes (Mattoni *et al.* 1997). Among the other subspecies of Edith's checkerspot, Quino is moderate in size with a wingspan of approximately 4 cm (1.5 in). The dorsal (top) side of its wings is covered with a red, black, and cream colored checkered pattern, the ventral (bottom) side is mottled with tan and gold. Its abdomen generally has bright red stripes across the top. Quino larvae are black and have a row of nine, orange-colored tubercles (fleshy/hairy extensions) on their back. Pupae are extremely cryptic and are mottled black and blue-gray.

Critical Habitat

Critical habitat for Quino is designated throughout the species' current range in the United States (*i.e.*, Riverside and San Diego counties, California). A total of approximately 69,446 ha (171,605 ac) in Riverside and San Diego Counties, California, are designated as critical habitat

for the Quino. In March 2005, the Homebuilders Association of Northern California, *et al.*, filed suit against the Service challenging the merits of final critical habitat designations for several species, including Quino. In March 2006, a settlement was reached that required the Service to re-evaluate five critical habitat designations, including critical habitat designated for Quino. A proposed revised designation of critical habitat for Quino was published on January 17, 2008 (73 FR 3327). The Service is currently finalizing the final rule to revise Quino critical habitat. The revisions are anticipated to be published in the *Federal Register* in June 2009. Until such time, critical habitat as it was designated in 2002 remains in effect.

Primary constituent elements for Quino are those habitat features that are essential for the primary biological needs of larval diapause, feeding, and pupation; adult oviposition, nectaring, roosting, basking, and dispersal; genetic exchange; and shelter. These habitat features include, but are not limited to: space for individual and population growth and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic and geographical and ecological distributions of Quino. The primary constituent elements to the conservation of Quino include, but are not limited to the following:

1) Open areas within scrublands at least 2.0 square meters (m^2) (21.5 square feet[ft^2]) in size that:

    a) Contain no woody canopy cover; and

    b) Contain one or more of the host plants *Plantago erecta*, *Plantago patagonica*, or *Antirrhinum coulterianum*; or

    c) Contain one or more of the host plants *Cordylanthus rigidus* or *Castilleja exserta* that are within 100 m (328 ft) of the host plants *Plantago erecta*, *Plantago patagonica*, or *Antirrhinum coulterianum*; or

    d) Contain flowering plants with a corolla tube less than or equal to 1.1 cm (0.43 in) used for Quino checkerspot butterfly growth, reproduction, and feeding;

2) Open scrubland areas and vegetation within 200 m (656 ft) of the open canopy areas used for movement and basking; and

3) Hilltops or ridges within scrublands, linked by open areas and natural vegetation to open canopy areas containing an open, woody-canopy area at least 2.0 m^2 (21.5 ft^2) in size used for Quino checkerspot butterfly mating (hilltopping behavior).

A total of four units are identified in the critical habitat rule. The areas designated as critical habitat are designed to provide sufficient habitat to maintain self-sustaining populations of Quino throughout its range and provide those habitat components essential for the conservation of the

species. The critical habitat units are configured to provide room for metapopulation dynamics, including dispersal corridors, which are essential for the conservation of the species.

The SRPL project passes through the Jacumba Unit of critical habitat, which encompasses 2,820 ha (6,968 ac) of land in southeastern San Diego County south of Interstate 8 in the vicinity of the town of Jacumba. This critical habitat unit supports the Jacumba occurrence complex, identified as important to recovery in the Quino Recovery Plan. The Jacumba occurrence complex occurs within the Southeast San Diego Recovery Unit described in the Recovery Plan (Service 2003a). This apparently isolated population center occurs in a unique high-desert region of juniper woodlands, which provides a vital element of habitat heterogeneity in the species' range. The metapopulation distribution likely extends south across the international border. In this area, seven locations have been documented, six of which are concentrated to the northwest of the community of Jacumba in Anza Borrego Desert State Park and private lands. All seven locations occur within the currently designated critical habitat. One occurrence is located approximately 2.7 km (1.7 mi) to the southwest of the Action Area at MP 36. Three occurrences are located immediately adjacent to and up to 274.3 m (900 ft) south of MP 35. The remaining three occurrences are located 0.8 to 1.6 km (0.5 to 1 mi) north of MP 35. A proposed revision to critical habitat published in early 2008 would decrease the acreage included in the Jacumba Unit to 1,017 ha (2,512 ac) (73 FR3327). Five of the Quino locations described above occur within the proposed revised critical habitat (Service GIS database), two to the north and three to the south of MP 35. Occupancy has also been documented approximately 6.0 km (3.7 mi) to the south in El Condor (Baja California, Mexico), and the U.S. occurrence complex may belong to the same metapopulation.

The Jacumba Unit contains all of the features essential to the conservation of Quino: Dwarf plantain and woolly plantain host plants; nectar sources; open, woody-canopy scrublands; and hilltops (Service 2003a, pp. 52, 54; Service GIS database). Although this occurrence complex was described in the Recovery Plan as non-core, based on new occurrence information, we now consider this to be a core occurrence complex, which could be essential to conserve for the survival of the species (73 FR 3333). Habitat in this Unit is threatened by invasion of non-native annuals; Border Patrol activity; habitat destruction, degradation and fragmentation associated with development; and off-road vehicle use, foot traffic, and other recreational uses (Service 2003a, p. 84). The species in this unit may require special management considerations or protection to minimize impacts resulting from these threats (73 FR 3343).

Critical habitat has also been proposed immediately east of the route between MP 64 and 64. The La Posta/Campo Core Occurrence Complex (Unit 9) contains approximately 3,397 ha (8,393 ac) of Quino suitable habitat and is determined to be essential to the conservation of the subspecies because it is likely to contain a resilient source population (73 FR 3343).

Distribution

Multiple observations of Quino checkerspot butterflies have been reported across a wide elevation range, from approximately 152.4 m (500 ft) in elevation to over 1,524 m (5,000 ft) (Service 2003a). Quino was historically distributed throughout the coastal slope of southern California, including Los Angeles, Orange, Riverside, San Diego, and San Bernardino counties, and northern Baja California, Mexico (Mattoni *et al.* 1997, Service database). That distribution included the westernmost slopes of the Santa Monica Mountains, the Los Angeles plain and Transverse Ranges to the edge of the upper Anza-Borrego desert, and south to El Rosario in Baja California, Mexico (Emmel and Emmel 1973, Mattoni *et al.* 1997, Service database). Although historical collection records allow for an estimate of a species' range, such records usually underestimate the number of historical sites and extent of local distributions. Collectors tended to frequent well-known sites, and no systematic or comprehensive surveys for Quino have ever been conducted (Mattoni *et al.* 1997).

As recently as the 1950's, collectors described Quino as occurring on every coastal bluff, inland mesa top, and lower mountain slope in San Diego County and coastal northern Baja California. These observations indicate that Quino was historically widespread throughout the southern California landscape, and occurred in a variety of vegetation types, including coastal sage scrub, open chaparral, juniper woodland, forblands, and grasslands.

Status and Population Trend

Quino may have once been one of the most abundant butterflies in coastal southern California, but by the 1970's, most of the coastal bluff and mesa habitats in southern California had been urbanized or otherwise disturbed. However, the butterfly still occupied known habitat locations inland and at higher elevations including Dictionary Hill, Otay Lakes, and San Miguel Mountain in San Diego County, and the Gavilan Hills in Riverside County. By the middle 1980's the species was thought to have disappeared from the known locations; the petition to list the species in 1988, suggested that it might be extinct. Current information suggests that the butterfly has been extirpated from Los Angeles, Orange, and San Bernardino Counties and the North County Multiple Habitat Conservation Program (MHCP) planning area in San Diego County. Nonetheless, new populations were discovered in portions of Riverside and San Diego Counties, and the species continues to survive in northern Baja California, Mexico. However, more than 75 percent of the Quino's historic range has been lost (Brown 1991, Service database), and more than 90 percent of the species' coastal mesa and bluff habitat, where most historic records are located, has been destroyed by habitat fragmentation, degradation, and development (Service database). It is estimated that Quino population density range-wide has been reduced 95 percent by human-caused impacts.

Habitat Affinity

In southwestern San Diego County, the primary host plants for the Quino are dot-seed plantain (*Plantago erecta*), thread-leaved bird's beak (*Cordylanthus rigidus*), and white snapdragon (*Antirrhinum coulterianum*). Larval Quino may also use other species of plantain (*Plantago spp*.) and annual owl's-clover (*Castilleja exerta*) as primary or secondary host plants and would diapause in or near the base of native shrubs, such as California buckwheat (*Eriogonum fasciculatum*) (73 FR 3327). While the use patterns of primary and secondary larval host plants are not fully understood, there is evidence that both may be necessary for the survival of Quino larvae (Service 2003a). Quino larvae, particularly in the early instars, have a very limited capacity for dispersion. Therefore, high local host plant density is necessary for high larval survival rates (Service 2003a). In its adult stage, the Quino use a number of flowering plants as nectar sources. These nectar sources are known to include lomatium (*Lomatium spp*.), goldfields (*Lasthenia spp*.), popcorn flowers (*Plagyobothrys* and *Cryptantha spp*.), gilia (*Gilia spp*.), ground pink (*Linanthus dianthiflorus*), chia (*Salvia columbariae*), annual lotus (*Lotus spp*.), onion (*Allium spp*.), yerba santa (*Eriodictyon spp*.), and California buckwheat (*Eriogonum fasciculatum*) (67 FR 18359, Mattoni *et al.* 1997).

Quino are generally found in open areas and ecotone situations which may occur in a number of plant communities, including grasslands, coastal sage scrub, and native woodlands with an open canopy cover. Open areas within a given vegetation community seem to be critical landscape features for Quino populations. Optimal habitat appears to contain little or no invasive exotic vegetation, and especially, a well developed crytogamic crust. Densely vegetated areas are not known to support Quino (Mattoni *et al.* 1997). Habitat patch suitability is determined primarily by larval host plant density, topographic diversity, nectar resources availability, and climatic conditions (Service 2003a).

Life History

The life cycle of Quino typically entails one generation of adults per year, with a four to six week flight period occurring generally February to May, depending on weather conditions (Emmel and Emmel 1973, Orsak 1978). During the flight period, adult butterflies move about and search for nectar sources and mates. Females also search for oviposition sites and deposit eggs. Females lay multiple masses of 20 to 150 eggs (Service 2003a) with a single female capable of producing more than 1,000 eggs. The eggs hatch in about 10 days and the larvae begin to feed immediately. At lower elevations in San Diego County, the primary host plant for Quino is the dot-seed plantain (*Plantago erecta*); however, Quino checkerspots may use other species of plantain (*Plantago* spp.) and annual owl's-clover (*Castilleja exserta*). As the larvae grow, they periodically shed their skin. Each phase between skin molts is referred to as an "instar" with the first instar being the first larval stage after hatching.

After hatching from eggs, the small, cryptic, larvae normally consume the plant on which they hatch and then migrate in search of additional plants (Service 2003a). As summer approaches

the food plants dry out. In their third or fourth instar, larvae enter into an obligatory diapause. Diapause is a low-metabolic resting state that may last for a year or more, depending on conditions. Diapause allows larvae to survive the regular seasonal climatic extremes and also to better survive times of extended adverse conditions, such as drought. After termination of diapause, larvae become active and feed. They then enter their pupal stage and within two to six weeks, transform into the adults and emerge as butterflies. The butterflies feed, disperse, mate, reproduce, and then die. Adults live for approximately 10 to 14 days.

Adult Quino are sedentary by nature and generally fly close to the ground. Evidence from the Bay checkerspot suggests that long-distance dispersal is rare (Ehrlich 1961, Brussard and Ehrlich 1970, Ehrlich and Murphy 1981). Bay checkerspots have been documented to move up to about 4.5 km (2.8 mi) to colonize distant habitat patches (Harrison 1989). For the Quino, many experts familiar with the species believe that populations separated by more than about 3 km (approximately 2 mi) may be demographically isolated. However, responses to abiotic factors, such as weather, may increase the distance butterflies would move (Ehrlich and Murphy 1987). Plant resources shift over time and Quino populations have evolved to respond to shifting habitat patch suitability in space and time (67 FR 18359). Additionally, adult Quino are known to "hilltop." Hilltopping is a behavior where male, and to a lesser extent female, butterflies form territories on hilltops, ridgelines, and other prominent geographic features in order to locate mates. Therefore, hilltops and ridgelines may be crucial for population survival, even in the absence of nearby larval host plants.

Threats and Conservation Needs

Quino are threatened primarily by urban and agricultural development, non-native plant species invasion, off-road vehicle use, grazing, and fire management practices (62 FR 2313). These threats destroy and degrade the quality of habitat and result in the extirpation of local Quino populations. Also, Quino population decline likely has been, and could continue to be, caused in part by enhanced nitrogen deposition, elevated atmospheric carbon dioxide concentrations, and climate change (Service 2003a). Nonetheless, urban development poses the greatest threat and exacerbates all other threats. Activities resulting in habitat fragmentation or host or nectar plant removal reduce habitat quality and increase the probability of local Quino population extirpation and species extinction. Other threats to the species identified in the final listing rule (62 FR 2313) include illegal trash dumping and predation. Dumping, a documented problem for some populations (67 FR 18356), is detrimental because of resulting habitat degradation and destruction. Over-collection by butterfly hobbyists and dealers is a probable threat, although the magnitude of this activity is unknown. Stamp (1984) and White (1986) examined the effects of parasitism and predation on the genus Euphydryas, although it is not clear whether these mortality factors pose a significant threat to this species. Predation by Argentine ants (*Iridomyrmex humilis*) has been observed in colonies of the butterfly in the laboratory (67 FR 18356) and intense predation by non-native Brazilian fire ants (*Solenopsis invicta*) is likely where they co-occur with Quino (Porter and Savignano 1990). Brazilian fire ants were documented in 1998 in the vicinity of historic Quino habitat in Orange County and have

subsequently been found in Riverside and Los Angeles Counties (California Department of Food and Agriculture 1999).

Recent studies have shown competitive exclusion by non-native plants may be accelerated by nitrogen deposition from atmospheric pollution in southern California vegetation communities (Allen *et al.* 1997, Eliason and Allen 1997, Padgett and Allen 1999, Padgett *et al.* 1999). The non-native weeds may also directly out-compete the native plants, including butterfly host-plant species. This effect has been documented in a native plant community that supports the Bay checkerspot butterfly (*E. e. bayensis*) in the San Francisco Bay area (Weiss 1999). Not only does the increase in weeds degrade the quality of the native habitat, it may also increase the frequency or severity of wildfires, further adversely impacting the vegetation community and resident wildlife species.

In the fall of 2007, San Diego County experienced several major wildfires. These fires burned extensive areas of Quino habitat within the Action Area and surrounding Service Quino survey areas, including the areas where TRC's 2008 surveys were positive for Quino (TRC 2008). The northernmost occupied areas within the Otay Mountain Core Occurrence Complex (Honey Springs and Dulzura non-core occurrence complexes as identified in the recovery plan) had the highest densities of adult butterflies and supported the most reproduction (observed larvae) of any known occupied areas in 2007 (Service 2009). These areas were not affected by the 2003 Otay and 2005 Border 50 fires. Therefore, observed relatively high Quino checkerspot butterfly abundance in 2007 in the Honey Springs and Dulzura areas (Service 2009) appears to have been primarily due to the lack of recent fire impacts (Alison Anderson, pers. comm., 2007). In 2007, the Harris Fire perimeter encompassed approximately 72 percent of the new Otay Mountain Core Occurrence Complex, including the northern areas that were not affected by fire in 2003 or 2005 (Service GIS database). Habitat damage within the 2007 fire perimeter is still being assessed. In 2008, caterpillars and butterflies were found in the Dulzura and Otay Lakes areas in patches of unburned habitat within the fire perimeter. Thus, we believe that the fire has temporarily reduced Quino density but is not likely to directly extirpate Quino in typical San Diego County habitat (Alison Anderson, Service, pers. com.).

Conservation needs include protecting habitat supporting known current populations (occurrence complexes) and landscape connectivity between them; conducting research necessary to refine recovery criteria; management of Quino habitat including enhancement of host plant populations, diversification of nectar sources and pollinators, and control of non-native plants; establishing and maintaining a captive propagation program; targeted reintroduction if determined to be necessary; and establishing a cooperative outreach program.

Significant areas of remaining Quino habitat have recently been protected through inclusion in HCP preserve areas, the San Diego National Wildlife Refuge, and through habitat acquisition initiatives as described below.

The subregional plan for the MSCP, did not list the Quino as a covered species at the time it was developed. However, the City of Chula Vista did cover the Quino in its MSCP Subarea Plan (conserving 1,135 ha (2,806 ac) of Quino habitat). Chula Vista also provides active Quino management in their preserve areas. Lands placed into the Service's San Diego National Wildlife Refuge also provide for the conservation of the Quino. The Rancho San Diego and Las Montanas Occurrence Complexes are located on the Otay/Sweetwater Unit of the Refuge. Approximately 3,642 ha (9,000 ac) of Quino habitat are conserved within the Refuge. CDFG manages over 4,047 ha (10,000 ac) of occupied Quino habitat within the current MSCP preserve. In addition, the Service provided the State of California with $10,000,000 for the additional acquisition of 333 ha (824 ac) of Quino habitat in the Proctor Valley area of the Southwest San Diego Recovery Unit.

The Western Riverside County MSHCP supports approximately 209,551 acres of potential Quino habitat. To offset impacts to Quino, 52,502 acres (25 percent) of modeled habitat will be conserved within the anticipated Additional Reserve Lands with management prescriptions that will benefit the Quino. An additional 59,159 acres (28 percent) of modeled habitat for the Quino checkerspot butterfly will remain in Public Quasi-Public Lands, which likely will be managed for the butterfly. In total, 53 percent of the modeled habitat for the Quino checkerspot butterfly will be conserved or remain in the Plan Area. In addition, 26 of 27 Quino occurrences are anticipated to remain following project implementation. The Permittees are also conducting ongoing monitoring of Quino populations and management actions to maintain or enhance Quino habitat, including management for nonnative species, farming, grazing, off-road vehicles, human collection, and other specific threats to the species. To minimize mortality from road strikes and maintain dispersal corridors, the Western Riverside County MSHCP proposes to implement engineering design measures including the potential use of wildlife overcrossings, undercrossings, or roadbed sinkings, and installation of tall barriers (*e.g.*, tall fencing, vegetation windrows) where cores and linkages intersect.

Within the USFS lands that the SRPL route passes through, the USFS is implementing the Cleveland National Forest Service Management Plan, under which Quino is a managed species. To offset impacts to Quino from activities within USFS lands, no new permanent loss of Quino occupied or designated critical habitat is expected under the Plan. Any new projects will be implemented so that they promote the recovery of Quino on USFS lands. Any potential impacts associated with ongoing use of roads, trails and recreation sites is expected to be minor or negligible upon implementation of designated minimization measures due to the low impact nature of anticipated activities (*i.e.*, such as maintenance of existing powerlines or use of roads on an infrequent basis).

The SRPL route also passes through BLM land that is managed under the ESDRMP. Under the ESDRMP, the Service issued a programmatic biological opinion that provided take for Quino in a biological opinion issued in September 2008. To offset unavoidable impacts to suitable/unoccupied and occupied Quino habitat by proposed projects, BLM was conditioned to restore degraded habitat at no less than a 2:1 ratio (restored:developed) for suitable/unoccupied

habitat and a 3:1 ratio for occupied habitat within the Planning Area. The BLM is also minimizing impacts to Quino and designated critical habitatthrough implementation of the following measures included in the ESDRMP: (1) rehabilitation of habitats that support Special Status Species would be priority, and (2) non-native invasive plant species would be removed through mechanical and/or herbicidal removal and prescribed fire to restore degraded native plant communities and to prevent non-native species infestations following fire events. Also, site-specific habitat evaluations and species-specific biological surveys would be conducted prior to initiation of ground-disturbing activities to determine the status of listed species for project proposals that may require consultation with the Service.

Environmental Baseline

According to historical sightings, historical range, and presence of host plant and other essential habitat features for Quino, suitable habitat for the Quino exists in the Inland Valley South Link and the CNF South Link between Milepost 27 to MP 119 (TRC 2008). The route from MP 27 to MP 119 falls within the Service's *Year 2005 Recommended Survey Areas 1 and 2* (Service 2005b). While this entire section of the route falls within the recommended survey areas, only a portion of it is suitable habitat.

Due to the large size of the action area, the large amount of private lands within the action area, and changes in the route after surveys were completed, the entire action area has not been surveyed; however, protocol surveys were conducted for SDG&E by TRC in 2007 and 2008 in much of the action area (Figure 5). In the absence of complete survey data, we relied on the species data provided in the BA from the TRC surveys that were conducted, the CNDDB, and the Service's knowledge of the species to determine the extent of suitable Quino habitat in the action area.

Given that comprehensive vegetation and protocol Quino surveys have not been conducted along the ROW, any part of the action area that falls inside the Service's Recommended Survey Areas and meets one or more of the following criteria was assumed to be potentially suitable for Quino: 1) is within 1 km (0.6 mi) of a known Quino occurrence; 2) intersects with either final or proposed critical habitat; or 3) contains any known Quino habitat requirements (*i.e.*, vegetation types, host plants, and nectar sources). Quino habitat is typically defined by the percent coverage and presence of host plants and nectar sources. The percent coverage was not available for the action area, so all areas with known locations of host plants and/or nectar sources within the ROW were identified as potential habitat. Based on information provided in the BA, 594.0 ha (1,467.9 ac) of suitable Quino habitat occurs within the SRPL ROW. Quino could also be present outside the ROW in the action area.

Based on the on-the-ground habitat assessments and species occurrence data collected by SDG&E, it is likely that the amount of occupied Quino habitat within the project footprint is substantially less than the area estimated above. As shown in Table 2 and described in Appendix C, the amount of occupied Quino habitat within the project footprint likely to be permanently

impacted is estimated as no more than 16.3 ha (40.3 ac) including designated critical habitat, or 46.4 ha (93.6 ac) including proposed revised critical habitat.

Potential Quino habitat appears to be concentrated along four different stretches of the proposed project: MP 32 to 39 in the Jacumba Unit of critical habitat, MP 72 to 84 near Barrett Lake; MP 103 to 109 near El Capitan Reservoir; and MP 112 to 119 near San Vicente Reservoir (Figure 5).

MP 32 to 39 in the Jacumba Unit of critical habitat

Surveys were not conducted in the CNF South Link between MPs 32 and 39; however, we believe that the potential for Quino to occur along this segment of the action area is high given its presence in critical habitat and near a known large occurrence complex at MP 35 and 36 (Figure 5). As described in the Status of the Species section, this core occurrence complex is believed to be important for the recovery of the species.

MP 72 to 84 near Barrett Lake

During protocol surveys conducted in 2008, 14 Quino individuals were observed (Figure 5) in the CNF South Link between MPs 75 and 82 near Barrett Lake, and host plants were recorded between MPs 75 and 84 (TRC 2008). This Quino population was previously unknown, and the high density of individuals documented in this area suggests that this is a potentially important population.

MP 72 to 75 were not surveyed; however, given that many of the new occurrences documented by TRC in 2008 were found adjacent to this portion of the action area, there is a moderate to high potential that Quino occur in this portion of the action area as well.

MP 103 to 109 near El Capitan Reservoir

Quino host plants were recorded by SDG&E's surveyors between MPs 103 and 109. High potential exists for Quino to occur between MP 106 and 107 due to the high concentration of host plants and proximity to known locations of Quino.

MP 112 to 119 near San Vicente Reservoir

In 2007, protocol surveys were conducted for Quino within the Inland Valley South Link from MPs 114 to 119 (TRC 2007). No Quino were observed. Quino host plants were recorded by SDG&E's surveyors between MPs 112 and 119. The Service's GIS database also includes two Quino occurrences to the north of 1.4 km (0.87 mi) of MP 113 and one occurrence 1.8 km (1.12 mi) to the southwest of MP 113.

Environmental Baseline for Critical Habitat

The SRPL Project will pass through the Jacumba Unit (Unit 4) of designated critical habitat. The action area includes a total of 198.9 ha (491.5 ac) of the 2,820 ha (6,968 ac) of existing designated Quino critical habitat in Unit 4 and 115.5 ha (258.5 ac) of the 1,017 ha (2,512 ac) proposed Quino critical habitat in Unit 4. There are multiple Quino observations within the action area at MP 35 and 36. As described in the Status of the Species section, Unit 4 contains unique habitat for Quino, consisting high-desert region of juniper woodlands, which provides a vital element of habitat heterogeneity in the species' range.

Like the rest of Unit 4, the action area contains all of the features essential to the conservation of Quino: Dwarf plantain and woolly plantain host plants; nectar sources; open, woody-canopy scrublands; and hilltops (Service 2003a, Service GIS database). Although this occurrence complex was described in the Recovery Plan as non-core, based on new occurrence information, we now consider this to be a core occurrence complex, which could be essential to conserve for the survival of the species (73 FR 3333). Habitat in this Unit is threatened by invasion of non-native annuals; Border Patrol activity; habitat destruction, degradation and fragmentation associated with development; and off-road vehicle use, foot traffic, and other recreational uses (Service 2003a).

Effects of the Action

For the purpose of this biological opinion and conference opinion, we addressed direct and indirect impacts to Quino occupied habitat using the values provided in Table 2. The acreages in Table 2 were calculated based on information obtained during 2008 field surveys along the proposed SRPL alignment, as described in Appendix C, and using the acreage of designated Quino critical habitat and proposed revised Quino critical habitat likely to be impacted by the proposed project. Potential effects during construction of the SRPL Project and from long-term operations and maintenance activities are included in our analysis.

The proposed project will permanently impact up to 10.0 ha (24.7 ac) of occupied Quino habitat and up to 6.3 ha (15.6 ac) of designated Quino critical habitat for total habitat impacts of up to 16.3 ha (40.3 ac) (Table 2). The proposed project will temporarily impact up to ha 21.8 ha (53.9 ac) of occupied Quino habitat and up to 14.8 ha (39.7 ac) of designated Quino critical habitat for total habitat impacts of up to 36.6 ha (93.6 ac). If proposed revised critical habitat is designated as final critical habitat, impacts to designated critical habitat will be reduced to 3.4 ha (8.4 ac) of permanent and 2.7 ha (6.6 ac) of temporary impacts.

Conservation Measures **SS-CM-3** through **SS-CM-7**, **SS-CM-26**, and **SS-CM-27** are particularly relevant to SDG&E's commitment to avoid, minimize, and offset impacts to Quino and are repeated here for ease of reference.

SS-CM-3 A biologist permitted by the Service will delineate suitable/occupied habitat) that will be impacted by project construction. Suitable/unoccupied habitat is defined as areas containing the primary constituent elements (PCEs) as outlined in the January 17, 2008, proposed revision to critical habitat (73 FR 3328) (see the "Status of the Species/Critical Habitat" section below for a discussion of the PCEs for Quino). Occupied Quino habitat is defined as contiguous suitable habitat containing the PCEs within 2 kilometers of a known Quino occurrence ("habitat-based population distribution") (73 FR 3328). Delineated suitable/occupied habitat and the results of the Quino protocol presence/absence surveys will be submitted to the Service for review and approval before an incidental take permit may be issued for this species. Impacts to Quino habitat will be determined by the amount of suitable/unoccupied habitat and/or occupied habitat that is proposed to be impacted indirectly and directly.

SS-CM-4 A pre-construction, Service protocol presence/absence survey for the adult Quino will be conducted within the delineated suitable/occupied habitat in the construction zone. Any surveys will be conducted in a year where Quino is readily observed at Service Quino-monitored reference sites to determine what areas are occupied by Quino (*i.e.*, any suitable habitat within 1 km (0.6 mi) of a current Quino sighting is considered occupied) and what areas are not occupied. The biologist will record the precise locations of Quino larval host plants and nectar sources within the construction zone (and 10 meters beyond) using GPS technology.

- If the protocol pre-construction Quino survey is determined by the Service to be conclusive, then areas found to be unoccupied by Quino will not require species-specific compensation.

- If the Service determines that the protocol pre-construction survey is not conclusive for determining Quino absence (due to limited detectability per the 2002 protocol, for example), then all suitable habitat areas will be considered potentially occupied. SDG&E will avoid siting any permanent or temporary impacts within 0.6 mi (1 km) of any known or newly discovered Quino occurrences. If the SDG&E believes that impacts to Quino are unavoidable, it will provide evidence to such an effect to the Service for review and approval. Any approved impacts to Quino occupied or Quino suitable habitat will require compensation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15), stays at least 10 m (33 ft) away from all host plant locations, and does not impact suitable habitat then no compensation is required (Service 2007a). If construction occurs between October 16 and May 31, is within 10 m (33 ft) of host plant locations, or removes suitable habitat then, (1) temporary impacts to the habitat will be mitigated at 2:1 through 1:1 on-site restoration of temporarily disturbed areas and 1:1 offsite acquisition and preservation of an equal sized, contiguous area of Quino-occupied habitat, and (2) permanent impacts will be compensated through 3:1 off-site acquisition and preservation of Quino-occupied habitat (or Quino-designated critical habitat for impacts to designated critical habitat). Any acquired habitat will be approved by the CPUC, BLM, USFS, and the Wildlife Agencies. A Service approved biologist will be

present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same compensation will apply where the protocol pre-construction survey was conclusive for determining that the Quino is present and where construction will occur in designated critical habitat. Impacts to Quino critical habitat must be off-set within the same Critical Habitat Unit where the impacts occur.

- If host plant mapping is not possible during the pre-construction survey (*e.g.*, drought prevents plant germination), then all suitable habitat (*i.e.*, non-excluded habitat per the 2002 protocol) will be considered occupied by the Quino and compensated under the assumption that Quino is present.

SS-CM-5 Any Service-approved restoration of impacted habitat will be conducted in areas with appropriate topographical and biological features to be determined by the Service, BLM, USFS and SDG&E. The details of the restoration shall be based on Appendix II of the Recovery Plan for the Quino Checkerspot Butterfly (Service 2003a) and described in a plan to be reviewed and approved by the Service. The restoration plan shall include, but not be limited to: (1) larval host plants (local stock, if possible) to be planted; (2) nectar resources; (3) irrigation needs and/or other establishment procedures; (4) timeline for implementation; (5) success criteria; (6) contingency measures for success criteria that are not met; (7) weed control measures; (8) monitoring program; and (9) implementation schedule. The restoration plan will be prepared and submitted to the Service prior to commencement of ground disturbance associated with the proposed project. The proposed project will not commence until the restoration begins. The restoration plan actions will be completed no later than completion of project construction. Success criteria will be modeled on undisturbed native plant communities in the vicinity of the proposed project and sites within the area known to be occupied by Quino.

SS-CM-6 Due the extreme importance of the Quino population located in the Jacumba Unit of Quino critical habitat, SDG&E will consult with the Service regarding the final design and siting of all permanent and temporary impacts (e.g., towers, pads, access roads, staging areas, pull down areas, helipads, and fuel modification zones) within Quino critical habitat. SDG&E will work with the Service to ensure that no larvae or adults within critical habitat will be impacted by this project.

SS-CM-7 No new construction will occur during the Quino flight season within 0.6 mi of any known or newly discovered Quino occurrence. If it is not feasible to construct outside of the flight season in these instances, SDG&E must obtain written consent from the Service to proceed with construction.

SS-CM-26 If access roads in Quino-occupied or suitable habitat are maintained (*i.e.*, regraded) and vegetation around structures is cleared at least once every two years, then no additional compensation will be required for this ongoing maintenance. If more than two years pass

without re-grading or clearing, then the maintenance will be considered a new impact to Quino and would be compensated based on SS-CM-2.

SS-CM-27 Some O&M activities associated with the project may need to be conducted on emergency basis. Under these circumstances, no pre-activity survey will be conducted and no Quino adult surveys will be conducted. SDG&E may take action immediately and must contact the Service within 24 hours after undertaking the activity to provide information on the location and emergency nature of the activity. Unavoidable impacts that occurred during emergency O&M activities will be mitigated at a 2:1 ratio.

1. Construction Activities

Direct Effects

Activities along the transmission line to construct towers, pads, access roads, staging areas, pull down areas, and helipads will potentially result in direct impacts to Quino individuals. Potential direct impacts to Quino from the proposed project include the removal or crushing of host plants in constructions areas and the death of larvae or eggs of the Quino if they have colonized those plants. In addition, crushing or trampling of eggs, larvae or adults could occur if there is human foot traffic through host plants and/or nectar sources outside of the proposed impact area. Adult Quino checkerspot butterflies may be injured or killed by moving vehicles during construction.

In addition to the potential impacts to Quino individuals discussed above, the proposed project will permanently impact up to 16.3 ha (40.3 ac) of occupied Quino habitat, including designated critical habitat, and temporarily impact up to an additional 36.6 ha (93.6 ac) of occupied Quino habitat, including designated critical habitat. Permanent habitat removal within the action area will increase fragmentation of habitat known to support the species. Fragmentation of habitat has at least three risks for Quino: 1) demographic units may be destroyed, reduced in size, or subdivided, thus increasing their probability of extinction; 2) potential sources of immigrants may be lost; and 3) immigration may be impeded by conversion of natural habitat between areas of suitable habitat (Wilcox and Murphy 1985).

Permanent impacts to Quino habitat (occupied habitat and designated critical habitat) will be offset by the off site acquisition and preservation of similar Quino habitat at a minimum 3:1 ratio (SS-CM-4). Temporary impacts to Quino habitat (occupied habitat and designated critical habitat) will be offset through 1:1 on site restoration and 1:1 off site acquisition and preservation of similar Quino habitat **(SS-CM-4**). A total of up to 52 ha (128 ac) of occupied Quino habitat and up to 35.0 ha (86.5 ac) of designated critical habitat will be acquired off-site consistent with these ratios. If proposed revised critical habitat is designated as final critical habitat prior to project implementation, impacts to designated critical habitat will be reduced and offsite acquisition and onsite restoration requirements reduced, accordingly.

SDG&E will also restore up to 14.8 ha (39.7 ac) of designated critical habitat, or up to 2.7 ha (6.6 ac) if proposed critical habitat is designated as final critical habitat prior to project implementation. The proposed restoration will follow the methods and success criteria outlined in a Service-approved restoration plan, consistent with **SS-CM-5**. In addition, a long-term habitat management plan will be developed and implemented for all off-site preservation areas, consistent with **G-CM-17**. Based on these collective conservation actions, we believe the proposed replacement habitat will effectively offset the anticipated adverse effects to occupied Quino habitat, designated Quino critical habitat, and associated loss of Quino individuals from the SRPL Project's construction activities.

Indirect Effects

Indirect impacts to Quino habitat could occur where the construction is directly adjacent to Quino habitat. Wind borne dust particles from construction traffic and blasting could affect Quino host plants, such as dot-seed plantain (*Plantago erecta*), by covering them with a layer of dust. Dust on the plants could potentially inhibit their growth as well as decrease their palatability to Quino larvae. Elevated dust levels may also affect the ability of the larvae and adults to respire normally. Insects are known to be adversely affected by being coated with oil films, emulsions, or dust particles that clog the respiratory openings (spiracles) on their bodies and can stop respiration (Storer *et al*. 1972). Implementation of proposed dust reduction measures (**G-CM-5** and **G-CM-24**) proposed by SDG&E is anticipated to minimize effects associated with increased dust.

Lighting in areas where Quino occur could increase the number (and type) of Quino predators. Phototropism (moving toward light) in arthropods is common and if Quino are attracted to lights, they may be killed or harmed by the lights themselves, automobiles, or predators. The presence of lights is anticipated to increase the number of insectivorous bats foraging around some project features, such as substations. An increase in predatory bats could decrease the number of adult Quino in the action area. The use of night lighting that is of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat, as proposed by SDG&E (**G-CM-13**), is anticipated to minimize effects associated with lighting.

Potential indirect effects to Quino habitat also include the unintentional conversion from native vegetation to non-native annual grassland resulting in the potential displacement of larval host plants and replacement of nectar plants, including dominant shrubs. Unpaved roads and trails, such as access roads or footpaths, can serve as conduits of nonnative seed dispersal as seeds of invasive plant species could be transported through the project area on shoes, as well as construction and maintenance vehicles. Non-native plants have been shown to displace Quino host plant, which appears to be a poor competitor against non-native grasses (Service 2003a). In addition to displacing larval host plants, nonnative annuals have been shown to replace nectar sources (Service 2003a). Implementation of the Weed Control Plan (**G-CM-20**) proposed by SDG&E is anticipated to minimize effects associated with increased introduction of non-native plants.

2. Operations and Maintenance Activities

There is potential for direct and indirect effects to Quino during the operations and maintenance program for the project. The use of access roads constructed within and adjacent to occupied Quino habitat could result in the removal or crushing of host plants if roads are not maintained, and Quino host plants encroach into these areas. Road maintenance could also result in the death of larvae or eggs if Quino colonize plants along or within access roads that are not well maintained. **SS-CM-26** requires compensation for impacts to Quino habitat in the event that roads are not maintained.

Adult Quino may also be injured or killed by moving vehicles. Use and maintenance of roads may also facilitate the establishment of invasive non-native plant species. The seeds of invasive, non-native plants could be spread into Quino habitat by way of shoes, maintenance equipment, and vehicle tires. Implementation of **G-CM-21**, **G-CM-25**, **G-CM-26**, **G-CM-28**, **G-CM-29**, **G-CM-43**, and **G-CM-48** will minimize impacts to Quino that could occur due to the use of the project's access roads. Potential impacts that could occur due to non-native plant invasion will be minimized through the implementation of **G-CM-20** and **G-CM-47**.

Critical Habitat

The same direct and indirect effects are anticipated to occur in Quino critical habitat as anticipated to occur in the remainder of occupied Quino habitat. As such, impacts to both existing designated critical habitat and proposed revised critical habitat will be minimized through implementation of Conservation Measures **SS-CM-3** through **SS-CM-7**, **G-CM-5**, **G-CM-13**, **G-CM-17**, **G-CM-20, G-CM-21**, **G-CM-25**, **G-CM-26**, **G-CM-28**, **G-CM-29**, **G-CM-43**, **G-CM-47 and G-CM-48**. Specifically, before any construction may occur in Quino critical habitat, SDG&E must consult with the Service in siting all temporary and permanent impacts to ensure that no larvae or adults within critical habitat will be impacted by the project. In addition, SDG&E will prepare a Service-approved habitat restoration plan for any Quino habitat that is temporarily impacted by the project and will compensate for permanent impacts through the acquisition and preservation of Quino occupied habitat.

Designated Critical Habitat (67 FR 18356)

The project will permanently impact no more than 6.3 ha (15.6 ac) and temporarily impact no more than14.8 ha (39.7 ac) of designated Quino critical habitat in the Jacumba Unit (Unit 4, Service 2002). These impacts represent less than one percent of the 2,820 ha (9,970 ac) of designated critical habitat within Unit 4.

SDG&E will minimize the permanent loss of designated Quino critical habitat through off-site acquisition and preservation at a 3:1 ratio (**SS-CM-4**). Temporary impacts to designated Quino critical habitat will be offset at a 2:1 ratio and will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of designated Quino critical habitat.

The biological function of Unit 4 (identified as breeding, feeding and sheltering habitat) of designated Quino critical habitat is expected to be maintained during and after project construction because of the relatively small amount of permanent impacts, the restoration of temporary impacts, and the conservation measures described above.

Proposed Revised Critical Habitat (73 FR 3328)

The project will have no more than 3.4 ha (8.5 ac) of permanent impacts and 2.7 ha (6.6 ac) of temporary impacts to proposed revised Quino critical habitat in the Jacumba Unit (Unit 10; Service 2008). In Unit 10 of the proposed revised critical habitat, project impacts represent less than one half percent of the 1,017 ha (2,514 ac) of proposed revised critical habitat.

SDG&E will minimize and offset the permanent and temporary loss of the proposed revised Quino critical habitat prior to project implementation at the same ratios as the currently designated critical habitat (*i.e.*, off-site acquisition and preservation at a 3:1 conservation to impact ratio for permanent impacts and at a 2:1 ratio for temporary impacts (1:1 on-site restoration and 1:1 off-site acquisition and preservation of proposed revised Quino critical habitat). The amount of designated critical habitat proposed for offsite acquisition and onsite restoration is included in the overall offsite and onsite conservation acreages specified above in the direct effects section.

The biological function of Unit 10 (identified as breeding, feeding and sheltering in 73 FR 3328) of proposed revised Quino critical habitat is expected to be maintained during and after project construction because of the relatively small amount of permanent impacts, the restoration of temporary impacts, and the conservation measures described above.

Conclusion

After reviewing the current status of the Quino, the environmental baseline, effects of the proposed action, and the cumulative effects, it is our biological and conference opinion that the proposed action will not jeopardize the continued existence of the Quino or to adversely modify its designated or proposed critical habitat.

We reached this conclusion by considering the following:

1) Loss of Quino habitat will occur outside of the flight season, to the maximum extent practicable; we do not anticipate that Quino adults will be killed or injured during habitat clearing or grading activities.

2) Before impacts are allowed to occur within designated Quino critical habitat (either existing or proposed), SDG&E will consult with the Service to determine the final locations of all impacts so that the functionality of the critical habitat unit(s) will not be altered.

3) Loss of suitable Quino habitat will include permanent impacts of no more than 16.3 ha (40.3 ac) and no more than 36.6 ha (93.6 ac) of temporary impacts, which represents only a small portion of the occupied habitat throughout the species range;

4) Permanent and temporary loss of habitat will be spread across the CNF South Link and Inland Valley South Link portions of the action area and occur in small isolated patches measured in square feet, thus minimizing effects to Quino across the project area.

5) The temporary impacts to Quino habitat will be will be restored to its original condition or better at a 2:1 ratio;

6) Loss of designated or proposed revised Quino critical habitat represents only a very small portion (less than 1 percent) of the species designated and proposed revised critical habitat; thus the function of designated critical Habitat Unit 4 and proposed revised critical habitat Unit 10 to support breeding, feeding, and sheltering of Quino will be maintained;

7) Direct and indirect impacts to vireo would be avoided and minimized through the implementation of the General and Species-Specific Conservation Measures such that the impacts associated with the construction, operation, and maintenance of the proposed action are not expected to appreciably reduce the numbers, reproduction, or distribution of the Quino in the action area or throughout the species' range. The Quino populations in the action area are anticipated to remain viable for the foreseeable future following project implementation; and.

8) The Quino surveys in the action area and the offsite acquisition and protection of Quino occupied habitat will contribute to our knowledge of the species and support the range-wide conservation needs (recovery) of Quino.

Arroyo Toad (*Bufo californicus*)

Status of the Species

Listing Status

The Service listed the arroyo toad as endangered on December 16, 1994 (59 FR 63264), and a recovery plan was published in July 1999 (Service 1999). Critical habitat was designated for the toad on February 7, 2001 (66 FR 9414), but it was vacated by court order on October 30, 2002, and remanded for re-designation. Critical habitat for the toad was re-proposed on April 28, 2004 (69 FR 23254), and it was finalized on April 13, 2005 (70 FR 19562); no critical habitat is within the project area. A recovery plan for the toad was completed on September 24, 1999 (Service 1999).

Species Description

The arroyo toad is a small, dark-spotted toad of the family Bufonidae. The parotoid glands, located on the top of the head, are oval-shaped and widely separated. A light/pale area or stripe is usually present on these glands and on top of the eyes. The toad's underside is buff-colored and usually without spots (Stebbins 1985). Recently metamorphosed individuals will easily blend with the substrate and are usually found adjacent to water. At the time of listing, the toad was described as the arroyo southwestern toad (*Bufo microscaphus californicus*). Gergus (1998) published genetic justification for the reclassification of the arroyo southwestern toad as a full species (*i.e.,* arroyo toad (*Bufo californicus*)).

Habitat Affinities

Toads require shallow, slow-moving streams, and riparian habitats that have natural flooding regimes which maintain areas of open, sparsely vegetated, sandy stream channels and terraces (Service 2001b). Optimal breeding habitat consists of low gradient stream reaches that have shallow pools with fine textured substrates (*i.e.,* sand or gravel). Upland habitats used by toads during both the breeding and non-breeding seasons include alluvial scrub, coastal sage scrub, chaparral, grassland, and oak woodland (Griffin *et al.* 1999, Service 2001b). This species has been observed moving approximately 2.6 km (1 mi) within a stream reach and up to 1.1 km (0.7 mi) away from the stream, into native upland habitats (Holland and Goodman 1998, Sweet 1992) or agricultural areas (Griffin *et al.* 1999). Holland and Sisk (2001) found on Cristianitos Creek on Camp Pendleton that 88.73 percent (323 of 364) of captures of adult and subadult toads were within the riparian area and 11.26 percent (41 of 364) were in upland habitats; no metamorphic toads were captured in uplands. Of the 41 captures, distances from the edge of the riparian area varied greatly from 25-1,142 m (82-3,747 ft) (mean 539 m (SD=330 m)). Movement distances may be regulated by topography and channel morphology (Holland and Sisk 2000). Toads are critically dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, especially during periods of inactivity, generally late fall and winter (Sweet 1992). Adult and juvenile toads burrow into loose soils in stream terraces and in uplands, where they may remain during daylight hours or for longer periods during the dry season (Sweet 1989).

Life History

Toads typically breed from February to July on streams with persistent water (Griffin *et al.* 1999). Female toads must feed for a minimum of approximately two months to develop the fat reserves needed to produce a clutch of eggs (Sweet 1992). Eggs are deposited, and larvae develop in shallow pools with minimal current and little or no emergent vegetation, and the substrate in these pools is generally sand or fine gravel overlain with silt. Toad eggs hatch in 4 to 5 days, and the larvae are essentially immobile for an additional 5 to 6 days. They then begin to disperse from the pool margin into the surrounding shallow water, where they spend an average of 10 weeks. After metamorphosis (June-July), the juvenile toads remain on the

bordering gravel bars until the pool no longer persists (usually from 8 to 12 weeks depending on site and yearly conditions) (Sweet 1992). Male toads reach adulthood in 1 to 2 years, and females become sexually mature in 2 to 3 years. Individuals may become sexually mature by the following spring if conditions are favorable (Sweet 1992, 1993).

Toad larvae feed on loose organic material such as interstitial algae, bacteria, and diatoms. They do not forage on macroscopic vegetation (Sweet 1992, Jennings and Hayes 1994). Juvenile toads rely on ants almost exclusively (Service 1999). By the time they reach 1.8 to 2.3 cm (0.7 to 0.9 in) in length, they take more beetles, along with ants (Sweet 1992, Service 1999). Adult toads probably consume a wide variety of insects and arthropods including ants, beetles, spiders, larvae, caterpillars, and others.

Status and Distribution

The toad was historically found in California from Monterey County to San Diego County and southward to the vicinity of San Quintín, Baja California, Mexico. They have been extirpated from an estimated 75 percent of their former range in the United States, and they now occur primarily in small, isolated areas in the middle to upper reaches of streams. The current distribution of the toad in the United States is from the Salinas River Basin in Monterey County, south to the Tijuana River and Cottonwood Creek Basin along the border with Mexico. Although the toad occurs principally along coastal drainages, it also has been recorded at several locations on the desert slopes of the Transverse Range (Patten and Myers 1992, Jennings and Hayes 1994). The current elevational range for most toad populations in San Diego County is about 305 to 1,402 m (1,000 to 4,600 ft), although they were historically known to extend into the lower portions of most river basins (Service 1999), and populations on Camp Pendleton extend down to just above sea level (Holland and Goodman 1998).

Population Trend

Toad populations vary considerably from year to year, depending on environmental conditions. Approximately three-fold changes have been observed from one year to the next (Sweet 1993), and greater variations would likely be observed with more data on toad populations. Because female toads lay an average of approximately 5,000 eggs during the breeding season (Sweet 1992), there is the potential for rapid increases in population size given favorable conditions, but toad recruitment reflects the inherent variability of their environment. During years of drought, pools may dry before larvae have reached metamorphosis, and females may forego breeding altogether. If flooding occurs after eggs have been laid, a large percentage of the eggs and larvae can be lost. Finally, heavy predation pressure by birds, mammals, reptiles, and other amphibians on metamorphosing and newly metamorphosed juveniles can drastically reduce recruitment. Once toads have reached the subadult stage, survivorship is higher. Annual mortality of adults and subadults has been estimated between 35 percent and 70 percent (Sweet 1993, Holland and Sisk 2000, 2001), which would mean that few toads survive past 5 years in the wild.

Stream order, elevation, and floodplain width are important factors in determining the size and long-term viability of a toad population (Sweet 1992, Barto 1999, Griffin 1999). Streams with the greatest potential to support self-sustaining populations are typically of a high stream order (*i.e.*, 3rd to 6th order), at low elevations (below 914 m (3,000 ft)), with wide floodplains (Sweet 1992, Barto 1999, Griffin 1999). Because of the dynamic nature of toad populations and their habitat, movements of individuals are likely important for colonizing areas where toads have been locally extirpated or where new habitat has been created due to flooding events or changes in human management.

This species was historically found in at least 22 river basins in southern California from the upper Salinas River system in Monterey County to San Diego County and southward to the vicinity of San Quintín, Baja California, Mexico. They have been extirpated from an estimated 75 percent of their former range in the United States, and they now occur primarily in small, isolated areas in the middle to upper reaches of streams.

Insufficient information regarding population dynamics and suitable habitat is available to estimate the range-wide arroyo toad population (Service 1999). The density of toads is unevenly distributed in space and time, with particular sites having high densities of larvae, metamorphs, subadults, and adults present under favorable ecological conditions, but absent during poor conditions (Holland *et al.* 2001). Dramatic natural fluctuations in all life-stage categories and difficulty in detecting adult toads under all but the most optimal conditions make accurate estimation of populations difficult. Due to the mobility of toads and other factors affecting their spatial and temporal heterogeneity, estimating toad densities (per unit area) at given sites may be considered to be inaccurate.

Threats and Conservation Needs

Many arroyo toad populations were reduced in size or extirpated due to extensive habitat loss from 1920 to 1980 (Service 1999), mainly because toad habitats (*i.e.,* broad, flat floodplains in southern California) are favored sites for flood control projects, agriculture, urbanization, and recreational facilities such as campgrounds and off-highway vehicle parks. The loss of habitat, coupled with habitat modifications due to the manipulation of water levels in many central and southern California streams and rivers, as well as predation from introduced aquatic species, caused toads to disappear from a large portion of their previously occupied habitat in California (Jennings and Hayes 1994). In 2001, a telemetry study of toads in San Juan Creek indicated that exotic predators and vehicle traffic were the cause of mortality for 2 of the 13 study animals (Cadre Environmental 2003). One toad was tracked by its transmitter to the gut of a bullfrog, and another was tracked to the treads of a dump truck that had driven on a dip-crossing through San Juan Creek. Other observations from the telemetry study included the desiccation of toad larvae in pools along the creek that dried up prior to the completion of toad metamorphosis (Cadre Environmental 2003). The authors speculated that drying of these pools may have been due to decreased rainfall or to groundwater pumping for agricultural practices that affected creek water levels.

Threats to toad populations include stream alteration, urban and rural development, mining, recreation, grazing, drought, wildfire, large flood events, and presence of exotic animal and plant species, such as the bullfrog (*Rana catesbeiana*), crayfish (*Procambarus* spp.), salt cedar (*Tamarix* spp.), and giant reed (*Arundo donax*) (59 FR 63264, 69 FR 23254). Conservation needs, as described in the recovery plan, include protecting and managing breeding and non-breeding habitat throughout the range of the species, monitoring existing populations to ensure recovery actions such as exotics removal are successful, identifying additional toad habitat and populations, obtaining research data to guide management efforts, and conducting outreach and public education regarding the toad.

Several incidental take permits pursuant to Section 10(a)(1)(B) of the Act have been issued for the arroyo toad addressing the effects of urban development on this species. In 1997 and 1998, the Service issued permits to the City of San Diego and the County of San Diego, respectively, for Multiple Species Conservation Plans. In 2004, the Service issued a permit for the Western Riverside County MSHCP. In 2007, the Service issued permits for the Orange County Southern Subregion HCP. These plans are expected to provide long-term protection for toads and toad habitat in western Riverside, Orange, and San Diego counties. For example, all known locations and about 78 percent of riparian suitable habitat will be conserved by the San Diego MSCP; conservation of 93 percent of toad locations (39 of 42 locations) is anticipated under the Western Riverside County MSHCP; 75 percent of modeled toad habitat (535 ha; 1,322 ac) will be conserved and managed under the Orange County Southern Subregion HCP. Conservation of toads through these HCPs address, at least in part, task 3 of the recovery plan of identifying and securing additional populations and suitable habitat (on non-Federal lands).

In September of 2005, the USFS published a Land Management Plan for the southern California National Forests (U. S. Forest Service 2005), which identified the distribution of arroyo toads in southern California forests, including Cleveland National Forest adjacent to the proposed project, proposed no new roads or trails in the area occupied by toads, and stated that any new project in an area occupied by toads or other federally listed species should “promote the conservation and recovery of these species and their habitats.”

Wildfire impacts on the species from fire related effects in 2003 and 2007 have not been quantified for this species. As most arroyo toads were aestivating when the fires occurred, the fast moving fire fronts would not have contributed much heat to the soil sub-surface. Field investigations during the 2007 fires by the Department of Interior, Burned Area Emergency Response (BAER) team supported this as vegetation in arroyo toad habitat was largely unburned or suffered low vegetation mortality (BAER 2007). Post-fire precipitation during the winter of 2007 and spring of 2008 did not result in any documented significant debris flows which could result in temporal adverse effects to breeding arroyo toads. The significant post-fire growth of exotic and nuisance plants species in arroyo toad habitat may have long-term adverse effects on arroyo toad and its habitat.

Environmental Baseline

Service protocol surveys have not been conducted along the entire portion of the proposed alignment and associated features. However, the USFS provided SDG&E with a GIS database showing suitable (modeled) habitat for the arroyo toad within the Cleveland National Forest. USFS suitable habitat includes potential breeding and upland habitat. The USFS habitat suitability model was based on the following key GIS parameters:

Elevation: 0-4300 FT North of Santa Clara River
0-5000 FT South of Santa Clara River

Stream Gradient: 0-2 percent

Lateral buffers: 1.1 km (0.66 mi) out for areas with slopes <70 percent. For steeper areas, buffer out to a gain of 24 m (80-ft) contour above stream bed elevation.

Stream Order: Second order or greater

Based on the USFS habitat suitability model, the proposed action area contains 500 ha (1,235 ac) of suitable arroyo toad habitat.

The USFS GIS information was used together with field habitat assessments to determine the potential for arroyo toads within the Inland Valley South Link and the CNF South Link (MPs 53.2 to 75.7 and MPs 91 to 100) (Figure 6). The majority of suitable habitat for the arroyo toad within the action area is located within the Cleveland National Forest boundary. However, arroyo toads do have the potential to occur on private lands within the action area. Private lands within the action area are within the planning area of the draft ECMSCP, which is currently in development.

The proposed alignment and associated features (*i.e.*, access roads, staging areas) will impact portions of 27 drainages, 16 of which are located on the Cleveland National Forest. Based on the arroyo toad occupancy information within the current Service GIS databases, and the USFS GIS database showing occupied and suitable (modeled) habitat within the Cleveland National Forest, 9 of the 27 impacted drainages contain suitable arroyo toad breeding habitat. Habitat assessments were conducted in the spring of 2007 by Helix Environmental for all drainages within the CNF that had suitable conditions or habitat quality to warrant focused surveys (from MP 53.2 to MP 103.4) for arroyo toad. Focused surveys were conducted in 2007 at some, but not all, of the drainages in the action area, and followed the Service protocol where possible. Below are the results of these surveys:

1) Protocol arroyo toad surveys conducted at the Sweetwater River site were negative. Habitat at that site was highly suitable, and the California Natural Diversity Database (CNDDB 2007) has a 2001 arroyo toad observation north of the intersection of Highway 79 and Riverside Drive less than 1 km (0.6 mi) northeast of the site.

2) Because the El Capitan Reservoir was closed at night, arroyo toad surveys at the San Diego River site were not conducted to protocol.

3) The site where the alignment crosses La Posta Creek is on a private in-holding within the Cleveland National Forest and surveys were not conducted because permission was not received from the landowner.

4) Arroyo toads have been recorded in Long Potrero Creek in 1993 (CNDDB 2007). This creek crossing was not surveyed in 2007 because it was dry at the time of the habitat assessment.

5) Arroyo toads were observed in Wilson and Taylor creeks.

6) Although Horse Canyon was dry at the time of the habitat assessment, it does contain suitable arroyo toad habitat.

7) Protocol surveys at the Pine Valley Creek site were negative although CNDDB has 1991 records from within 1 km (0.6 mi) of the crossing.

A number of projects and land uses within the project vicinity have degraded arroyo toad habitat in this area. Agriculture, roads, and urban development have degraded upland habitat, and sand mining, emergency road repairs, and introduction of invasive aquatic plants and predators have degraded riparian habitat. In addition, there is a long history of illegal fills and activities within riparian areas in San Diego County. Some of these have resulted in enforcement actions by the Corps of Engineers and EPA, but many unauthorized activities go undetected. These types of activities all have the potential to impact the arroyo toad either directly through mortality or indirectly due to loss or degradation of habitat. Nevertheless, arroyo toad populations within and adjacent to the action area are continue to persist and are important to the recovery of the species.

As previously mentioned, a majority of the suitable arroyo toad habitat within the action area occurs on public lands. A Land and Resource Management Plan has been developed for the Cleveland National Forest. Implementation of portions of this plan will result in long term benefits to the arroyo toad, including habitat acquisition, wildlife habitat management and monitoring, and pest and non-native species control.

Effects of the Action

For the purpose of this biological opinion, we addressed direct impacts to arroyo toad habitat in the action area based on suitable breeding and upland habitat modeled by the USFS, which includes 1) permanent impacts to suitable breeding habitat of 0.08 ha (0.20 ac) and to suitable upland habitat of 10.4 ha (25.7 ac) for a total of 10.5 ha (25.9 ac) of permanent impacts. No temporary impacts to suitable breeding habitat were identified, but the proposed actions will temporarily impact up to 74 ha (183 ac) of suitable upland habitat. Potential effects during

construction of the SRPL Project and from long-term O&M activities are included in our analysis.

Conservation Measures SS-CM-8 through SS-CM-15 are particularly relevant to SDG&E's commitment to avoid, minimize, and offset impacts to the arroyo toad and are repeated here for ease of reference.

SS-CM-8 A pre-construction, Service protocol, survey will be conducted for the arroyo toad by a biologist approved by the Service to handle the toad) in all areas of the project located within suitable arroyo toad breeding habitat.

1) The removal of toad riparian breeding habitat will occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

SS-CM-9 SDG&E will develop an arroyo toad translocation monitoring program to be implemented during all construction activities that have the potential to adversely affect the arroyo toad. This program will be coordinated with the Service, USFS, and BLM and finalized prior to initiation of construction activities. The program will include the following requirements:

1) Prior to clearing, grubbing, and construction activities, Service-permitted biologists will monitor arroyo toad breeding activity in those project areas containing or adjacent to breeding habitat. The biologists will determine when egg clutches or larvae are no longer present in the waterway (generally late May at lower elevation, June at higher elevation). When sign of breeding is no longer evident, an exclusionary fence will be installed and clearance surveys initiated.

2) Prior to clearing, grubbing, and grading activities, arroyo toad temporary exclusionary fence will be constructed along the perimeter of the project footprint within or immediately adjacent to arroyo toad habitat (breeding and aestivation). The intent of the fence is to fully contain the area(s) to be impacted and to remove and exclude arroyo toads. Exclusionary fence in aestivation habitat will not be installed prior to May 1. The Service-permitted biologist will be present during the exclusionary fence installation, reconfigurations, breach repairs, and weekly during the breeding season. The fence will consist of fabric or plastic at least 0.6 m (2 ft) high, staked firmly to the ground with the lower 0.3 m (1 ft) of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of the fence and all materials shall be removed when the Project is complete. The removal of some vegetation, without disturbing the soil, within the project footprint to aid in the observance and collection of arroyo toads is acceptable. All fencing materials (*i.e.*, mesh, stakes, etc.) will be removed following construction. Ingress and egress of construction equipment and personnel will be kept to a minimum, but when necessary, equipment and personnel will use a single access point to the site.

This access point will be as narrow as possible and will be closed off by exclusionary fencing when personnel are not on the project site.

3) Prior to clearing, grubbing, and grading activities, but after exclusionary fencing has been installed, Service-approved biologists will perform a minimum of three nighttime surveys inside the exclusionary fence and remove all arroyo toads found within its perimeter. The approved biologist will continue until there have been two consecutive nights without arroyo toads inside the fencing. Any breach in the exclusionary fence during times when arroyo toads area active above ground, will result in repeating the 3-day minimum clearance surveys for that particular area.

4) If conditions do not occur that result in sufficient arroyo toad emergence and movement, a Service-approved biologist will attempt to elicit a response from the arroyo toads during nights late in the known breeding season, with temperatures above 50^{o}F, by spraying the area inside the exclusionary fence with water to a depth of approximately 2 to 5 cm (1 to 2 in) to simulate a rain event.

5) Whether or not a simulated precipitation event is done, arroyo toads found within the project footprint will be captured and translocated by Service-approved biologists to the closest area of suitable habitat. The Service-approved biologist will coordinate with the appropriate property owner(s) and the Service on where the arroyo toads will be placed.

6) Service-approved biologists will maintain a complete record of all arroyo toads encountered and moved from harms way during translocation efforts. The date and time of capture, sex, physical dimensions, and coordinates/specific location of capture will be recorded and provided to the Service, within 30 days of the completion of translocation. In addition to reporting on the translocation effort, monthly reports (including photographs of impact areas) will be submitted to the Service during construction activities within areas demarcated by arroyo toad exclusion fencing. The monthly reports will document general compliance with all applicable conditions and report all incidents not in compliance with this biological opinion. The reports will also outline the duration of arroyo toad monitoring, the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, sex, observed behavior, and remedial measures employed to avoid, minimize, and mitigate impacts to arroyo toads. All field notes and other documentation generated by the Service-approved biologist will be made available upon request to the Service.

7) To avoid transferring disease or pathogens between aquatic habitats during surveys and handling of arroyo toads, the approved biologists will follow the Declining Amphibian Population Task Force's Code of Practice (DAPTF, 1991) or newer version when available.

8) After the clearance surveys outlined above have been completed, daily surveys will be conducted each morning prior to the continuation of construction activity. Any toads found will be relocated per the translocation plan.

9) The applicant will submit, in writing, the names, any permit numbers, résumés, and at least three references (of people who are familiar with the relevant qualifications of the proposed biologist), of all biologists who might need to handle, move, or monitor arroyo toads for the proposed project. This information will be submitted to the Service for approval at least 15 days prior to the initiation of any arroyo toad surveys. Proposed activities will not begin until an authorized biologist has been approved by the Service.

SS-CM-10 To offset the loss of occupied and suitable arroyo toad habitat within the project area, and to offset indirect effects of the project on arroyo habitat, SDG&E will develop and implement an arroyo toad predator control program on USFS lands. The scope and methods for this program will be developed in consultation with the Service and USFS.

SS-CM-11 Compensation for the loss of arroyo toad-occupied habitat will be implemented as follows. Permanent impacts to occupied arroyo toad breeding habitat will include 3:1 off-site acquisition and preservation of occupied arroyo toad breeding habitat. Permanent impacts to occupied upland burrowing habitat will include 2:1 off-site acquisition and preservation of occupied upland burrowing habitat. Temporary impacts to occupied breeding habitat will include 1:1 on-site restoration and 2:1 off-site acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied upland burrowing habitat will include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied upland burrowing habitat. Any acquired habitat will be approved by the CPUC, BLM, USFS, and Wildlife Agencies.

SS-CM-12 To avoid and minimize impacts to arroyo toads, access road construction and use, with the exception of emergency situations, will occur during daylight hours (from 2 hours after sunrise to 2 hours before sunset) when amphibian movement is less frequent.

SS-CM-13 No construction activities will take place during the arroyo toad breeding season (March 15-July 31) within suitable arroyo toad breeding habitat.

SS-CM-14 To avoid long-term impacts to wildlife movement, including, but not limited to arroyo toad movement on the project site, all temporary arroyo toad exclusion fencing and temporary construction fencing will be removed at the conclusion of construction activities.

SS-CM-15 Towers, pads, pull stations, access roads, staging areas, and fly yards will not be located within suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the extent feasible. In cases where the applicant determines it is not feasible to fully avoid suitable/potential arroyo toad habitat, the applicant will consult with the Service to identify a site for the above-listed features that would avoid and minimize impacts to suitable/potential arroyo toad upland aestivation and riparian breeding habitat to the maximum extent.

1. Construction Activities

Direct Effects

Activities along the transmission line to construct towers, pads, access roads, staging areas, pull down areas, and helipads will result in the loss of suitable arroyo toad habitat including no more than 10.5 ha (25.9 ac) of permanent impacts and 74 ha (183 ac) of temporary impacts. No construction activities will occur during the arroyo toad breeding season (March 15-July 31) within suitable arroyo toad breeding habitat; therefore, no impacts are anticipated to occur to breeding arroyo toads, arroyo toad eggs, and/or arroyo toad larvae.

To avoid and minimize direct effects to the arroyo toad, barrier fencing will be installed around all construction/staging areas within potential arroyo toad upland habitat. The fencing will remain until all construction activities within these areas are completed. The area within the barrier fence will be surveyed by a qualified biologist prior to construction. If climatic conditions are not appropriate for arroyo toad movement during the pre-construction surveys, the biologist will attempt to illicit a response from the arroyo toad by irrigating the fenced area to simulate a rain event. Any arroyo toads detected within the barrier fencing will be collected by a permitted biologist and placed on the outside of the barrier fence within the nearest secure suitable habitat.

It is anticipated that impacts to adult and juvenile arroyo toads will be minimal with the implementation of the above-described fencing and translocation measures. However, adult and juvenile arroyo toads may still remain after translocation efforts are completed and may be burrowed within the impact area(s) or moving through the active construction site. Toads not detected and removed during translocation efforts will likely be crushed by land re-contouring and other surface disturbance during construction activities.

Furthermore, the effects related to the translocation of arroyo toads are unknown. The proposed conservation measures include handling procedures detailed in the *Declining Amphibian Population Task Force's Code of Practice* (proposed for revision); these procedures should reduce or eliminate direct death or injury if followed and arroyo toads react uniformly. However, eliciting the emergence of arroyo toads and translocating them could result in currently unknown physiological, ecological and biological impacts, as it could conceivably occur anytime of the year including mid-aestivation.

In addition to potential impacts to the arroyo toad from relocation efforts, the proposed project will result in the permanent loss of 0.08 ha (0.20 ac) of riparian and wetland habitat types that are potential breeding habitats for the arroyo toad. To offset the permanent impacts to arroyo toad breeding habitat, approximately 0.24 ha (0.60 ac) of arroyo toad occupied breeding habitat will be acquired and preserved off site. All off site acquisition areas will be preserved and managed in perpetuity. Therefore, we assume that the proposed replacement habitat will effectively offset the anticipated adverse affects to arroyo toad breeding habitat.

Permanent impacts to arroyo toad upland habitat will also occur as a result of the proposed project. Approximately 10.4 ha (25.7 ac) of suitable arroyo toad upland habitat will be permanently impacted by the proposed project and 74 ha (183 ac) of suitable arroyo toad upland habitat will be temporarily impacted by the proposed project. The loss of upland habitat for foraging, aestivation, and dispersal could affect arroyo toad populations in the project vicinity through increased competition for limited resources or increased predation risk. However, approximately 5,133 ha (12,685 ac) of suitable upland habitat occur on USFS lands in the vicinity of the proposed project, as well as additional habitat on private lands. Therefore, the amount of suitable arroyo toad habitat impacted by the project represents a very small proportion of the suitable upland habitat within and adjacent to the action area. Permanent impacts to suitable upland arroyo toad habitat will be offset by the off site acquisition and preservation of occupied, arroyo toad upland habitat at a minimum 2:1 ratio. Temporary impacts to arroyo toad upland habitat will be offset by through 1:1 on site restoration and 1:1 off site acquisition and preservation. The proposed restoration will follow the methods and success criteria outlined in a Service-approved creation/restoration plan. In addition, a long-term habitat management plan will be developed and implemented for all off site preservation areas, and a non-native predator control program will be implemented on USFS lands. Therefore, we assume that the proposed replacement habitat will effectively offset the anticipated adverse effects to arroyo toad upland habitat.

Indirect Effects

Project construction, operation, and maintenance could lead to a decrease in water quality in drainages adjacent to and crossed by the proposed project. Decreased water quality could be especially detrimental to arroyo toads through direct mortality or decreases in reproduction success. Contaminants, such as herbicides, pesticides, and fertilizers may kill toads, affect development of larvae, or affect their food supplies or habitat (Service 1999). Siltation in arroyo toad breeding pools can asphyxiate eggs and newly hatched larvae (Sweet 1992). Furthermore, pollution can have both direct and indirect effects on arroyo toads, and can affect amphibians in areas far from where it originates (Service 1999). The proposed project includes several construction BMPs (**G-CM-2**) to reduce the likelihood of decreased water quality, including erosion control measures such as silt fencing, sand bags, and straw matting,

Increased invasive flora and fauna, and associated habitat degradation/predation, are expected to occur to arroyo toads and arroyo toad upland habitat as a result of the proposed project. Seeds of invasive plant species could be transported through the project area on construction and maintenance vehicles. Invasive species are now recognized as a threat to biodiversity in native plant communities, second only to direct habitat loss and fragmentation (Pimm and Gilpin 1989, Scott and Wilcove 1998). Non-native, weedy species may out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating upland habitat used by the arroyo toad, and providing food and cover for undesirable non-native animals

(Bossard *et al.* 2000). Implementation of the Weed Control Plan (**G-CM-20**) proposed by SDG&E is anticipated to minimize effects associated with increased introduction of non-native plants.

In addition, arroyo toads could be indirectly impacted through increased predation as a result of the proposed project. The powerline structures and associate facilities may attract and provide additional perch sites for potential predators of the arroyo toad, including ravens. Implementation of the Raven Control Program (**G-CM-19**) proposed by SDG&E is anticipated to minimize potential effects associated with increased perch sites for ravens.

The proposed project could lead to occasional fires due to arcing of the power lines. Increased fire frequency could result in increased sedimentation in adjacent creeks for the first few years following a fire, which could, in turn, temporarily reduce arroyo toad reproduction. Fires could kill toads in the upland environment that are above-ground at the time of the fire or, if the fire is hot enough, could kill some of the aestivating toads as well. However, arroyo toads are not dependent on a mature vegetation community in the riparian or upland environment, so fire-related effects of the proposed project are not anticipated to permanently degrade the suitability of the habitat for toad unless there is large-scale type conversion of upland habitat into non-native grassland.

2. Operations and Maintenance Activities

There is potential for direct impacts to arroyo toads during the O&M program for the project. The use of access roads constructed within suitable arroyo toad habitat could cause death or injury if toads attempt to cross the roads during upland foraging and dispersal. Toads may use roads and trails as dispersal routes and may congregate on roads at night to feed (Service 1999). To minimize impacts to arroyo toads from vehicle strikes access roads will not be located within suitable arroyo toad upland aestivation and riparian breeding habitat to the extent feasible. In cases where SDG&E determines it is not feasible to fully avoid suitable arroyo toad habitat, they will consult with the Service to identify a site for the above-listed features that will avoid and minimize impacts to suitable arroyo toad upland aestivation and riparian breeding habitat to the maximum extent. In addition, access road construction and use, with the exception of emergency situations, will occur during daylight hours (from 2 hours after sunrise to 2 hours before sunset) when amphibian movement is less frequent.

Conclusion

After reviewing the current status of the arroyo toad, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the construction and O&M of the proposed action is not likely to jeopardize the continued existence of the arroyo toad. We based this conclusion on the following:

1) Only a small amount of suitable arroyo toad breeding habitat will be permanently impacted (0.08 ha [0.20 ac]);

2) Most of the impacts to arroyo toad upland aestivation habitat (74 ha [183 ac] of the total 85 ha [209 ac] of impacts; 88 percent) will be temporary, and these areas will be restored to native habitat following construction;

3) Despite the permanent loss of 10.5 ha (25.9 ac) of arroyo toad habitat, the majority of the suitable arroyo toad upland and breeding habitat within the project vicinity will remain available to support the upland and breeding needs of the species;

4) The number of individual toads killed by construction in upland and breeding habitats will be minimized through trapping and relocation efforts conducted by qualified individuals knowledgeable of arroyo toad biology;

5) Impacts to water quality will be addressed through implementation of specific BMPs and a SWPPP during construction;

6) Impacts to suitable arroyo toad habitat will be offset through the onsite restoration of 74 ha (183 ac) and off site conservation and management of 95 ha (235 ac) of suitable arroyo toad habitat (95 ha (234 ac) suitable upland habitat and 0.2 ha (0.6 ac) of suitable breeding habitat). The predator control program on USFS lands is also anticipated to offset project-related impacts by reducing predation pressure on breeding arroyo toads and their young.

7) With implementation of the conservation measures, the impacts associated with the construction, operation, and maintenance of the proposed project are not expected to appreciably reduce the numbers, reproduction, or distribution of the arroyo toad in the action area or throughout the species' range. The arroyo toad populations in the drainages affected by the proposed project are anticipated to remain viable for the foreseeable future following project implementation.

Peninsular Bighorn Sheep (*Ovis canadensis nelsonii*)

Status of the Species

Listing Status

Desert bighorn sheep within the Peninsular Mountain Ranges of the United States were federally listed as an endangered distinct population segment on March 18, 1998 (63 FR 13134). A recovery plan was approved in October 2000, and 341, 918 ha (844,897 ac) of critical habitat were designated on February 1, 2001 (66 FR 8649). The decision to list the PBS was made because of declining population numbers and the continuing loss, degradation, and fragmentation of habitat throughout a significant portion of the population's range. Due to human developments, the population segment had become isolated from other populations of desert bighorn sheep. In addition, periods of depressed recruitment, likely associated with disease, and

high predation, coincided with low population numbers endangering the continued existence of these animals in southern California. The California Fish and Game Commission listed bighorn sheep inhabiting the Peninsular Ranges as "rare" in 1971. In 1984, the designation was changed to "threatened" by the CDFG to conform to the terminology in the amended California Endangered Species Act.

On March 7, 2005, the Agua Caliente Band of Cahuilla Indians filed a complaint against the Service's economic analysis of designated critical habitat. Other parties subsequently intervened as plaintiffs in the case. On July 31, 2006, a court approved consent decree resulted in the partial vacature of critical habitat designation on Tribal lands and remanded the critical habitat designation back to the Service for a new rulemaking. A revised critical habitat designation of approximately 155,565 ha (384,410 ac) was proposed on October 10, 2007. Currently, the October 10, 2007 proposed critical habitat is being revised, considering the content of public comments and hearings. It is anticipated that final critical habitat will be designated by March 30, 2009.

Species Description

Bighorn sheep inhabiting the Peninsular Ranges were once considered a separate subspecies (*Ovis canadensis cremnobates*) and were one of the 4 desert subspecies (*O. c. nelsoni, O. c. mexicana, O. c. cremnobates,* and *O. c.weemsi*) recognized by Cowan (1940). The validity of these subspecies delineations was questioned and reassessed when modern techniques became available. Based on morphometric and genetic results, Wehausen and Ramey (1993) and Ramey (1995) placed PBS within the *O. c. nelsoni* subspecies, which is the currently accepted taxonomy. The range of *O. c. nelsoni* or Nelson's bighorn sheep is relatively widespread covering much of Nevada, Utah, southern California, and northwest Arizona (Monson and Sumner 1980). Consequently, bighorn sheep in the Peninsular Ranges of the U. S. were listed as a distinct population segment under the ESA, and not as a separate subspecies. However, bighorn sheep inhabiting the Peninsular Mountain Ranges are still commonly referred to as Peninsular bighorn sheep.

Distribution

Within the United States, the range of PBS extends along the Peninsular Ranges from the San Jacinto Mountains in Riverside County south to the United States - Mexico border. Bighorn sheep habitat in the Peninsular Ranges of California is restricted to the east facing, lower elevation slopes that are typically below 1,402 m (4,600 ft) and located along the northwestern edge of the Colorado Division of the Sonoran Desert.

An examination of past records and current data suggests that the distribution of PBS in California has been altered during the past 25 years. Ewe groups along the Mexican border and in the northern San Jacinto Mountains (north of Chino Canyon) were apparently extirpated in the late1980's (DeForge *et al.* 1997, Rubin *et al.* 1998). DeForge *et al.* (1997) suggested disturbance

and habitat fragmentation were the primary factors driving the changes in bighorn distribution in the northern San Jacinto Mountains. Blong (1967) reported that construction of the Tramway Road through Chino Canyon severely reduced bighorn movement in this area. Ewes ceased regularly occupying the northern San Jacinto Mountains about 20 years after construction of the Palm Springs Aerial Tramway in Chino Canyon, though rams continued to cross Chino Canyon and use the area formerly occupied by the ewe group (DeForge *et al.* 1997). However, ewes were recently documented crossing Chino Canyon in route to Blaisdell Canyon in 2005, where they remained for several days before re-crossing Chino Canyon returning to Tachevah Canyon (Bighorn Institute 2005). The group, consisting of adult ewes, female lambs and yearlings, and male yearlings; has been regularly located within Chino Canyon since 2005 (Bighorn Institute 2005, 2007).

The possible extirpation of the bighorn subpopulation between Interstate 8 and the US-Mexico border was poorly documented, but the construction of the Interstate in the mid-1960's, railroad activity, livestock grazing, poaching, and fire suppression appear the most likely factors contributing to the isolation and decline of bighorn sheep in the area (Rubin *et al.* 1998). Recently, bighorn sheep sightings and their sign have become common around the Mountain Spring area of Interstate 8 (Service and CDFG GIS database, unpublished aerial census data, 2006, 2008). Bighorns have been observed crossing the Interstate (J. Collins, Naval Air Facility El Centro, *in litt*. 2007, 2008), and bighorn sheep have been observed further south in the Jacumba Mountains by the U. S. Border Patrol (D. Kim, pers. *in litt*., 2007).

Rubin *et al.* (1998) suggested that in portions of the range, roads or increased traffic have contributed to habitat fragmentation by restricting ewe movement, as evidenced by four ewe groups having home ranges delineated by roadways. In the 1970's, ewes were observed crossing Highway 74 in the Santa Rosa Mountains (D. Jessup, *in litt.* 1999). However, no radio-collared ewes were observed crossing this road from 1993 to 2001 (Service 2000). California Department of Transportation records indicated Highway 74 traffic approximately tripled from 1970 onward. However, in recent years ewes have begun crossing Highway 74 in at least two locations documented by the Bighorn Institute. Additionally, the number of crossings by rams near Vista Point has also increased, and several have been struck by automobiles. As a result, Caltrans has installed wildlife crossing signs in the area.

Habitat Affinities

Bighorn sheep in the Peninsular Ranges and throughout the desert southwest have important habitat requirements that relate to topography, visibility, water availability, and forage quality and quantity. Bighorn sheep evolved predator evasion behaviors that use escape terrain, which is generally defined as steep, rugged slopes (Hansen 1980, Cunningham 1989). Escape terrain is critical because bighorn sheep typically do not depend upon speed alone to outrun their predators, but use their exceptional climbing abilities to out maneuver predators on steep, rocky outcrops and talus slopes (Geist 1971, McQuivey 1978). When ewes are ready to give birth they will typically seek out the most precipitous terrain, where they and their lambs will be safest

(Geist 1971). The presence of such steep terrain for predator evasion and lambing is, therefore, a crucial component of bighorn sheep habitat.
The predator evasion behavior of bighorn sheep also depends on the ability to visually detect danger at a distance. Bighorn sheep will avoid habitat in which dense vegetation reduces visibility (Risenhoover and Bailey 1985, Etchberger *et al.* 1989). This appears to be the case in the Peninsular Ranges, where bighorn sheep usually remain below the elevation of chaparral and other dense vegetation associations. In the Peninsular Ranges, bighorn sheep habitat occurs along the east-facing desert slopes, typically below approximately 1,402-m (4,600-ft) elevations (Jorgensen and Turner 1975, DeForge *et al.* 1997). The patterns of vegetation associations in the Peninsular Ranges, in combination with bighorn sheep predator avoidance behavior, result in habitat use patterns that are more restricted to lower elevations than in most other bighorn populations. The available habitat of PBS can, therefore, be visualized as a long, narrow band that runs north-south along the lower elevations of the Peninsular Ranges.

Variations in slope and aspect also help bighorn sheep to survive in a harsh environment. During hot weather, desert bighorn seek shade under boulders, over hanging rocks, and cliffs, or they may move to north facing slopes (Merritt 1974, Andrew 1994) where temperatures are moderated. During inclement weather bighorns may again seek protected caves, overhangs, or slopes that are protected from strong winds, and on cold winter days bighorns may move to sunny, south facing slopes (Andrew 1994).

In addition to mountainous terrain, other types of habitat are crucial to bighorn sheep populations. Areas of gentle terrain, such as valley floors, serve as important linkages between neighboring mountainous regions, thereby providing bighorn sheep temporary access to resources (*e.g.*, forage, water, or lambing habitat) in neighboring areas, and allowing gene flow to occur between subpopulations (Krausman and Leopold 1986, Schwartz *et al.* 1986, Bleich *et al.* 1990, Bleich *et al.* 1996). Alluvial fans and washes contain a greater diversity of browse species than steeper terrain, and this diverse vegetation furnishes important sources of high quality forage (Leslie and Douglas 1979). In summer and times of drought, wash vegetation remains green longer than vegetation in other areas, providing forage higher in nutrients and digestibility than the dry, brown forages found on the mountainsides under these conditions (Andrew 1994, Crawley 1983, Laycock and Price 1970). Leslie and Douglas (1979) noted that these areas became increasingly important to bighorn sheep not only in summer, but during any period of limited forage availability. Bighorn sheep in the Peninsular Ranges have been observed foraging on alluvial fans for extended periods of time in Coyote Canyon and other undeveloped washes and alluvial fans within Anza-Borrego Desert State Park (Service 2000). In the northern Santa Rosa and San Jacinto Mountains, much of the alluvial fan and wash habitat has been lost to residential and golf course development (Service 2000).

In hot, arid deserts, water is an important resource for bighorn sheep (Jones *et al.* 1957, Blong and Pollard 1968, Leslie and Douglas 1979, Turner and Weaver 1980, Elenowitz 1984, Cunningham and Ohmart 1986). A number of studies have shown that desert bighorn sheep will concentrate around water sources in the summer, with most animals found within a 3-to-5-km (2-

to-3-mi) radius of water (Jones *et al.* 1957, Leslie and Douglas 1979, Cunningham and Ohmart 1986). During periods of more abundant rainfall and cooler temperatures, sheep distribution is less coincident with permanent water sources (Leslie and Douglas 1979). Apparently, bighorn sheep obtain enough water from forage to meet their requirements during cooler, wetter portions of the year. Lactating ewes and lambs may be more dependent on free-standing water and are often found closer to water sources (Blong and Pollard 1968, Leslie and Douglas 1979, Bleich *et al.* 1997). Water sources are most valuable to bighorn sheep if they occur in proximity to adequate escape terrain with good visibility. Therefore, the juxtaposition of open escape terrain to water sources is an important factor in their utilization (Cunningham 1989, Andrew 1994). The critical importance of free-standing water to bighorn sheep has been questioned (Krausman and Leopold 1986, Broyles 1995), and some small populations apparently exist without free-standing water (Krausman *et al.* 1985, Krausman and Leopold 1986, Broyles 1995). However, in most populations, bighorn sheep will drink regularly when water is available and concentrate near water sources during the warmer months. In the Peninsular Ranges, bighorns migrate seasonally during the hot season, leaving mountain ranges where no standing water is known to exist, such as the Coyote Mountains, and moving to adjacent mountain ranges where standing water is available year-round. They then center their activity on standing water for the hot season, and this behavior may indicate that vegetation alone does not provide sufficient water during the hot season, and at least in some mountain ranges, standing water is a requirement.

In the Peninsular Ranges, bighorn sheep use a wide variety of plant species as their food source (Weaver *et al.* 1968, Jorgensen and Turner 1973). Turner (1973) recorded the use of at least 43 species, with browse being the food category most frequently consumed. Cunningham and Ohmart (1986) determined that the bighorn sheep diet in Carrizo Canyon (at the south end of the U.S. Peninsular Ranges) consisted of 57 percent shrubs, 32 percent forbs, 8 percent cacti, and 2 percent grasses. Scott (1986) and Turner (1976) reported similar diet compositions at the north end of the range. Diet composition varied among seasons (Cunningham and Ohmart 1986, Scott 1986), presumably because of variability in forage availability, selection of specific plant species during different times of the year (Scott 1986), and seasonal movements of bighorn sheep.

The time period surrounding late gestation, lambing, and nursing is very demanding in terms of the energy and protein required by bighorn ewes. Failure to acquire sufficient nutrients during late gestation and during nursing adversely affects the survival of newborn ungulates (Thorne *et al.* 1976, Julander *et al.* 1961, Holl *et al.* 1979). Crude protein and digestible energy values of early green-up species are usually much higher than those of dormant forages during the critical late gestation, lambing, and rearing seasons (Crawley 1983, White 1983). With their high nutrient content, even minor volumes of these forages within the overall diet composition may contribute important nutritional value at critical life stages (Wagner 2000). However, during the reproductive season, due to the varied topography of bighorn sheep habitat, these forages typically are concentrated on specific sites, such as alluvial fans and washes, where more productive soils support greater herbaceous growth than steeper, rockier soils. Furthermore, forage green-up follows an elevational gradient with lower elevations beginning spring growth earlier than higher elevations (Wehausen 1980, Berger 1991). Access to a range of elevations

provides bighorn sheep enhanced opportunities to acquire nutrients during critical seasons (Hebert 1973, Wehausen 1980, Berger 1991).

Life History

The movement patterns and habits of ewes are learned by their offspring (Geist 1971). By following older animals, young bighorn sheep gather knowledge about escape terrain, water sources, foraging areas, and lambing habitat (Geist 1971). As young rams reach 2 to 4 years of age, they begin to follow older rams away from their natal group (Geist 1971, Festa-Bianchet 1991). Because bighorn sheep rely on vigilance to detect predators, they benefit from gregariousness and group alertness (Geist 1971, Berger 1978).

The adult sexes tend to loosely segregate during much of the year, coming together primarily during the rut (Geist 1971, Bleich *et al.* 1997), which typically peaks from August through October in the Peninsular Ranges (Rubin *et al.* 2000). During the rut, rams join the ewe groups and compete to breed with receptive ewes. The largest rams presumably are the most successful breeders, but smaller rams have been reported to breed as well (Hogg 1984). During the period of sexual segregation, ewes and their lambs are typically found in steeper, more secure habitat, while rams may be found in less steep or rugged terrain (Geist 1971, Bleich *et al.* 1997).

Desert bighorn sheep are primarily diurnal (Krausman *et al.* 1985) but may be active at any time of day or night (Miller *et al.* 1984). Their daily activity pattern includes alternating feeding and resting/ruminating periods. Forage quality influences activity patterns because when forages are low in digestibility, bighorn sheep must spend more time ruminating and digesting forage. Consequently, bighorn sheep may establish a cycle of feeding and ruminating that reflects forage quality and optimizes nutrient intake (Wagner and Peek 1999, Wagner 2000).

In general, bighorn sheep are a wide-ranging species that requires large swaths of relatively pristine land. For example, in the San Jacinto Mountains, fixed-kernel home range sizes averaged 25 km^2 (9.65 mi^2) for rams and 20 km^2 (7.72 mi^2) for ewes (DeForge *et al.* 1997). Large home ranges allow for animals to move in response to variation in predation pressure and changes in resource availability. The size of individual or group home ranges depends on the juxtaposition of required resources (water, forage, escape, or lambing habitat) and, therefore, varies geographically. Home range size also is affected by forage quantity and quality, season, sex, and age of the animal (Leslie 1977, McQuivey 1978). Although most desert bighorn sheep do not seasonally migrate along elevational gradients like many populations in higher latitude mountain ranges, they do exhibit seasonal differences in habitat use patterns. In many populations, animals will have a smaller home range in summer (McQuivey 1978, Leslie and Douglas 1979, Elenowitz 1983), presumably due to their limited movement away from permanent water sources. During the cooler or wetter months of the year, bighorn sheep often exhibit an expanded range as animals move farther from water sources (Simmons 1980). Ewes generally display a higher degree of philopatry to their seasonal home ranges than do rams. Rams tend to range more widely, often moving among ewe groups (Boyce *et al.* 1997, DeForge

et al. 1997, Rubin *et al.* 1998). In most populations of desert bighorn sheep, ram home ranges have been found to be larger than those of ewes (Simmons 1980, DeForge *et al.* 1997).

The gregarious and philopatric behavior of ewes limits their dispersal and exploratory ability relative to those of rams (Geist 1967, 1971). Geist (1971) theorized, however, that a young ewe might switch to a new ewe group if she encountered neighboring sheep and followed them away from her natal ewe group. In the Peninsular Ranges, movement of radio-collared ewes between ewe groups is rare, however, inter-group movement does occasionally occur. During a 3-year study, one ewe moved over 30 km (18.6 mi) and temporarily joined another ewe group (Rubin *et al.* 1998). No emigration of ewes has been observed even though radio-collared animals have been regularly monitored in the northern Santa Rosa Mountains since 1981 (Ostermann *et al.* 2001) and throughout the range since 1993 (E. Rubin *et al*. 1998; DeForge *et al.* 1997). Bighorn sheep evolved movement patterns that were adapted to exploiting stable patches of habitat, consequently compared to other North American ungulates they are regarded as poor dispersers (Geist 1971). Nevertheless, dispersal and exploratory movements do occur, and genetic analyses reflect a low rate of ewe dispersal across the Peninsular Ranges in the evolutionary past (Boyce *et al.* 1999). In 2005, two yearling ewes crossed Chino Canyon, and temporarily occupied the area north of the canyon in an exploratory movement documented by the Bighorn Institute.

The breeding period, or rut, occurs in the late summer and fall months. In the Peninsular Ranges, ewes estimated to be between 2 and 16 years of age have been documented to produce lambs (Rubin *et al*. 2000, Ostermann *et al.* 2001). As parturition approaches, ewes seek secluded sites with shelter, escape terrain, and unobstructed views (Turner and Hansen 1980). They isolate themselves from other females while bearing their lambs (Etchberger and Krausman 1999). Lambs are born after a gestation of approximately 6 months-171 to 185 days (Turner and Hansen 1980, Shackleton *et al.* 1984, Hass 1995). During a 4-year (1993 to 1996) study conducted in the Peninsular Ranges south of the San Jacinto Mountains, the lambing season extended from February through August; however, 87 percent of the lambs were born from February to April, and 55 percent of the lambs were born in March (Rubin *et al.* 2000). DeForge *et al.* (1997) and Cunningham (1982) reported a similar onset of the lambing season in the San Jacinto Mountains and in Carrizo Canyon, respectively. However, in the San Jacinto and northern Santa Rosa Mountains, ewe groups, the lambing season has started in January during some years (Bighorn Institute 1997). Lambs usually are weaned by 6 months of age (Hansen and Deming 1980, Wehausen 1980).

From 1993 to 1996, the reproductive patterns of five ewe groups (Carrizo Canyon, south San Ysidro Mountains, north San Ysidro Mountains, Santa Rosa Mountains [Deep Canyon], and northern Santa Rosa Mountains) were monitored and annual lamb production averaged 77 percent (0.77 lambs born per “ewe-year”) for the 4-year period (E. Rubin, pers. comm.). Using a fecal-based enzyme immunoassay, Borjesson *et al.* (1996) determined that in the fall of 1992, at least 85 percent of sampled adult ewes were pregnant. Both of these observations suggest that conception rates are not currently limiting population growth in the Peninsular Ranges.

Lamb survival (to 6 months of age) was variable among groups and across years. A year of high lamb survival in one group was not necessarily a high survival year in another group (Rubin *et al.* 2000). Of the four groups studied, the northern Santa Rosa Mountains group typically had the lowest lamb survival, while the neighboring Deep Canyon group, located less than 8 km (5 mi) away, had the highest lamb survival. Lamb recruitment in the northern Santa Rosa Mountains was found to be very low between the years of 1977 and 1997 (DeForge *et al.* 1982, DeForge and Scott 1982, Turner and Payson 1982; Ostermann *et al.* 2001). Shorter periods of low lamb to ewe ratios, as well as clinical signs of pneumonia among lambs, have occasionally been observed in Anza-Borrego Desert State Park (Jorgensen and Turner 1973, Jorgensen and Turner 1975, Hicks 1978), but years of high lamb to ewe ratios (Cunningham 1982; M. Jorgensen, *in litt* 2000) have been observed in these areas as well (Rubin *et al.* 2000).

Wehausen (1992) suggested that periods of low recruitment may not warrant alarm because long-lived animals such as bighorn sheep can exist in viable populations if periods of low offspring recruitment are interrupted by periodic pulses of high offspring recruitment. Most ewe groups in the Peninsular Ranges appear to have exhibited such pulses of high recruitment but declining population trends suggest that at times they have not been sufficient to balance adult mortality.

In ruminants, reproductive success is related to the mother's body weight, access to resources, quality of home range, and age (Etchberger and Krausman 1999). Survival of offspring also depends on birth weight and parturition date. Festa-Bianchet and Jorgenson (1996) found that female sheep reduce the care of lambs when resources are scarce to favor their own nutritional requirements over their lamb's development. Ewes that fail to acquire a minimum level of energy reserves (*i.e.*, body weight) may not conceive (Wehausen 1984) or will produce smaller offspring with a poorer chance of survival (Price and White 1985). Several studies have documented a positive relationship between winter precipitation and lamb recruitment in the following year (Douglas and Leslie 1986, Wehausen *et al.* 1987). However, the relationships between climate, lamb recruitment, and population trends likely differ among different bighorn sheep populations, and are not fully understood (Rubin *et al.* 2000).

Lamb and yearling age classes experience high mortality rates relative to adult bighorns. After reaching adulthood at two years of age, bighorn sheep survival is high until ten years of age (Hansen 1980), or until shortly before the age of ecological longevity (Cowan and Geist 1971). However, observed values of annual adult survivorship in the PBS appear low relative to other reported desert populations. During November 1992 to May 1998, survivorship of 113 adult radio-collared bighorn sheep (97 ewes and 16 rams) was monitored between Highway 74 (in the Santa Rosa Mountains) and the U.S.-Mexico border. During this period, overall annual adult survival was 0.79, with no significant difference among three age classes of adults (Hayes *et al.* 2000). Annual survivorship of individual ewe groups ranged from 0.70 to 0.87, and a year of high survivorship in one group was not necessarily a year of high survivorship in other groups (Rubin *et al.* 1998). In the northern Santa Rosa Mountains ewe group, adult survivorship was monitored during a 14-year period (1985 to 1998), and was found to range between 0.50 and

1.00 annually (Ostermann *et al*. 2001). In the San Jacinto Mountains, DeForge *et al.* (1997) monitored the survival of adult (2 or more years of age) radio-collared bighorn sheep during 1993 to 1996 and estimated annual adult survival to be 0.75.

Survival of desert bighorn sheep in greater southeastern California averaged 0.91 (Andrew 1994), 0.86 or greater in northwest Arizona (when highway mortalities were excluded, (Cunningham and deVos 1992), 0.82 in New Mexico (Logan *et al.* 1996), and 0.85 or greater for four populations studied in the Mojave Desert (Wehausen 1992).

Population Trends

Bighorn sheep have been documented in the Peninsular Ranges since early explorers, such as Anza, observed them in the 1700's (Bolton 1930). Grinnell and Swarth (1913) described the area of Deep Canyon in the southern Santa Rosa Mountains, "...well worn trails, footprints, and feces were plentiful. In places it looked as though a herd of domestic sheep had been over the region." Rangewide population estimates were not made until the 1970's. Published estimates were as high as 971 in 1972 (Weaver 1972), and 1,171 in 1974 (Weaver 1975).

U. S. Range-wide population estimates were 570 in 1988 (Weaver 1989), 400 in 1992 (Service 1992), and between 327 and 524 in 1993 (Torres *et al.* 1994). Starting in 1994 a biennial helicopter census has been conducted throughout the Peninsular Ranges using radio-collared animals to estimate sighting probabilities. The range-wide population estimates were 347, 276, 334, 400, 667, 708, and 793 for the years 1994-2006, respectively. From the historic highs of the 1970's, population estimates declined to a low of 276 adults in 1996 (Service 2000); since 1996, the population has steadily increased. Currently, at least 8 ewe groups (or subpopulations) exist in the overall U. S. range, however, the population trajectory of each ewe group appears to be determined independently (Rubin *et al.* 1998). Climatic patterns are correlated across the Peninsular Ranges, suggesting that other local factors specific to each ewe group play important roles in determining long-term abundance trends (Rubin *et al.* 1998). Independent population trends also were observed among ewe groups in the Mojave Desert (Wehausen 1992). Bighorn sheep are relatively long-lived animals that have the potential to reproduce over an extended period of time (2-16 years). Therefore, periods of above average recruitment may compensate for periods of low recruitment (Wehausen 1992). Forage quality and quantity vary with environmental conditions; therefore, female condition, and conception, parturition and lamb survival rates reflect this natural variation. However, if mortality agents begin impacting adult survival, then subpopulation levels may drop dramatically, endangering the existence of a ewe group. Consequently, a ewe group's persistence is always vulnerable to disease outbreaks, high levels of predation, mortality caused by urbanization, and habitat loss from development and human disturbance.

An important influence on bighorn sheep population trends are their behavioral responses to human activity. Bighorn sheep were classified as a wilderness species by Aldo Leopold (1933) because they usually declined when confronted with expanding human developments and

activities. Over the past 75 years, numerous other scientists and land managers have expressed concerns regarding the impact of human activities on bighorn sheep populations (Horesji 1976, Hicks and Elder 1979, Graham 1980, Leslie and Douglas 1980, Hamilton *et al.* 1982, Stemp 1983, Miller and Smith 1985, Gionfriddo and Krausman 1986, Krausman and Leopold 1986, Smith and Krausman 1988, Etchberger *et al.* 1989, Krausman *et al.* 2001, Papouchis *et al*. 2001). These concerns have been echoed in the Peninsular Ranges where bighorn sheep have altered their movement and habitat use patterns in response to human activity (Jorgensen and Turner 1973, Hicks 1978, Olech 1979, Cunningham 1982, DeForge and Scott 1982, Gross 1987, Sanchez *et al.* 1988). The impacts of human development extend beyond the urban edge into bighorn sheep habitat. Growing human populations and their increased activities adjacent to and within bighorn sheep habitat have the potential to adversely affect bighorn sheep by directly converting habitat to human uses and fragmenting remaining use areas. Additionally, the behavioral responses of bighorn sheep to human activities may alter how they utilize resources occurring in their environment. These altered behavior patterns may be less than optimal and could eventually negatively affect population trajectories.

Threats

Threats to bighorn sheep in the Peninsular Ranges include habitat loss and fragmentation, urban sources of mortality, human disturbance, disease, and mountain lion predation (Service 2000). As discussed above, the population dynamics of ewe groups operate independently, and threats to the various ewe groups vary spatially and temporally.

Habitat loss is a leading cause of current species extinctions and endangerment worldwide (Burgman *et al.* 1993). It represents a particularly serious threat to PBS because they live in a narrow band of lower elevation habitat that represents some of the most desirable real estate in the California desert, and it is being developed at a rapid pace. At least 7,490 ha (18,500 ac) or about 77.7 km^2 (30 mi^2) of suitable habitat has been lost to urbanization and agriculture within the range of the three ewe groups that occur along the urban interface between Palm Springs and La Quinta, and development is spreading southward towards Anza-Borrego Desert State Park. Within the narrow band of habitat, bighorn sheep make use of sparse and sometimes sporadically available resources found within their home ranges. As humans encroach into this habitat, these resources are eliminated or reduced in value, and the survival of ewe groups is threatened. Bighorn sheep are also sensitive to habitat loss or modification because they are relatively poor dispersers (Geist 1967, 1971), largely learning their ranging patterns from older animals. When habitat is lost or modified, the affected group is likely to remain within their familiar surroundings but with a reduced likelihood of population persistence, due to the reduced quantity and/or quality of resources.

Encroaching urban development and anthropogenic disturbances have the dual effect of restricting animals to a smaller area and severing connections between ewe groups. Fragmentation poses a particularly severe threat to species with a metapopulation structure, such as PBS, because overall survival depends on interaction among subpopulations. Isolated, small

groups of animals are subject to greater risks of extinction, while inter-connected, small groups acquire much of the resilience of larger populations. The movement of rams and occasional ewes between ewe groups maintains genetic diversity and augments populations of individual ewe groups (Brown and Kodric-Brown 1977, Soulé 1980, Krausman and Leopold 1986, Schwartz *et al.* 1986, Burgman *et al.* 1993). Temporary moves by females between neighboring ewe groups could also provide new habitat knowledge facilitating future range expansion (Geist 1971). Increased fragmentation reduces such possibilities and increases the risk of ewe group extinction.

Beyond physical barriers to movement, fragmentation also can result from less obvious forms of habitat modification. Increased traffic on roads apparently make bighorn sheep, especially ewes, hesitant to cross these roads (Rubin *et al.* 1998; Epps *et al.* 2003). Animals that do cross suffer an additional risk of mortality from automobile collisions (Turner 1976, McQuivey 1978, Cunningham and deVos 1992, DeForge and Ostermann 1998a, Bighorn Institute 1999), with the result that a group whose range is bisected by a road can have reduced viability in the long-term (Cunningham and deVos 1992).

Bighorn sheep evolved in the presence of predators, and developed effective physical and behavioral mechanisms for dealing with them. Similar to other desert bighorn populations, sheep in the Peninsular Ranges have likely experienced varying levels of lion predation for thousands of years. However, when other factors, such as drought, habitat loss and fragmentation due to urbanization, diseases, and other mortality factors reduce populations to low levels and/or alter the abundance and distribution of alternate prey species, such as mule deer, then the influence of predation on population dynamics may increase (Logan and Sweanor 2001). For example, prey populations frequently respond to the presence of mountain lions by changing their distribution at a landscape scale (Hornocker 1970). Where habitats have become fragmented by human developments, bighorns may not be able to move away from areas of high predation risk.

In the Peninsular Ranges coyotes (*Canis latrans*), golden eagles (*Aquila chrysaetos*) and bobcats (*Lynx rufus*) are also potential predators of bighorn sheep (Weaver and Mensch 1970, Jorgensen and Turner 1975, DeForge and Scott 1982).

The westward spread of Europeans and their domestic livestock across North America was thought to play a significant role in reducing the distribution and abundance of bighorn sheep due to the introduction of new infectious diseases (Spraker 1977, Onderka and Wishart 1984). In particular, domestic sheep have been repeatedly implicated in *Pasteurella* pneumonia die-offs of bighorn sheep. It has been hypothesized that disease has played an important role in the population dynamics of bighorn sheep in the Peninsular Ranges (DeForge *et al.* 1982, DeForge and Scott 1982, Turner and Payson 1982, Wehausen *et al.* 1987). Numerous pathogens have been isolated or detected by serologic assay from bighorn sheep in these ranges. These pathogens include bluetongue virus, contagious ecthyma virus, parainfluenza-3 virus, bovine

respiratory syncytial virus (BRSV), *Anaplasma*, *Chlamydia*, *Leptospira*, *Pasteurella*, *Psoroptes,* and *Dermacentor* (DeForge *et al.*, 1982; Clark *et al.* 1985, 1993; Mazet *et al*. 1992; Elliott *et al.* 1994; Boyce 1995; Crosbie *et al.*, 1997, DeForge *et al.* 1997).

Numerous bighorn sheep biologists and land managers have felt compelled to write about their experiences and observations concerning the impacts of human activity on bighorn sheep. These scientists and mangers developed their opinions by and large independently over a lengthy period of time (approximately 75 years). The overwhelming majority expressed concern, recounted increases in human activity with accompanying changes in bighorn sheep behavior, and at times decreased population levels. They almost universally recommended management of human activity in bighorn sheep habitat.

The strength of inference varies within the literature, ranging from simple opinion to reporting expensive and difficult to conduct field studies in peer-reviewed scientific publications. The most compelling evidence available is the local extinctions of bighorn sheep populations living next to expanding urban areas where bighorns experienced high levels of human activity within their home ranges (Krausman *et al.* 2001). Occasional encounters with humans that result in flight or other behavioral and physiological reactions are probably well within the abilities of bighorn sheep to tolerate. Bighorn sheep have evolved to deal with occasional disruptions of their usual behavioral patterns, such as the presence of a predator. However, it appears beyond a certain threshold of human activity, bighorns can simply be overwhelmed, and a number of factors interact to determine the effects of human activity on bighorn sheep.

Bighorn response to human activity is variable and depends on many factors, including but not limited to: the type and predictability of the activity, presence of domestic dogs, the animal's previous experience with humans, size or composition of the bighorn sheep group, location of bighorn sheep relative to the elevation of the activity, distance to escape terrain, and distance to the activity (Weaver 1973; McQuivey 1978; Hicks 1977, 1978; Hicks and Elder 1979; MacArthur *et al.* 1979, 1982; Wehausen 1980; Hamilton *et al*. 1982; Whittaker and Knight 1998; Papouchis *et al.* 1999).

The history of sheep and human interactions has shown that not all bighorn sheep react in the same way to human disturbance. As in humans, there are individual differences in behavior and different groups of sheep have had different experiences with humans (King and Workman 1986). A portion of individuals in some populations may not react as strongly to disturbance as others (Hicks and Elder 1979, Leslie and Douglas 1980, Papouchis *et al.* 2001). Different groups of bighorns may possess different “cultures” in terms of their reactions to human activities. Ewes with lambs typically are more sensitive to disturbance (Light and Weaver 1973, Wehausen 1980) than groups without young. Attraction, habituation, and avoidance are behavioral events that should be placed in careful context with descriptions of the conditions under which the animal displayed a particular response. Individual animals or populations should not be labeled based on the limited responses of a few animals (Whittaker and Knight 1998).

Although the reactions of bighorn sheep to human activity are complex, for communication purposes it is useful to divide them into habitat effects and physiological effects. Habitat effects refer to the relocation of bighorn sheep away from human activity, and this can also be considered spatial displacement. The end result of moving away from humans reduces the options bighorns have for meeting their resource needs. Physiological effects refer to changes that occur within bighorn sheep when they perceive and react to danger or disturbance, such as elevated heart rate or the additional energy expended in moving away from sources of concern. In reality, habitat and physiological effects are not mutually exclusive, and both usually occur when sheep act to avoid danger or disturbance.

A variety of recreational activities such as hiking, mountain biking, hang gliding, horseback riding, camping, hunting, dog-walking, and use of aircraft and off-road-vehicles have the potential to disrupt normal bighorn sheep social behaviors and use of essential resources, and cause bighorn sheep to abandon traditional habitat (Graham 1971, Jorgensen 1973 and 1974, McQuivey 1978, MacArthur *et al*. 1979, Olech 1979, Wehausen 1979, Graham 1980, Leslie and Douglas 1980, Monson and Sumner 1980, Wilson *et al.* 1980, MacArthur *et al*. 1982, Bates and Workman 1983, Wehausen 1983, Miller and Smith 1985, Cunningham and Ohmart 1986, Krausman and Leopold 1986, Armentrout and Brigham 1988, Krausman *et al.* 1989, Goodson *et al*. 1999, Papouchis *et al*. 1999, 2001). For example, Graham (1971) found that areas with more than 500 visitor-days of use per year resulted in a decline of use by bighorn sheep. Jorgensen (1974) reported that PBS use of an area of Anza Borrego Desert State Park was reduced by about 50 percent on days when more recreational vehicle traffic occurred, versus periods of low or no vehicle use. Etchberger *et al.* (1989) found that habitat abandoned by bighorn sheep in the Pusch Ridge Wilderness had greater human disturbance and differences in vegetation and visibility as a result of fire suppression when compared to currently occupied habitat. In addition to recreation, construction, industrial, and agricultural activities may also disturb bighorn sheep (Krausman *et al*. 1989, Leslie and Douglas 1980).

Cases have been cited in which bighorn sheep populations did not appear to be greatly affected by human activity. However, even when bighorn sheep appear to be tolerant, continued and frequent human use of an area can cause them to eventually avoid the area, interfering with use of resources, such as water, mineral licks, lambing or feeding areas, or use of traditional movement routes (Jorgensen and Turner 1973, McQuivey 1978, Graham 1980, Leslie and Douglas 1980, DeForge and Scott 1982, Hamilton *et al.* 1982, Krausman and Leopold 1986, Rubin *et al.* 1998).

In addition to spatial displacement, human activity can result in physiological responses, such as elevated heart rate, even when no behavioral response is discernable, and the cumulative energetic cost of such responses may potentially affect the nutritional status of individuals and potentially populations (Stemp 1983, MacArthur *et al.* 1979, 1982). Responses can range from cautious curiosity to immediate flight. Cardiac and behavioral responses of bighorn sheep to an approaching human were determined to be greatest when a person was accompanied by a dog or approached from over a ridge (MacArthur *et al.* 1979, 1982). When individuals perceive

danger, changes can occur within the endocrine system along with increased heart rates. These changes are actually adaptive and evolved to deal with imminent danger, such as a mountain lion attack. However, long-term chronic activation of this "flight or fight" mechanism may cause physiological reactions that impair immune function, endocrine regulation, and growth and development (Desert Bighorn Council 1992). Additionally, bighorn sheep prevented from using preferred foraging areas or following normal activity patterns by frequent human disturbance may experience less than adequate nutrition, which can also adversely affect the immune system (Festa-Bianchet 1988, Wagner and Peek 1999).

Similar to predation, prolonged drought is a natural factor that can have negative impacts on desert bighorn sheep populations, either by limiting water sources or by affecting forage quality and quantity (Rosenzweig 1968, Hansen 1980a, Monson 1980, Douglas and Leslie 1986, Wehausen *et al.* 1987). During drought years, the concentration of bighorn sheep near remaining water sources may increase competition for forage as well as water, thereby limiting population growth through density dependent regulation (Caughley 1977). In addition, increased density potentially renders animals more susceptible to diseases or parasites (Anderson and May 1979, May and Anderson 1979).

In the Peninsular Ranges, the presence of tamarisk (*Tamarix* sp.), also known as saltcedar, represents a serious threat to bighorn sheep. This exotic plant has rapid reproductive and dispersal rates (Sanchez 1975, Lovich *et al.* 1994), enabling it to out compete native plant species in canyon bottoms and washes. It has the following negative effects on bighorn sheep: 1) it reduces or eliminates the standing water on which bighorn sheep depend, 2) it out competes plant species on which bighorn sheep feed, and 3) it occurs in thick, often impenetrable stands that block access to water sources and it provides cover for predators.

Fire suppression can influence the distribution and habitat use patterns of bighorn sheep by causing avoidance of areas with low visibility (Risenhoover and Bailey 1985, Wakelyn 1987, Etchberger *et al.* 1989, Etchberger *et al*. 1990, Krausman 1993, Krausman *et al*. 1996). Long-term fire suppression results in taller, denser stands of vegetation, thereby reducing openness and visibility and making bighorn sheep more susceptible to predation (Sierra Nevada Bighorn Sheep Interagency Advisory Group 1997). In addition, Graf (1980) suggested that fire suppression reduces forage conditions on some bighorn sheep ranges. In the Peninsular Mountains, changes in vegetation succession are evident in some portions of bighorn sheep habitat, primarily in higher elevation chaparral and pinyon-juniper habitats, and this change has apparently decreased bighorn sheep use of certain canyons and springs (M. Jorgensen, Anza-Borrego Desert State Park, *in litt* 2000).

The number of illegal immigrants entering the U.S. from Mexico continues to increase. Some of these immigrants travel through the Peninsular Ranges and camp at water sources where they may occasionally kill and consume bighorn sheep, or displace them. The U. S. Border Patrol is also increasing its activity along the border and in the southern Peninsular Ranges. Consequently the level of human activity in the area is increasing. This scenario may cause

bighorn sheep to avoid areas they once utilized and may potentially prevent bighorn sheep population connectivity between the United States and Mexico. In addition, the U. S. is planning to construct an intermittent fence along the border, and the design of the fence will prevent the movement of large mammals, as well as humans. The locations of the constructed portions will likely funnel immigrants into the Jacumba Mountains increasing the number of immigrants traversing these mountains to enter the United States.

Status of Critical Habitat

On February 1, 2001 (66 FR 8649), 341,918 ha (844,897 ac) of critical habitat were designated in the Peninsular Ranges of the United States in the counties of Riverside, Imperial, and San Diego. The designation of critical habitat attempted to follow the line delineating essential habitat as presented in the Recovery Plan (Service 2000). At the time of listing and initiating the Recovery Plan, the PBS population was near its historic low point of 276 adults and yearlings. One of the primary goals outlined in the Recovery Plan was protecting sufficient space within essential habitat to support the population growth needed to reach the recovery criteria of maintaining subpopulations of at least 25 adult ewes within each of nine designated recovery regions, which corresponded to known and potential ewe groups, plus sustain an overall population level of 750 adults and yearlings.

As explained in the Recovery Plan (Introduction, Section 4, Page 4) these ewe groups are considered subpopulations in a metapopulation context, thus their recovery and persistence depend upon maintaining habitat connections between the ewe groups. Additionally, bighorn sheep adapt to changing environmental conditions and predation by altering their spatial distribution, therefore securing space for making such adaptive adjustments is necessary for the long-term persistence of the population segment (Epps *et al***.** 2004**,** Hornocker 1970, Logan and Sweanor 2001). Furthermore, desert bighorn sheep make use of gentle terrain, such as alluvial fans and washes for travel routes and to access nutritious forage during droughts and other challenging periods, such as lactation (Berger 1991, Bleich *et al.* 1990, Bleich *et al.* 1996 Krausman and Leopold 1986, Schwartz *et al.* 1986, Leslie and Douglas 1979, Wehausen 1980). The essential habitat boundary encompassed the home ranges of existing ewe groups, the habitat connections between them, alluvial fans and washes, space for adapting to changing environmental conditions, and all primary constituent elements listed in the final critical habitat designation of February, 2001 (66 FR 8649). Therefore, the critical habitat designated in February, 2001, attempted to match the Recovery Plan's essential habitat line as closely as possible.

On March 7, 2005, the Agua Caliente Band of Cahuilla Indians filed a complaint against the Service's economic analysis of designated critical habitat. Other parties subsequently intervened as plaintiffs in the case. On July 31, 2006, a court approved consent decree resulted in the partial vacature of critical habitat designation on Tribal lands and remanded the critical habitat designation back to the Service for a new rulemaking. A revised critical habitat designation of approximately 155,565 ha (384,410 ac) was proposed on October 10, 2007 (72 FR 57739).

Currently, the October 10, 2007 (72 FR 57739) proposed critical habitat is being revised, after evaluating the content of public comments and hearings. It is anticipated that final critical habitat will be designated by March 30, 2009.

The primary constituent elements of a designated critical habitat include the general categories of: "space for individual and population growth, and normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distribution (66 FR 8649)." Specifically for PBS the primary biological and physical constituent elements listed as essential to the conservation of bighorn sheep in the February 1, 2001 (66 FR 8649), designation included: "space for normal behavior of groups and individuals; protection from disturbance; availability of various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought; steep, remote habitat for lambing, rearing of young, and escape from disturbance and/or predation; water sources; suitable linkages allowing individual bighorn to move freely between ewe groups; and maintain connections between subpopulations within the Peninsular Range metapopulation; and other essential habitat components to accommodate population expansion to a recovery level."

In the proposed critical habitat (72 FR 57739) published on October 10, 2007, the primary constituent elements were reorganized and stated as: 1) Moderate to steep, open slopes (20 to 60 percent) and canyons, with canopy cover of 30 percent or less (below 1,402 m (4,600 ft) elevation in the Peninsular Ranges) that provide space for sheltering, predator detection, rearing of young, foraging and watering, mating, and movement within and between ewe groups. 2) Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., *Ambrosia* spp., *Caesalpinia* spp., *Hyptis* spp., *Sphaeralcea* spp., *Simmondsia* spp.), that provide a primary food source year round, grasses (e.g., *Aristida* spp., *Bromus* spp.) and cacti (e.g., *Opuntia* spp.) that provide a source of forage in the fall, and forbs (e.g. Plantago spp., Ditaxis spp.) that provide a source of forage in the spring. 3) Steep, rugged slopes (60 percent slope or greater) (below 1,402 m [4,600 ft] elevation in the Peninsular Ranges) that provide secluded space for lambing as well as terrain for predator evasion. 4) Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas, such as foraging areas and escape terrain. 5) Intermittent and permanent water sources that are available during extended dry periods and that provide relatively nutritious plants and drinking water.

Background

In a desert environment, resources are often times sparse, widely distributed, and ephemeral. Resources, such as food and water may vary in their abundance and availability through time and

space. On an annual basis, most moisture arrives in the Peninsular Ranges of the U. S. during the cooler months of the year, with the warmer months being drier (Turner and Brown 1982). However, occasionally summer thunderstorms contribute significant moisture to localized areas, resulting in a bimodal distribution of moisture, although one that is highly variable (Turner and Brown 1982). Typically, bighorns in the Peninsular Ranges concentrate their activity around permanent sources of water during the warmer, drier months, and expand their use areas during the cooler, wetter months, when they apparently are not dependent upon free-standing water (Jones *et al.* 1957, Leslie and Douglas 1979, Cunningham and Ohmart 1986). On a long-term basis, moisture patterns can vary over many years, and bighorns may be confronted by extended droughts. Under drought conditions, the environment of bighorn sheep can change markedly, with water sources drying up, and nutritious vegetation becoming difficult to find (Andrew 1994, Leslie and Douglas 1979). Consequently, during extended droughts the distribution of bighorn sheep may differ from that observed at other time periods (McQuivey 1978, Leslie and Douglas 1979, Elenowitz 1983).

The lower elevations of the Peninsular Ranges are part of the Colorado Division of the Sonoran Desert, which is considered the driest of the North American deserts (Turner and Brown 1982). As a consequence, the plants which bighorn sheep utilize for food generally are not found in great quantity on any given area compared to other ecosystems, such as forests and grasslands that receive greater moisture. In addition, when moisture does arrive it is often patchily distributed; with some areas receiving a large amount while nearby areas receive little or none. The variations in moisture patterns cause the availability of quality forage to also vary in time and spatial distribution. Therefore, as herbivores, bighorns need to range widely and adjust to changing environmental conditions to sustain themselves, and this requires adequate "space" and "availability of various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought (66 FR 8649)." Likewise, primary constituent elements, "2) Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., *Ambrosia* spp., *Caesalpinia* spp., *Hyptis* spp., *Sphaeralcea* spp., *Simmondsia* spp.), that provide a primary food source year round, grasses (e.g., *Aristida* spp., *Bromus* spp.) and cacti (e.g., *Opuntia* spp.) that provide a source of forage in the fall, and forbs (e.g. Plantago spp., Ditaxis spp.) that provide a source of forage in the spring." and "4) Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas, such as foraging areas and escape terrain" would apply (72 FR 57739).

Few areas of the modern West are not desired for human use, be it development or some form of recreation. Where bighorn sheep appear able to coexist well with humans they also have access to large blocks of intact habitat and extended time periods where they can avoid high levels of human activity (Krausman et al. 2001, Wagner and Peek 1999). Over time, incremental increases in human use, plus habitat loss and fragmentation can eliminate large, blocks of habitat

to the degree bighorn sheep may completely avoid an area. Eventually, there may not be enough intact habitat remaining to sustain a bighorn population. Likewise, one strategy bighorn sheep use to cope with the persistent presence of mountain lions is moving an extended distance to a new area that contains an adequate mix of required resources (Hornocker 1970, Logan and Sweanor 2001). If there are no such areas available, or access to them is prevented by human developments, then the isolated bighorn groups can experience heavy losses to mountain lion predation. Both of these aspects of bighorn sheep behavioral ecology underscore the need for conserving adequate "space for normal behavior of groups and individuals; protection from disturbance;" and "suitable linkages allowing individual bighorn to move freely between ewe groups; and maintain connections between subpopulations within the Peninsular Range metapopulation; and other essential habitat components to accommodate population expansion to a recovery level (66 FR 8649)." Proposed critical habitat primary constituent elements 1 and 4 would similarly apply (72 FR 57739).

Bighorn ewes isolate themselves from other female sheep when bearing lambs. They are sometimes widely separated from other sheep during this period, and this behavior can be explained as a mechanism for coping with predators (Geist 1971). By spreading out and utilizing rugged, steep terrain, bighorn ewes reduce the likelihood of detection and increase the chances of evading predators if located. The amount of terrain possessing the characteristics of optimum lambing habitat is limited. Therefore, an adequate "space" must be conserved to ensure enough lambing habitat is available to sustain the population and provide, "steep, remote habitat for lambing, rearing of young, and escape from disturbance and/or predation (66 FR 8649)", and "3) Steep, rugged slopes (60 percent slope or greater) (below 4,600 feet (1,402 meters) elevation in the Peninsular Ranges) that provide secluded space for lambing as well as terrain for predator evasion (72 FR 57739)."

Ewes return to their groups once lambs are several weeks old, then they begin to utilize a variety of habitats to rear their young (Geist 1971). They will continue to rely upon rugged, steep terrain for predator evasion and bedding areas, but will seek out sources of nutritious forage and water that may not be abundant in steep, rugged terrain. Therefore, to secure needed resources, bighorn ewes require habitat connections that facilitate moving across the landscape, and adequate "space" must be conserved to capture these travel routes and dispersed resources. Additionally, bighorn rams often travel between several ewe groups during the mating season (Geist 1971). This aspect of bighorn sheep biology helps prevent the loss of genetic diversity that could lead to inbreeding depression. Although female bighorn sheep do not move between ewe groups as often as rams, such movements do occur (Boyce *et al.* 1999), and these events are beneficial genetically, as well as from a population demographic standpoint (Brown and Kodric-Brown 1977). In order for these inter-group movements to occur, adequate "space" must be conserved to provide the necessary travel routes and habitat connections.

In the Peninsular Ranges, bighorn sheep use a wide variety of plant species for food (Weaver *et al.* 1968, Jorgensen and Turner 1973). Cunningham and Ohmart (1986) determined that the bighorn sheep diet in Carrizo Canyon (at the south end of the U.S. Peninsular Ranges) consisted

of 57 percent shrubs, 32 percent forbs, 8 percent cacti, and 2 percent grasses. Scott (1986) and Turner (1976) reported similar diet compositions at the north end of the range. Bighorn diet composition varied seasonally and annually as different plant species became available at various locations and time periods. Therefore, designated and proposed critical habitats must contain an "availability of various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought (66 FR 8649)", and from the proposed critical habitat, primary constituent element 3 would apply.

Similar to other desert bighorn populations (Miller and Gaud 1989), bighorn diet composition in the Peninsular Ranges was dynamic, with sheep adjusting to the changing availability and nutritional content of various plant species. To survive as relatively large herbivores in a harsh desert environment, PBS require a diverse assemblage of forage plants, and such plant species diversity is created by the varied landscape. Thus, critical habitat was designated to include the full range of elevations, aspects, and land forms existing in the desert regions of the Peninsular Ranges. For example, the time period surrounding late gestation, lambing, and nursing is very demanding in terms of the energy and protein required by bighorn ewes. Failure to acquire sufficient nutrients during late gestation and during nursing adversely affects the survival of newborn ungulates (Thorne *et al.* 1976, Julander *et al.* 1961, Holl *et al.* 1979). Crude protein and digestible energy values of early green-up species are usually much higher than those of dormant forages during the critical late gestation, lambing, and rearing seasons. With their high nutrient content, even minor volumes of these forages within the overall diet composition may contribute important nutritional value at critical life stages (Wagner and Peek 2007). However, during the reproductive season, due to the varied topography of desert bighorn sheep habitat, these forages typically are concentrated on specific sites, such as alluvial fans and washes, where more productive soils support greater herbaceous growth than steeper, rockier soils. Such areas are also important during the hot season or extended droughts. Vegetation growing on washes and alluvial fans remains green longer than vegetation in other areas, providing forage higher in nutrients and digestibility than the dry, brown forages found on the mountainsides under these conditions (Andrew 1994). Leslie and Douglas (1979) noted that washes and alluvial fans became increasingly important to bighorn sheep not only in summer, but during any period of limited forage availability. Consequently, the primary constituent elements: "4) Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas, such as foraging areas and escape terrain. 5) Intermittent and permanent water sources that are available during extended dry periods and that provide relatively nutritious plants and drinking water (72 FR 57739)" would apply, along with the appropriate language: "availability of various native desert plant communities found on different topographic slopes, aspects, and landforms, such as steep slopes, rolling foothills, alluvial fans, and canyon bottoms; a range of habitats that provide forage, especially during periods of drought (66 FR 8649)", from the designated critical habitat rule.

In the southern Peninsular Ranges, consisting of the southern Santa Rosa, San Ysidro, Pinyon, Vallecito, Tierra Blanca, Sawtooth, and In-Ko-Pah Mountains, the primary constituent elements are largely secured by the existence of Anza-Borrego Desert State Park and Federal lands that are favorably managed for bighorn sheep. For example, the Park has identified and protected bighorn water sources, and has pursued an aggressive program aimed at eliminating exotic plant species from most areas of the park. A significant portion of the southern Peninsular Ranges is designated State or Federal wilderness. The major impacts in this southern area are associated with Highways S-2, S-22, 78, and I-8, where along certain sections bighorns are regularly struck by automobiles, plus the growing prevalence of legal and illegal off-road vehicle recreation threatens to degrade some areas. Currently, most hiking trails in the southern Peninsular Ranges are located in the canyon bottoms and washes, which place recreationists in a non-threatening position below bighorn sheep. With the exception of the area surrounding the town of Borrego Springs, the area has seen comparatively little residential development compared to the northern Peninsular Ranges.

Mining operations exist in both the Fish Creek and Coyote Mountains. Gypsum mining in the Fish Creek Mountains involves blasting and hauling away the nearly pure mineral, primarily for the manufacture of wall board. An adequate reclamation of the site can result in improved foraging opportunities for bighorn sheep. However, the almost constant presence of workers and machinery may reduce bighorn use of the area. In the Coyote Mountains, gravel is currently mined by excavating alluvial fans along the western base of the mountain range. Extensive, but not active, mine sites exist within the interior of the mountain range.

The Jacumba Mountains, the most southerly in the U. S., are the site of extensive illegal immigration and law enforcement operations. To promote national security, an intermittent fence is being constructed along portions of the U. S. /Mexico border. Fencing will not be constructed where the Jacumba Mountains cross into Mexico, therefore, human traffic and law enforcement may actually increase in the mountain range as immigrants encounter obstacles at other locations. Additionally, I-8 cuts through these mountains, and it apparently presented an obstacle to bighorn sheep movement for many years. However, recently the number of bighorn sightings south of the interstate and within the I-8 Island (a segment of the interstate where the east and west-bound lanes diverge leaving approximately 1,214 ha [3,000 ac] of habitat) has increased markedly, and sheep have been seen close to and actually crossing the interstate. This period of increased sheep activity coincides with an increase in bighorn population levels within nearby Carrizo Gorge, which is located north of I-8. As the growing human population attempts to assure continual supplies of energy, the California desert has become viewed as an important area for generating geothermal, wind, and solar power. Consequently, the area's human population may expand, and the I-8 corridor used to transfer energy to cities on the west coast.

In summary, confining PBSs to isolated, remnant islands of rugged habitat imbedded in a landscape matrix dominated by human uses would substantially reduce the probability of population persistence. PBS distribution, especially ewes with young lambs, is tied to steep, rugged terrain that is generally not highly valued by humans for development, thus it is tempting

to only consider remote and rugged areas for critical habitat designation. However, when all aspects of bighorn sheep ecology are considered, and the importance of all segments of the population acknowledged, it is evident that a variety of connected topographies and land forms are important. Generally, the primary constituent elements in the southern Peninsular Ranges have been much less impacted by human activities, such as development and recreation, than the northern Peninsular Ranges. A large portion of bighorn sheep habitat in the southern ranges is protected by Anza-Borrego Desert State Park and State and Federal wilderness areas.

Environmental Baseline

Status of the Species in the Action Area

Bighorn sheep populations inhabiting desert portions of San Diego County were poorly known prior to 1968 (Weaver *et al*. 1968). Starting at that time, CDFG initiated a state-wide inventory of desert bighorn sheep. Methods included ground and aerial surveys, waterhole counts, and interviews with local residents. Due to funding and time constraints, information for what is now the project's action area was obtained mainly by interviewing local residents, with some having lived and worked in the area as far back as 1919. For example, Lloyd Lovell was raised in the area by the McCain family, early ranchers and namesakes for nearby McCain Valley. Lovell related that the area north and including Devil's Canyon had been good sheep habitat in his youth and he frequently observed them in the area. At the time of the Weaver *et al*. survey, the number of sheep in the area appeared reduced compared to earlier years. Based upon these interviews and limited ground surveys, Weaver et al. (1968) estimated the number of bighorn sheep using Devil's Canyon at 12 animals, the number south of Highways I-8 at 20 individuals, and the number inhabiting Carrizo Gorge to the north at 20. The Jacumba Mountains south of I-8 were mapped as containing a permanent population of bighorn sheep. The surveys were continued for three years and final population estimates for the Jacumba Mountains and In-ko-pah Mountains were 83 and 20 total animals, respectively (Weaver *et al.* 1972).

Hicks (1978) reported a study of the status and distribution of bighorn sheep in the In-ko-pah Mountains, which mentioned a sighting of bighorn sheep attempting to cross Interstate 8 near Myer Creek during spring 1978. When questioned, highway maintenance crews said they had not observed sheep in the area since 1971. Additionally, the area around Mountain Springs and Interstate 8 was mentioned as an area containing bighorn sheep by immigrants moving up from Mexico (Hicks 1978). The number of sheep inhabiting the In-ko-pah and Jacumba Mountains was estimated at 80 to 100 animals. Cunningham (1982) studied bighorn sheep in the area soon after Hicks (1978), and observed that Interstate 8 acted as a boundary to sheep movement. He reported that > 30 bighorn sheep were believed to inhabit the area south of the Interstate. Cunningham (1982) speculated that the area around the I-8 Island was once important bighorn sheep habitat because six water sources were relatively close to the highway from In-Ko-Pah to Ocotillo. Local residents also reported that three of these springs had been used by bighorn sheep, and highway department personnel stated that bighorn sheep were common when construction of I-8 began. The Interstate most likely bisected a once continuous distribution of

bighorn sheep (Cunningham 1982). In summary, bighorn sheep populations in the Jacumba Mountains north of I-8 to Carrizo Gorge were well studied and documented by field biologists (see also Olech 1978 and Sanchez 1988). However, population estimates for the area from I-8 to the Mexican border were largely derived from interviewing local residents and highway department personnel.

Helicopter surveys became the favored method for surveying bighorn sheep populations inhabiting remote, roadless areas in the 1980's. A limited number of flights occurred south of I-8, because few animals were regularly observed (Rubin et al. 1998). However, a small population of < 25 animals was assumed to exist south of the Interstate as reported in 1994 (Torres et al. 1994), when regular biennial, range-wide helicopter surveys of the Peninsular Ranges were started by CDFG. A subsequent aerial survey of the area failed to find any bighorn sheep south of the Interstate or around the I-8 Island, and this subpopulation of bighorn was assumed to be extirpated by 1996 (Torres et al. 1996, Rubin et al. 1998, Service 2000). Therefore, subsequent aerial surveys spent minimal time south of Carrizo Gorge (Rubin et al. 1998). The construction of I-8 in the mid-1960's, railroad activity in Carrizo Gorge, livestock grazing, poaching, and fire suppression were suggested as the likely causes of the decline and disappearance of bighorn sheep in the I-8 area south to the Mexican border (Rubin et al. 1998). Helicopter surveys conducted in the mid-1990's in Baja Norte, Mexico, documented bighorn sheep just south of the border in the Sierra Cucapa Mountains, although the number of sheep recorded was low and numbers of domestic livestock were considered high compared to neighboring mountain ranges in Baja Norte (DeForge *et al.* 1993).

For approximately 10 years, bighorn sheep were regarded as absent from the I-8 corridor and southern Jacumba Mountains. Starting in January 2006, bighorn sheep sightings began occurring on a regular basis in the Jacumba Mountains. The first sightings were from the U. S. Border Patrol, and they were centered on the Mountain Springs area, including the I-8 Island. The November 2006 CDFG aerial survey detected two ewes in Devil's Canyon and a six ewes, four lambs, and four rams over looking the east-bound lanes of I-8. Follow-up hikes through the area by Dr. Esther Rubin and USFWS personnel revealed bighorn sheep tracks and fecal piles. Automatic cameras were set up at the permanent water source at Mountain Springs by Jackie Selby, and several groups of bighorn sheep were photographed and observed. The BLM also supplied photographs and point locations of bighorn sheep observed in the area. During 2007, several visits to the I-8 Island area were made by Service biologists and Caltrans personnel and each observed sheep tracks and fecal pellets. The November 17, 2008, CDFG aerial survey detected five groups of bighorn sheep in the area totaling 30 individuals. within the I-8 Island and just north of the west bound lane. Due to insufficient funds, the aerial survey did not cover the entire area south of Interstate 8 to the border.

Based upon the plentiful tracks leading under the two bridges that span Devil's Canyon on the west bound side of I-8, it is apparent bighorn sheep are using these bridges as underpasses to access the approximately 1,214 ha (3,000 ac) island of habitat between the east and west bound lanes. On the east bound side there are no similar bridges, only large culverts and smaller, lower

bridges. Questions remain as to whether the east bound lanes pose a significant obstacle to sheep movement. It is unknown if bighorns use the culverts at times. However, there have been several sightings of bighorn sheep crossing Interstate 8 on the highway's surface (J. Collins, Naval Air Facility El Centro, in litt 2007, 2008) and the California Highway Patrol confirmed that an adult ram was killed on the left shoulder of the east bound lanes on August 12, 2008. Additionally, the U. S. Border Patrol has reported several observations of bighorn sheep south of the Interstate (D. Kim, U. S. Border Patrol, in litt 2008).

In summary, bighorn sheep appear to have re-colonized the I-8 Island area, and the bighorn being observed may have either moved to the area as the population in Carrizo Gorge expanded in numbers and geographic distribution, represent an increasing remnant of an original population, or be animals that moved northward from areas further south, including Mexico. None of the animals observed so far have been radio-collared, and some Carrizo Gorge sheep are radio-collared. However, bighorns observed at Mountain Springs apparently enter and exit the area from the north (E. Rubin, in litt, 2006). A field-trip to the border area on April 24, 2008, detected fecal pellets in lower Pinto Wash, which based upon the elevation, topography, and micro-site, have a high probability of being of bighorn sheep origin. The U. S. Border Patrol has reported observations of bighorn sheep south of the Interstate (D. Kim, *in litt*. 2008), but few are very far from the Mountain Springs/I-8 corridor. Due to insufficient funds, the 2008 aerial survey did not cover the entire area south of Interstate 8 to the Mexican border, and the number of bighorns inhabiting or traversing this area has not been quantified.

A portion of the Sunrise Powerlink crosses into 2001-designated critical habitat near the southeastern foothills and alluvial fans of the Coyote Mountains. Bighorn sheep inhabit the Coyote Mountains during the wetter months of the year. There are no known permanent, year-round water sources in the Coyote Mountains, and these bighorns represent a migratory sub-group of the greater Carrizo Canyon ewe group. Once hot weather arrives, Coyote Mountain sheep cross State Highway S2 to return to Carrizo Canyon, where exist year-round, dependable sources of water. The period of time bighorn ewes utilize the Coyote Mountains corresponds to the lambing season, and ewes with lambs have been observed (R. Bota, CDFG, *in litt*. 2008). The number of sheep migrating to the Coyote Mountains varies, but it is generally <30 animals. These animals use the entire mountain range, but are usually found at the higher elevations.

Bighorn sheep moving from Carrizo Canyon to the Coyote Mountains temporarily reduces the density of animals living near permanent water sources in Carrizo Canyon. This reduction in density provides an opportunity for forage resources to recover from the higher levels of browsing experienced during the summer months. Bighorns migrating to the Coyote Mountains may acquire lower levels of intra-specific competition for quality forage during the cooler, wetter months. The Coyote Mountains may also provide parturition and lamb rearing areas where predation risk from mountain lions is lower than Carrizo Canyon.

Environmental Baseline for Designated and Proposed Critical Habitat

Bighorn sheep critical habitat in the I-8 Island corridor consists of steep, broken country characterized by desert vegetation typical of the Colorado Division of the Sonoran Desert. The area contains a varied topography including two large drainages, In-Ko-Pah Gorge and Devil's Canyon, and numerous side canyons and tributaries. The complex topography harbors a variety of plant species, aspects, and physical features used by desert bighorn sheep. A water source located just west of Mountain Springs has been enclosed by concrete walls to form a small pool. This dependable water source is used by bighorn sheep and mule deer. Several other water sources are said to exist nearby, but their current status is unconfirmed.

The dominant man-made features include Interstate 8, Southwest Powerlink, and the small settlement of Mountain Springs. Remnants of Old Highway 80 pass through a portion of the I-8 Island, and several dirt roads branch off, leading to camping sites and down into Devil's Canyon. Most roads are confined to the southern end of the Island, with the northern portions of the Island accessible only by foot. Due to its strategic location, immigrants from Mexico pass through the Island and surrounding area in relatively large numbers, and there is much associated litter in the southern portion of the project area. Off-road vehicle enthusiasts use highly modified vehicles to traverse the dry water falls of Devil's Canyon. They sometimes use the camp and spend several days during the cooler months.

Bighorn sheep critical habitat affected by the Sunrise Powerlink in the Coyote Mountain area is characterized by broad, rolling alluvial fans and foothills dissected by wide meandering desert washes. The dominant vegetation consists of creosote bush scrub. This area contains no known water sources, but several natural catchments may occasionally fill during rain events. The dominant man-made features in the area include several gravel mines in Shell Canyon, and an Imperial County landfill. The area of the Coyote Mountains affected by the project receives less bighorn sheep use than other areas of the Coyote Mountains. Its main value for bighorn sheep are the expanses of alluvial fan habitat that may provide good forage when adequate moisture is available.

Effects of the Action

The effects of the action not only depend upon the specific design elements of the proposed project, but also the behavioral responses of bighorn sheep to the action. The behavioral response of bighorn sheep to the proposed project can be categorized by their response to the construction phase of the project, followed by their response to the actual structures and their continued operation and maintenance. Bighorn sheep are large wide-ranging mammals living in a harsh desert environment. Compared to some species, bighorns require large areas to find the resources required to maintain themselves. In addition, they have specialized habitat requirements for predator evasion and for coping with the extremes of their desert environment. Conservation of expansive areas of intact habitat and specific key resources are required for bighorn sheep to persist. The degree to which habitat and life history requirements of bighorn

sheep may be adversely affected by human activities and economic interests depends upon the direct and indirect effects of the proposed action.

General Conservation Measures **G-CM-16**, **G-CM-17**, **G-CM-20**, and **G-CM-22** and Species-Specific Conservation Measures **SS-CM-22 –SS-CM-25** are particularly relevant to SDG&E's commitment to avoid, minimize, and offset adverse effects to Peninsular bighorn sheep. Species-Specific Conservation Meausres **SS-CM-22 –SS-CM-25** are repeated here for ease of reference.

SS-CM-22 Construction activities (including the use of helicopters) in 2001- designated critical habitat will be limited to outside the lambing season (January 1 through June 30) and the period of greatest water need (June 1 through September 30) as defined in the Recovery Plan. Construction activities in 2001-designated critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.

SS-CM-23 Compensation for the loss of occupied bighorn sheep habitat will be implemented as follows. Permanent impacts to 2001-designated critical habitat will include 5:1 offsite acquisition and preservation of critical habitat. Temporary impacts to 2001-designated critical habitat will include 1:1 on-site restoration and 2:1 offsite acquisition and preservation of critical habitat. Any acquired habitat will be approved by the CPUC, BLM, and Wildlife Agencies.

SS-CM-24 A biological consultant approved by the Wildlife Agencies shall be retained by SDG&E to collect data on bighorn sheep movements in the area during the construction phase. Prior to construction the biologist shall submit a bighorn sheep monitoring plan that meets the approval of the Wildlife Agencies. Helicopters shall follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying "short-cuts" or sight-seeing trips away from the project site. Helicopters shall avoid flying within 0.6 miles (1 kilometer) of bighorn sheep water sources. Helicopter landing areas, vehicle parking sites, and fly yards shall be cited at least 0.6 miles (1 km) from bighorn sheep water sources and other key resource areas identified by the biologist. When bighorn sheep are detected within the I-8 Island, construction operations shall cease until bighorns leave the area as verified by the biologist.

SS-CM-25 To help reconnect desert bighorn sheep subpopulations and at least partially offset impacts to the overall population caused by the project, SDG&E will:

- Fund the design and construction of an overpass or underpass (for sheep), or tunnel (for vehicles) to facilitate desert bighorn sheep movement across a highway at a location determined by the USFWS (in coordination with CDFG). Tunnel or overpass design must be approved by the Wildlife Agencies, and construction of the facility shall be completed prior to connecting and energizing the proposed project to the grid.

- Fund, design, and construct a system of fences to prevent bighorn sheep from crossing on the surface of westbound Interstate 8. The fencing shall be designed in

consultation with Caltrans and the Wildlife Agencies to facilitate bighorn sheep movement through/across the island using structures currently present, such as the bridges spanning Devil's Canyon, and the culverts/low bridge along eastbout Interstate 8.

- Fund removal of tamarisk, fountain grass, other invasive species, and hazardous fences for the life of the project in the action area, and install and maintain water sources per direction and at locations specified by the Wildlife Agencies for the life of the project.

- Fund a minimum 10-year-long program to monitor the effects of the project on bighorn sheep behavior, movements, and dispersal in the area from Carrizo Gorge south to the international boundary (10 years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program will be designed and implemented by the Wildlife Agencies following construction. Funding for the project shall be provided prior to completion of project construction and is estimated to cost $150K per year in 2008 dollars.

- The project proponent shall provide sufficient funds to CDFG, or a third party designated by CDFG, to ensure five complete biennial aerial surveys from Carrizo Gorge to the international boundary, for the 10-year period beginning with the scheduled 2010 CDFG survey.

- Water used for operation and maintenance purposes shall not be obtained from water sources utilized by bighorn sheep or other wildlife.

Direct Effects

The route of the proposed Sunrise Powerlink crosses two separate areas of designated Peninsular bighorn sheep critical habitat, the I-8 island area and the southeast foothills and alluvial fans of the Coyote Mountains (Figures 7). The construction of the Powerlink will require temporary and permanent losses of designated and proposed critical habitat as well as more limited areas that are neither designated nor proposed. Temporary habitat losses would result from construction of staging areas, pull sites, and fly yards (helicopter landing areas) that would not be needed for operation and maintenance once the project is completed. It is expected that 45.7 ha (113.0 ac) of designated critical habitat and 7.3 ha (18 ac) of proposed critical habitat will be temporarily disturbed. The foundations for the lattice towers (*i.e.*, pads or structure sites), and permanent access and spur roads, helicopter pads, and pull sites will result in the direct loss of 12.4 ha (30.6 ac) of 2001-designated critical habitat and 1.4 ha (3.5 ac) of proposed critical habitat.

Bighorn sheep would loose foraging opportunities and other resources that may exist on these areas, such as potential bedding sites. The permanent loss of 12.4 ha (30.6 ac), distributed across the area in small patches (typically a 30.5 by 30.5 m [100 by 100 ft] pad, adjoined by a 10.7 by 22.9 m [35 by 75 ft] pad and 6 by 6 m [20 by 20 ft] helicopter pad for each lattice tower) should

not substantially reduce foraging opportunities, because the number of individual forage plants eliminated will be minimal compared to the amount of forage remaining in the area. Additionally, due to land ownership patterns, the threat of future permanent and significant losses to the forage resource is small. To minimize the adverse effects, the project proponent proposes to restore native desert plant communities on all sites that are temporarily disturbed. Consequently, bighorns should eventually regain foraging opportunities on these areas. However, favorable growing conditions are unpredictable and restoration efforts may be challenging in the harsh desert environment. To further minimize impacts, the project proponent commits to purchase 109.7 ha (271.1 ac) off-site, restore 22.6 ha (55.8 ac) on-site, and initiate and maintain an invasive species program. Conservation Measures **G-CM-16**, **G-CM-17**, **G-CM-20**, **G-CM-22**, **SS-CM-23** and **SS-CM-25** will minimize the above adverse effects of the project to bighorn sheep habitat.

Cunningham (1982) concluded the Devil's Canyon and In-Ko-Pah Gorge area probably contained a self-sustaining and distinct subpopulation of bighorn sheep prior to the construction of I-8. Habitat characteristics, available water sources, and the testimony of local residents, also support this scenario. In the years following interstate construction, the group was eventually extirpated (Rubin *et al*. 1998), or at least declined to a very low number that remained undetected for many years. Because the decline was not studied or well documented, one cannot state with certainty the reasons it occurred. The concentration of human activities in the area resulting from the construction of I-8, Mountain Springs, and the Southwest Powerlink may have contributed to the apparent extirpation. Such a decrease in sheep numbers would be consistent with other desert bighorn sheep populations that have declined following marked increases in human activity, including construction of highways and other human structures, within their home ranges (Krausman *et al*. 2001).

Nevertheless, bighorn sheep eventually regained use of the I-8 Island area, and they have apparently increased in numbers in the vicinity given the results of the 2006 and 2008 aerial surveys (Service GIS database, CDFG 2006 and 2008 aerial censuses, unpublished data). Additionally, bighorns appear to be crossing both east and west-bound lanes of I-8. Assuming 1996 (Torres *et al*. 1994, 1996) as the date of extirpation, it has taken over a decade for this re-emergence or re-colonization to occur. Likewise for over a decade, I-8 seemed to function as an impassable barrier to bighorn sheep movement, which permanently cut-off bighorns in the U. S. from sheep living south of the interstate. Bighorn sheep largely acquire their movement patterns by following the traditions of previous generations, and this trait tends to make them slow to find and use vacant habitat (Geist 1971). Therefore, when sheep re-occupy available habitat and regain movement patterns, it represents a significant event in population recovery and persistence.

The construction of the SRPL transmission line risks reversing the range expansion exhibited by bighorn sheep in the area, and their likely avoidance of the area during and for an unknown period after construction, may resurrect the I-8 zone of disturbance as a barrier to sheep movement. Should such a scenario be realized, it could take many years for bighorn to regain

use of the I-8 Island and movement south of I-8. Bighorn sheep have been observed to alter their spatial distribution and activity patterns when construction projects have occurred in or near their home ranges. For example, the number of point locations obtained from three radio-collared ewes in an area of the Little Harquahala Mountains in Arizona declined from 24 percent to 1 percent after a road leading to a gravel mine was constructed and truck traffic increased substantially (Krausman and Leopold 1986, Krausman *et al*. 1989, Etchberger and Krausman 1999). Ewes were slow to regain use of the area once truck traffic decreased. Bighorn sheep shifted their use of a water source near Parker, Arizona, following start of a construction project. Sheep visitation to the water source declined and bighorns altered the timing of visits to avoid working hours (Campbell and Remington 1981). Similarly, bighorn ewes in the River Mountains of Nevada shifted to alternative water sources, and in some cases altered their home range in response to construction of a water project (Leslie and Douglas 1980). Conservation Measure **SS-CM-25** should help minimize adverse effects to habitat connectivity resulting from the construction of the SRPL Project.

Construction of the Powerlink through the I-8 Island area will require the use of helicopters, and bighorn sheep may respond dramatically to helicopter flights by changing their spatial distribution (Bleich *et al*. 1990, 1994) or reducing foraging efficiency (Stockwell *et al.* 1991). Helicopter disturbance may cause animals to depart higher quality habitat, and if such displacements continue for an extended period of time, they may adversely affect nutritionally stressed animals or increase vulnerability to predation (Bleich *et al*. 1994). Additionally, as mentioned previously, a number of other authors have documented behavioral responses, such as flight and elevated heart rates, when bighorn sheep have perceived humans, their pets, or machinery as threats. Therefore, it is reasonable to conclude that the construction phase of the project will alter bighorn sheep use of the area. Bighorn sheep will likely avoid using the general area while multiple helicopter flights are occurring and workers are regularly present on the ground. Conservation Measures **G-CM-1**, **G-CM-32**, and **SS-CM-24** should minimize the adverse effects of construction activities on bighorn sheep found in the action area.

The reaction of bighorn sheep to human activities is variable, and some subpopulations are more tolerant than others of human activities. In some cases the tolerance reaches a level frequently termed "habituation". However, only a portion of the population may display this type of behavior (Papouchis *et al*. 2001). Generally, these situations are characterized by human activity that is predictable in location and action, and non-threatening. Often there is an attractant, such as a water source, mineral lick, or irrigated lawn that draws bighorn sheep to an area where they learn to tolerate humans at closer distances. The context of the "habituation" is important, and in a different context the same animals may react differently to people.

The effects of constructing the Palo Verde to Devers 500kV Transmission Line was studied in Arizona by closely monitoring the movement patterns of radio-collared bighorn ewes and rams in Kofa National Wildlife Refuge (Smith *et al*. 1986). The authors spent considerable field time monitoring sheep before, during, and after construction of the line. They focused their analysis on bighorns whose home ranges were originally in proximity to the transmission line ROW.

There was no clear indication that construction or operation of the line caused bighorns to alter or abandon their home ranges. They also documented many instances of bighorns crossing the ROW during and after construction. However, at more narrowly defined movement corridors, construction activities did appear to preclude ram crossings between the New Water and Kofa Mountains. This crossing area consisted of mainly open, rolling country, which is not considered escape terrain. Whereas at another crossing area in the Dome Rock Mountains, extensive escape terrain existed, and construction activities did not appear to inhibit ram crossings. The above example demonstrates the variable nature of bighorn sheep behavior and illustrates that individual animal and site-specific factors may interact to determine ultimate responses to human activity.

Once the SRPL Project is completed, bighorns will encounter the new physical structure in their environment and its associated noises. The question remains as to whether sheep will avoid using the ROW or crossing under the line. Perhaps, the best predictor of the group's future behavior towards the Sunrise Powerlink is their present behavior towards the Southwest Powerlink, a 500kV transmission line currently existing in the I-8 Island. Bighorns continue to use the area, and they obviously must cross under it. Whether their use of the immediate area is reduced compared to earlier pre-construction periods is unknown. In Arizona, bighorn sheep foraged beneath and crossed under similar structures, showing no outward reaction to the transmission line (Smith *et al*. 1986). At several other locations in southwestern deserts, bighorn sheep cross under 500kV and 230kV transmission lines (Bleich *et a*l. 1990, 1997, Epps *et al*. 2003, Jeager 1994); however, it is unknown if crossing rates habitat use patterns in proximity have been altered as a direct result of transmission line construction. Smith *et al*. (1986) did not detect differences in crossing rates between pre- and post-construction time periods for the Palo Verde – Devers transmission line. These findings also indicate that typical operation and maintenance practices do not prevent bighorn sheep from crossing beneath transmission lines.

Bighorn sheep have re-claimed use of the I-8 Island while the area was experiencing relatively high levels of human activity. Obviously, vehicular traffic on the interstate is virtually continuous, and Devil's Canyon has received both legal and illegal off-road vehicle use. Other recreationists use the I-8 Island for camping and hiking, and there is a relatively high number of immigrants moving north from Mexico that pass through the Island and surrounding area. As a consequence, the U. S. Border Patrol conducts frequent missions on foot, and with vehicles and helicopters. Military aircraft also occasionally use the airspace over the project area during training missions. Helicopters are used by CDFG to census and to capture bighorn sheep for research purposes. Such capture operations may leave the individuals that were pursued and net-gunned by helicopter especially sensitive to future encounters with such aircraft (Bleich *et al*. 1990, 1994). However, none of the animals observed in the area have been radio-collared, and the group likely lacks previous experiences with helicopters.

The nature, as well as the number of interactions with humans, is an important factor determining the behavioral response of bighorns to human activity. Bighorns in Utah with a negative history of human contact fled more often and farther than a group that had not

experienced the same history (King and Workman 1986). The construction phase of the project will add to the already high levels of human activity in the project area. The interactions associated with construction will most likely differ from current interactions with humans by being longer in duration, and due to the amount of low-elevation helicopter time, likely more threatening. The apparent increasing use of the project area by bighorn sheep suggests that encounters with humans are brief and not particularly alarming to bighorns, and such encounters probably occur frequently. Bighorn sheep currently using the area do not appear to have a negative or traumatic history with human beings. Consequently, a displacement of bighorn sheep from the project area would likely be temporary. However, it is difficult to determine the length of time sheep may avoid using the area or avoid crossing Interstate 8 to use resources in the southern Jacumba Mountains if construction of the SRPL changes bighorn sheep use of the area. Employing appropriate conservation measures should lessen the time bighorn sheep likely will be displaced from the area, and minimize disruptions to habitat connectivity and bighorn sheep habitat use. Conservation Measure **SS-CM-24** and **SS-CM-25** should minimize adverse effects on bighorn sheep behavior, movement patterns, and population trajectories. These conservation measures also ensure that the long-term and short-term effects of the project are adequately monitored at a meaningful temporal and spatial scale.

Bighorn sheep that seasonally use the Coyote Mountains should not be affected by the construction phase of the project, if construction occurs during the hot season in this area. As mentioned previously, this sub-group of sheep seasonally migrates to Carrizo Canyon, where there are dependable sources of water during the summer months. During the cooler, wetter months of the year, the group generally uses the higher elevations, and they should find adequate areas distant from and higher than the project site.

The Coyote Mountains represents one of the eastern-most limits of Peninsular sheep habitat in the U. S., and bighorns migrate westward across S2 several miles north of the proposed ROW. Therefore, in the Coyote Mountains, the proposed transmission line should not interfere with bighorn sheep movement patterns. A small area of habitat will be permanently converted to human uses, resulting in a loss of foraging opportunities. However, the minimal spatial extent of the losses, distance from escape terrain and **SS-CM-22** should minimize the adverse effects of the proposed project.

Indirect Effects

Indirect effects are caused by the proposed action, are later in time, and are reasonably certain to occur. Access roads constructed as part of the project may facilitate entry to bighorn sheep critical habitat by unauthorized vehicles. Access road construction will occur in the Coyote Mountain area where OHV use is common. In the I-8 Island area, construction and maintenance of the Powerlink will use helicopters and no access roads will be constructed. However, future helicopter use for operation and maintenance has the potential to disturb bighorn sheep, possibly temporarily displacing them from the I-8 Island area.

Conclusion

After reviewing the current status of Peninsular bighorn sheep, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological and conference opinion that the proposed action is not likely to jeopardize the continued existence of Peninsular bighorn sheep and is not likely to destroy or adversely modify designated or proposed critical habitat.

Bighorn sheep presently use the project area, even with relatively high levels of human activity, which include Interstate 8 traffic, illegal immigrants moving north from Mexico, U. S. Border Patrol missions and patrols, and OHV recreation, hiking, and camping. Consequently, it is reasonable to assume this subpopulation of bighorn sheep has become accustomed to the presence of humans in their environment to a certain degree. Additionally, the Southwest Powerlink, a similar transmission line currently exists in the project area, and sheep do not appear to avoid the structure.

Bighorn sheep did not cross I-8 for many years, and the interstate acted as a barrier to sheep movement. Recently, bighorns have begun crossing I-8, and re-establishing former movement patterns. However, the intense and sustained presence of humans and machinery, especially low-flying helicopters, associated with the construction phase of the project will most likely cause bighorn sheep to avoid the action area during project construction and for an unknown time period post-construction due to the cumulative increase in human-related disturbance. This avoidance reaction likely will resurrect I-8 as a barrier to animal movement until disturbance levels subside and sheep adjust behaviorally. Such displacement and avoidance may be short-lived or it may last much longer. Sheep in the area were apparently extirpated by 1996, and it has taken over a decade for them to regularly use the project area. At the same time, this range expansion demonstrates the ability of this subpopulation of bighorn to re-gain movement patterns and recolonize their historic range. This characteristic and the conservation measures included in the project description should minimize the impacts of the project and enable bighorn sheep to recover from the adverse effects of the project. The spatial extent of critical habitat that will be permanently lost is relatively small, and the primary function and value of the critical habitat in this area (foraging and dispersal/connectivity functions) will be maintained. Finally, the habitat acquisitions and management actions that will be implemented as part of the project will adequately minimize adverse effects to critical habitat and support the range-wide conservation (recovery) of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, and Federal regulations issued pursuant to section 4(d) of the Act, prohibit take of endangered and threatened species without a special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that actually kills or injures a listed species by significantly

impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an action that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), such incidental taking is not considered to be a prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The precise amount, extent, location, and timing of incidental take that may occur as a result of implementing the SRPL Project will be specified following site-specific surveys and coordination with BLM, USFS, and SDG&E to identify locations of structures and related facilities in a manner that avoids and minimizes incidental take to listed animal species to the maximum extent feasible, considering engineering and safety constraints. The precise levels of take anticipated and any necessary reasonable and prudent measures/terms and conditions will be developed by the Service and appended to this opinion following the process identified and outlined in Appendix A. In the interim, the Service is quantifying the level of anticipated take for construction activities using the amount of habitat-based permanent and temporary impacts identified in Table 2 as take thresholds that must not be exceeded. No incidental take associated with operations and maintenance activities were identified during this consultation; thus, none are anticipated or authorized.

AMOUNT OR EXTENT OF TAKE

Habitat-based take thresholds are identified as follows for construction of the SRPL Project:

Coastal California Gnatcatcher

- Loss of 11.3 ac of critical habitat;
- Loss of 23.4 ac of suitable habitat;
- Loss of 8.3 ac of occupied habitat; and
- Loss of 10.6 ac of CNDDB habitat

Least Bell's Vireo

- Loss of 7.4 ac of suitable habitat; and
- Loss of 0.9 ac of occupied habitat;

Arroyo Toad

- Loss of 0.20 ac of occupied breeding habitat;
- Loss of 20.2 ac of upland habitat; and
- Loss of 5.48 ac of upland habitat.

Quino Checkerspot Butterfly

- Loss of 15.6 ac of critical habitat; and
- Loss of 24.7 ac of occupied habitat.

Peninsular Bighorn Sheep

- Loss of 27.3 ac of bighorn sheep habitat/critical habitat

EFFECT OF TAKE

In the accompanying biological opinion, we determined that the level of habitat-based impacts and any associated incidental take of coastal California gnatcatchers, least Bell's vireo, arroyo toad, Quino checkerspot butterfly, and Peninsular bighorn sheep is not likely to result in jeopardy to these species.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize and monitor the impacts of this incidental take of gnatcatcher, vireo, arroyo toad, Quino, and PBS.

- SDG&E will minimize unnecessary clearing of habitat for the gnatcatcher, vireo, arroyo toad, Quino, and PBS during construction of the SRPL Project.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, BLM, USFS, and/or SDG&E must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above, and outline required reporting/monitoring requirements These terms and conditions are nondiscretionary.

- BLM, USFS, and SDG&E shall follow the procedures outlined in Appendix A in implementing this process-oriented biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here do not necessarily represent complete fulfillment of the Forest Service's responsibility for the species discussed herein, pursuant to section 7(a)(1) of the Act. We have not identified any additional conservation recommendations beyond the General Conservation and Species-Specific Conservation Measures identified in the Project Description and committed by SDG&E for implementation.

REINITIATION NOTICE

This concludes formal consultation on the proposed action. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Because this biological opinion and conference opinion is process-oriented covering both the initial construction and the operation and maintenance by SDG&E of the SRPL Project over an extended timeframe, we anticipate ongoing coordination will be necessary and appropriate as the proposed action is implemented. In addition, we anticipate that certain future actions as identified in Appendix A and B may require subsequent consultations on a case by case basis as additional project-specific details become available. Specifically, certain operations and maintenance activities may require project-level consultation for actions if listed species may be affected in a manner that was not considered or known at the time of this consultation. For example, no specific habitat-based impacts were identified for future operations and maintenance activities, and no incidental take of listed species was anticipated for these actions. During the course of implementing this biological opinion, project-level consultation may be warranted to address such impacts. Because conservation measures that minimize potential effects to listed species are already committed to by SDG&E, these project-level consultations may only require informal consultation and, in the event that formal consultation is necessary, may be streamlined.

This conference opinion for proposed critical habitat for Quino and PBS may, upon written request from the BLM, be adopted as a biological opinion if the critical habitat becomes designated, provided that no significant new information is developed for the proposed critical habitat, and no significant changes are made to the Federal action.

If you have any questions or comments concerning this biological or conference opinion, please feel free to contact us. Future coordination efforts to implement this process-oriented opinion should be directed to Kathleen Brubaker or Felicia Sirchia of my staff at (760) 431-9440.

LITERATURE CITED

Affinis. 1997. Results of Gnatcatcher Surveys, Lakeside Ranch, San Diego County. CFWO Survey Report No. 4517.

Alberts, A. C., A. D. Richman, D. Tran, R. Sauvajot, C. McCalvin, and D. T. Bolger. 1993. Effects of habitat fragmentation on populations of native and exotic plants in southern California coastal scrub. *In* J. E. Keeley (ed.), Interface between ecology and land development in California, pp. 103-110. Southern California Academy of Science, Los Angeles, California.

Allen, E. B., P. E. Padgett, and A. Bytnerowicz. 1997. Nitrogen deposition effects on coastal sage vegetation of southern California. In Bytnerowicz, A., M. J. Arbaugh, and S. Schilling (tech. coords.). Proceedings of the international symposium on air pollution and climate change on forest ecosystems, Riverside, California. General Technical Report PSW-GTR 164, Albany, California, Pacific Southwest Research Station, USDA Forest Service.

American Ornithologists' Union (AOU). 1957. Checklist of North American Birds, Fifth Edition. American Ornithologists' Union. Port City Press, Baltimore, Maryland. 691 pp.

American Ornithologists' Union (AOU). 1998. Checklist of North American birds, Seventh Edition. American Ornithologists' Union, Washington, D.C. 829 pages.

Amor, R. L. & Stevens, P. L. 1976. Spread of weeds from a roadside into sclerophyll forests at Dartmouth, Australia. *Weed Res.*, 16:111-8.

Anderson, R. M., and R. M. May. 1979. Population biology of infectious diseases: part I. Nature 280(2):361-367.

Andrew, N. G. 1994. Demography and habitat use of desert-dwelling mountain sheep in the East Chocolate Mountains, Imperial County, California. M.S. Thesis, Univ. Rhode Island, 135pp.

Anderson, A. 2007. U.S. Fish and Wildlife Service Personal Communication on Quino checkerspot butterfly. On file, Carlsbad Fish and Wildlife Office.

Armentrout, D. J. and W. R. Brigham. 1988. Habitat suitability rating system for desert bighorn sheep in the Basin and Range province. U.S. Dep. Interior, Bur. Land Manage. Tech. Note 384. 18pp.

Atwood, J. 1980. The United States distribution of the California black-tailed gnatcatcher. Western Birds 11:65-78.

Atwood, J. 1988. Speciation and geographic variation in black-tailed gnatcatchers. *In*: D. Johnston, ed. Ornithological Monographs, No. 42. 74 pp.

Atwood, J. 1990. Status review of the California gnatcatcher (*Polioptila californica*). Unpublished Technical Report, Manomet Bird Observatory, Manomet, Massachusetts. 79 pp.

Atwood, J. 1991. Subspecies limits and geographic patterns of morphological variation in California gnatcatchers (*Polioptila californica*). Bulletin of the Southern California Academy of Sciences 90:118-133.

Atwood, J. L. and J. S. Bolsinger. 1992. Elevation Distribution of California Gnatcatcher in the United States. J. Field Ornithology 62(2): 159-168.

Atwood, J., S. Tsai, C. Reynolds, and M. Fugagli. 1998a. Distribution and population size of California gnatcatchers on the Palos Verde Peninsula, 1993-1997. Western Birds 29:340-350.

Atwood, J., S. Tsai, C. Reynolds, J. Luttrell, and M. Fugagli. 1998b. Factors affecting estimates of California gnatcatcher territory size. Western Birds 29:269-279.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and California Energy Commission. Washington, D.C. and Sacramento, California.

Bailey, E. and P. Mock. 1998. Dispersal capability of the California gnatcatcher: A landscape analysis of distribution data. Western Birds 29:351-360.

Barbour, M. and J. Major. 1977. Terrestrial vegetation of California. John Wiley and Sons, New York.

Barlow, J. C. 1962. Natural history of the Bell's vireo, *Vireo bellii*. University of Kansas Publication 12: 241-296.

Barto, W.S. 1999. Predicting potential habitat for the arroyo toad (*Bufo microscaphus californicus*) in San Diego County using a habitat suitability model and digital terrain data. Masters Thesis for San Diego State University, San Diego.

Bauder, E.T., & Sakrison, J. 1997. Autecology of San Diego thornmint *(*San Diego thornmint*)* No. FG 5637 R5. Borrego Springs, California: Department of Fish and Game.

Bauder, E.T. & Sakrison, J.A. 1999. Mechanisms of Persistence of San Diego Thornmint (*Acanthomintha ilicifolia*). Final Report. Borrego Springs, California: Department of Fish and Game.

Bauder, E.T., McMillian, S., & Kemp, P. 1994. Surveys and assessment of known San Diego thornmint populations No. CA HER 010394. Sacramento, California: California Department of Fish and Game.

Beauchamp, R. M. 1986. *A flora of San Diego County, California*. National City, Calif.: Sweetwater River Press.

Beck, P. 1996. Song repertoire in the least Bell's vireo, *Vireo bellii pusillus*: relationships between repertoire size and breeding ecology. M.S. Thesis, San Diego State University. viii + 94 pp.

Beier, P., and R.F. Noss. 1998. Do habitat corridors provide connectivity? Conservation Biology 12:1241-1252.

Bennett, A.F. 1990. Habitat corridors and the conservation of small mammals in a fragmented forest environment. Landscape Ecology 4(2-3):109-122.

Berger, J. 1978. Group size, foraging and antipredator ploys: an analysis of bighorn sheep decisions. Behav. Ecol. Sociobiol. 4:91-99.

Berger, J. 1991. Pregnancy incentives, predation constraints and habitat shifts: experimental and field evidence for wild bighorn sheep. Anim. Behav. 41:61-77.

Beyers, J., and W. Wirtz. 1995. Vegetative characteristics of coastal sage scrub sites used by California gnatcatchers: implications for management in a fire-prone ecosystem. Proceedings: Fire Effects on Rare and Endangered Species and Habitats Conference. November 13-16, 1995. Pp. 81-89.

Bighorn Institute. 1997. Investigations of Peninsular bighorn sheep in the Santa Rosa and San Jacinto Mountains of California. Bighorn Institute Year-end Report, Palm Desert, California.

Bighorn Institute. 1999. Investigations of Peninsular bighorn sheep in the Santa Rosa and San Jacinto Mountains of California. Bighorn Institute Year-end Report, Palm Desert, California.

Bighorn Institute. 2005. Investigations of Peninsular bighorn sheep in the Santa Rosa and San Jacinto Mountains of California. Bighorn Institute Year-end Report, Palm Desert, California.

Bighorn Institute. 2007. Investigations of Peninsular bighorn sheep in the Santa Rosa and San Jacinto Mountains of California. Bighorn Institute Year-end Report, Palm Desert, California.

Bittman, R. 1991. Sensitive plants known from southern California coastal sage scrub. Natural Diversity Database, Natural Heritage Division, California Department of Fish and Game.

Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390.

Bleich, V. C., R. T. Bowyer, A. M. Pauli, M. C Nicholson, and R. W. Anthes. 1994. Mountain sheep (*Ovis canadensis)* and helicopter surveys: ramifications for the conservation of large mammals. Biol. Conserv. 70:1-7.

Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J.L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 *in* D.R. McCullough, ed. Metapopulations and Wildlife Conservation. Island Press, Washington D.C.

Bleich, V. C., R. T. Bowyer, and J. D. Wehausen. 1997. Sexual segregation in mountain sheep: resources or predation? Wildl. Monogr. No. 134. 50 pp.

Blong, B. 1967. Desert bighorn and people in the Santa Rosa Mountains. California Dep. Fish and Game. Trans. The Wildlife Society, California-Nevada section.

Blong, B. and W. Pollard. 1968. Summer water requirements of desert bighorn in the Santa Rosa Mountains, California, in 1965. California Fish and Game 54(4):289-296.

Bolger, D. T., A. C. Alberts, and M. E. Soulé. 1991. Bird species occurrence patterns in habitat fragments: sampling, extinction and nested species subsets. American Naturalist 137:155-166.

Bolger, D. T., A. C. Alberts, R. M. Sauvajot, P. Potenza, C. McCalvin, D. Tran, S. Mazzoni, and M. E. Soulé. 1997a. Responses of rodents to habitat fragmentation in coastal southern California. Ecological Applications 7:552-563.

Bolton, H. E. 1930. Anza's California expeditions. Vol. IV. Fonts complete diary of the second Anza expedition. University of California Press, Berkeley. 552pp.

Bond, M. and C. Bradley. 2004. Impacts of the 2003 Southern California Wildfires on Four Species Listed as Threatened or Endangered Under the Federal Endangered Species Act. Report prepared by Center for Biological Diversity, Idyllwild, CA.

Bontrager, D.R. R.A. Erickson, and R.A. Hamilton. 1995. Impacts of the 1993 Laguna fire on California Gnatcatchers and Cactus Wren. Pages 69-76 in J.E. Keeley and T.A. Scott (eds.) Brushfires in California wildlands: ecology and resource management. Intl. Assoc. Wildlands Fire. Fairfield, WA.

Bossard, C., J. Randall, and M. Hoshovsky (eds). 2000. Invasive plants of California's wildlands. University of California Press. Berkeley, CA. 360 pp.

Bowman, R.H., United States Soil Conservation Service, & United States Forest Service. 1973. Soil survey, San Diego area, California. Washington D.C.: United States Soil Conservation Service.

Boyce, W. M. 1995. Peninsular bighorn sheep population health and demography study: Final progress report. Calif. Dep. Fish and Game, and Calif. Dep. of Parks and Recreation, unpublished report.

Boyce, W. M., P. W. Hedrick, N. E. Muggli-Cockett, S. Kalinowski, M. C. T. Penedo, and R. R. Ramey II. 1997. Genetic variation of major histocompatibility complex and microsatellite loci: a comparison in bighorn sheep. Genetics 145:421-433.

Boyce, W.M., R.R. Ramey II, T.C. Rodwell, E.S. Rubin, and R.S. Singer. 1999. Population subdivision among desert bighorn sheep (*O. canadensis*) ewes revealed by mitochondrial DNA analysis. Molecular Ecol. 8:99-106.

Braden, G.T., R.L. McKernan, and S.M. Powell. 1997. Effects of nest parasitism by the brown-headed cowbird on nesting success of the California gnatcatcher. Condor 99: 858-865.

Brooks M. L., D. A. Pyke. 2001. Invasive plants and fire in the deserts of North America. Pp 1–14 in Galley KEM,Wilson TP, eds. Proceedings of the Invasive Plant Workshop: The Role of Fire in the Control and Spread of Invasive Species. Tallahassee, Florida: Tall Timbers Research Station.

Brown, J. W. 1991. Sensitive and declining butterfly species in San Diego, California (report). September 1, 1991. Dudek and Associates, San Diego, California. 27 pp.

Brown, B. 1993. Bell's Vireo. *In*: A. Poole, P. Stettenheim, and F. Gill (eds.), The Birds of North America, No. 35. Philadelphia: The Academy of Natural Sciences; Washington D.C.: The American Ornithologists' Union.

Brown, J.H. and A. Kodric-Brown. 1977. Turnover rates in insular biogeography: effects of immigration on extinction. Ecology 58:445-449.

Broyles, B. 1995. Desert wildlife water developments: questioning use in the southwest. Wildl. Soc. Bull. 23:663-675.

Brussard, P. F., and P. R. Ehrlich. 1970. Adult behavior and population structure in *Erebia epipsodia*. Ecology 51: 880-885.

Bunn, D., A. Mummert, R. Anderson, K. Gilardi, M. Hoshovsky, S. Shanks, K. Stahle. 2007. California Wildlife: Conservation Challenges. California Department of Fish and Game : 177

Burger, J.C., M.A. Patten, J.T. Rotenberry, and R.A. Redak. 1999. Foraging ecology of the California gnatcatcher deduced from fecal samples. Oecologia (Berlin) 120: 304-310.

Burgman, M. A., S. Ferson, and H. R. Akçakaya. 1993. Risk assessment in Conservation Biology. Chapman and Hall, London. 314pp.

Burned Area Emergency Response (BAER). 2007. U.S. Department of the Interior (Department). 2008. Burn Area Emergency Response Report for the 2007 Southern California Fires (Buckweed Fire, Grass Valley Fire, Harris Fire, Poomacha Fire, Ranch Fire, Santiago Fire, Slide Fire, and Witch Fire). U.S. Department of the Interior, U.S. Forest Service, and California State Interagency.

Cadre Environmental. 2003. Arroyo toad (*Bufo microscaphus*) radio telemetry study, San Juan Creek, Orange County, California. Prepared for Rancho Mission Viejo, LLC. October 2003. 64 pp.

California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB). 2007. State and Federally Listed Endangered and Threatened Animals of California. State of California, The Resources Agency, Department of Fish and Game, Biogeographic Data Branch. URL: http://www.dfg.ca.gov/bdb/pdfs/TEAnimals.pdf. October.

California Department of Fish and Game (CDFG). 2008. California Natural Diversity Data Base. Search for the county of San Diego and the 7.5-minute U.S. Geological Survey quadrangles for Alpine, Borrego Palm Canyon, Borrego Sink, Clark Lake, Cuyamaca Peak, Del Mar, Dulzura, Earthquake Valley, El Cajon, El Cajon Mountain, Escondido, Hot Springs Mountain, Julian, La Jolla, La Mesa, Mesa Grande, Otay Mountain, Palomar Observatory, Point Loma, Poway, Ramona, Ranchita, Rancho Santa Fe, Rodriguez Mountain, San Pasqual, San Vicente, Santa Ysabel, Tecate, Tub Canyon, Tule Springs, Warner Springs, Warners Ranch, and Whale Peak.

California Department of Fish and Game (CDFG). 2008. California Natural Diversity Data Base. Search for the county of San Diego and the 7.5-minute U.S. Geological Survey quadrangles for Barrett Lake, Campo, Del Mar, El Cajon, Jacumba, Morena Reservoir, Poway, and Viejas Mountain. Aug. 2008.

California Department of Food and Agriculture. 1999. California Action Plan: Red Imported Fire Ant. California Department of Food and Agriculture, Sacramento, California.

Campbell, K., R. Erickson, W. Haas, and M. Patten. 1998. California gnatcatcher use of habitats other than coastal sage scrub: conservation and management implications. Western Birds 29:421-433.

Campbell, B., and R. Remington. 1981. Influence of construction activities on water-use patterns of desert bighorn sheep. Wildl. Soc. Bull. 9:63-65.

Caughley, G. 1977. Analysis of vertebrate populations. John Wiley and Sons, New York. 234pp.

Clark, R. K., C. A. Whetstone, A. E. Castro, M. M. Jorgensen, J. F. Jensen, and D. A. Jessup. 1993. Restriction endonuclease analysis of herpesviruses isolated from two Peninsular Bighorn Sheep (*Ovis canadensis cremnobates*). J. Wildl. Dis. 29:50-56.

Clark, R. K., D. A. Jessup, M. D. Kock, and R. A. Weaver. 1985. Survey of desert bighorn sheep in California for exposure to selected infectious diseases. J. Am. Vet. Med. Assoc. 187:1175-1179.

Clifford, H. R. 1959. Seed dispersal by motor vehicles. J. Ecol. 47:311-315.

Collins, J. 2007. Naval Air Facility El Centro. Electronic correspondence dated July 26, 2007 to U.S. Fish and Wildlife Service. On file, Carlsbad Fish and Wildlife Office.

Collins, J. 2008. Naval Air Facility El Centro. Electronic correspondence dated November 24, 2008 to U.S. Fish and Wildlife Service. On file, Carlsbad Fish and Wildlife Office.

Coues, E. 1866. List of the birds of Fort Whipple, Arizona, with which are incorporated all other species ascertained to inhabit the territory. Proceedings of the Academy of Natural Science of Philadelphia, 18:76-77.

Cowan, I. M. 1940. Distribution and variation in the native sheep of North America. The Am. Mid. Nat. 24:505-580.

Cowan, I. M., and V. Geist. 1971. The North American wild sheep. Pages 58-63 *in* R. C. Abers, ed. North American Big Game. Boone and Crockett Club, Pittsburg, Pa.

Crawley, M. J. 1983. Herbivory: the dynamics of animal-plant interactions. Blackwell Publishing, Oxford, UK.

Crosbie, P. R., W. L. Goff, D. Stiller, D. A. Jessup and W. M. Boyce. 1997. The distribution of *Dermacentor hunteri* and *Anaplasma* sp. in desert bighorn sheep (*Ovis canadensis*). J. Parasitol. 83:31-37.

Crooks, D. R. and M. E. Soulé. 1999. Mesopredator release and avifaunal extinctions in a fragmented system. Nature 400: 563-566.

Cunningham, S. C. 1982. Aspects of ecology of peninsular bighorn sheep (*Ovis canadensis cremnobates*) in Carrizo Canyon, California. M. S. Thesis, Arizona State Univ., Tempe. 76 pp.

Cunningham, S. C. 1989. Evaluation of bighorn sheep habitat. Pages 135-160 *in* R. M. Lee, ed. The desert bighorn sheep in Arizona. Arizona Game and Fish Dept. Phoenix. 129pp

Cunningham, S. C., and J.C. deVos. 1992. Mortality of Mountain Sheep in the Black Canyon area of northwest Arizona. Desert Bighorn Council 1992 Transactions. Pp 27-29.

Cunningham, S. C. and R. D. Ohmart. 1986. Aspects of the ecology of desert bighorn sheep in Carrizo Canyon, California. Desert Bighorn Counc. Trans. 30:14-19.

D'Antonio, C. M. and P. M. Vitousek. 1992. Biological Invasions by Exotic Grasses, the Grass/Fire Cycle, and Global Change. Annual Review of Ecology and Systematics 23: 13-26.

Declining Amphibian Population Task Force (DAPTF). 1998. Fieldwork code of practice. Frog log 27.

DeForge, J. R., and J. Scott. 1982. Ecological investigations into high lamb mortality. Desert Bighorn Council Transactions. 26:65-76.

DeForge, J. R., D. A. Jessup, C. Jenne,r and J. E. Scott. 1982. Disease investigations into high lamb mortality of desert bighorn in the Santa Rosa Mountains, California. Desert Bighorn Counc. Trans. 26:76-81.

DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of Peninsular bighorn sheep in northern Baja California. Desert Bighorn Counc. Trans. 37:24-28.

DeForge, J. R., S. D. Ostermann, C. W. Willmott, K. B. Brennan and S. G. Torres. 1997. The ecology of peninsular bighorn sheep in the San Jacinto Mountains, California. Desert Bighorn Counc. Trans. 41:8-24.

DeForge, J. R., and S. D. Ostermann. 1998a. The effects of urbanization on a population of desert bighorn sheep. Abstract for the 5th Annual Conference of Wildlife Society, Buffalo, New York.

Desert Bighorn Council. 1992. Stress and bighorn sheep. Panel discussion from 1991, W. Boyce, moderator. Desert Bighorn Counc. Trans. 36:58-68.

Diamond, J.M. 1975. Assembly of species communities. Pages 342-444 in M.L. Cody and J.M. Diamond, eds. Ecology and evolution of communities. Harvard University Press, Cambridge, MA.

Diamond, J.M., K.D. Biship, and S. Van Balen. 1987. Bird survival in an isolated Javan woodland: island or mirror. Conservation Biology 1: 132-142.

Douglas, C. L. and D. M. Leslie, Jr. 1986. Influence of weather and density on lamb survival of desert mountain sheep. J. Wildl. Manage. 50:153-156.

Dudek and Associates. 2000. Comprehensive species list. In Understanding the plants and animals of the western Riverside County MSHCP.

Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the EnvironmentalProtection Agency. 2006. Memorandum of Understanding. May 25.

Ehrlich, P. R. 1961. Intrinsic barrier to dispersal in checkerspot butterfly. Science 134: 108-109.

Ehrlich, P. R., and D. D. Murphy. 1981. The population biology of checkerspot butterflies (Euphydryas). Biologisches Zentrablatt 100: 613-629.

Ehrlich, P. R. and D. D. Murphy. 1987. Conservation lessons from long-term studies of checkerspot butterflies. Conservation Biology 1:122-131.

Eliason, S. A., and E. B. Allen. 1997. Exotic grass competition in suppressing native shrubland re-establishment. Restoration Ecology 5: 245-255.

Elenowitz, A. S. 1983. Habitat use and population dynamics of transplanted desert bighorn sheep in the Peloncillo Mountains, New Mexico. M. S. thesis. New Mexico State University, Las Cruces. 158pp.

Elenowitz, A. 1984. Group dynamics and habitat use of transplanted desert bighorn sheep in the Peloncillp Mountains, New Mexico. Desert Bighorn Council Transactions 28:1-8.

Elliot, L. F., W. M. Boyce, R. K. Clark, and D. A. Jessup. 1994. Geographic and subspecific analysis of pathogen exposure in bighorn sheep (*Ovis canadensis*): implications for conservation. J. Wildl. Dis. 30:315-318.

Emmel, T. C., and J.F. Emmel. 1973. The butterflies of southern California Natural History Museum of Los Angeles County, Science Series 26:148 pp.

Epps, C.W., V.C. Bleich, J.D. Wehausen, and S.G. Torres. 2003. Status of bighorn sheep in California. *Desert Bighorn Council Transactions* 47:20-35.

Epps, C. W., D. R. McCullough, J. D. Wehausen, V. C. Bleich, and J. L. Rechel. 2004. Effects of climate change on population persistence of desert-dwelling mountain sheep in California. Conservation Biology 18:102-113.

Etchberger, R. C. and P. R. Krausman. 1999. Frequency of birth and lambing sites of a small population of mountain sheep. Southwest Nat. 44:354-360.

Etchberger, R. C., P. R. Krausman and R. Mazaika. 1989. Mountain sheep habitat characteristics in the Pusch Ridge Wilderness, Arizona. J. Wildl. Manage. 53:902-907.

Etchberger, R. C., P. R. Krausman, and R. Mazaika. 1990. Effects of fire on desert bighorn sheep habitat. Pages 53-57 *in* P. R. Krausman and N. S. Smith, eds. Managing wildlife in the southwest: proceedings of the symposium. Arizona Chapter of the Wildlife Society, Phoenix. 262 pp.

Ewens, W. J., P. J. Brockwell, J. M. Gani, and S. I. Resnick. 1987. Minimum viable population size in the presence of catastrophes. *In* M. E. Soulé (ed.), Viable Populations for Conservation, pp. 59-68. Cambridge University Press, Cambridge, United Kingdom.

Famolaro, P., and J. Newman. 1998. Occurrence and management considerations of California gnatcatchers along San Diego County highways. Western Birds 29: 447-452.

Ferree, K. 2002. Nest site selection and nest success of yellow warbler, Bell's vireo, and yellow-breasted chat in desert riparian ecosystem. M.S. Thesis, San Diego State University. viii + 57 pp.

Festa-Bianchet, M. 1988. A pneumonia epizootic in bighorn sheep with comments on preventive management. Proc. Bienn. Symp. North. Wild Sheep and Goat Counc. 6:66-76.

Festa-Bianchet, M. 1991. The social system of bighorn sheep: grouping patterns, kinship and female dominance rank. Anim. Behav. 42:71-82.

Festa-Bianchet, M., and J. T. Jorgenson. 1996. Selfish mothers: reproductive expenditure and resource availability in bighorn ewes. Behav. Ecol. 9:144-150.

Forman, R., and M. Godron. 1986. Landscape Ecology. John Wiley & Sons, Inc. New York, NY.

Foreman, R. T. T., and L. E. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics 29: 207-231.

Frankel, O.H. and M.E. Soulé. 1981. Conservation and evolution. Cambridge, UK: Cambridge University Press.

Franzreb, K. 1989. Ecology and Conservation of the Endangered Least Bell's Vireo. Biological Report 89(1), U. S. Dept. of the Interior, Service, Sacramento, California.

Galvin, J. 1998. Breeding and dispersal biology of the California gnatcatcher in central Orange County. Western Birds 29:323-332.

Garrett, K. and J. Dunn. 1981. Birds of southern California: status and distribution. Los Angeles Audubon Society. 408 pp.

Geist, V. 1967. A consequence of togetherness. Nat. Hist. 76:24-31.

Geist, V. 1971. Mountain sheep–a study in behavior and evolution. University of Chicago Press, Illinois, USA.

Gelbard J. L., J. Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conservation Biology 17(2):420-432.

Gergus, E. W. A. 1998. Systematics of the *Bufo microscaphus* complex: allozyme evidence. Herpetologica 54 (3): 317-325.

Gilpin, M. E. 1987. Spatial structure and population vulnerability. Pp 125-140. *In* M. Soulé, (ed.) Viable Populations for Conservation. Cambridge (UK): Cambridge University Press.

Gionfriddo, J. P., and P. R. Krausman. 1986. Summer habitat use by mountain sheep. J. Wildl. Manage. 50:331-336.

Goldwasser, S. 1981. Habitat requirements of the least Bell's vireo. California Department of Fish and Game Final Report, Job IV-38.1.

Goodson, N.J., D.R. Stevens, K. McCoy, and J. Cole. 1999. Effects of river based recreation and livestock grazing on desert bighorn sheep on the Navajo Nation. Desert Bighorn Council, Trans. Sec. N. American Wild Sheep Conf. Cohosted with N. Am. Wild Sheep and Goat Council. April 6-9: Reno, NV.

Graf, W. 1980. Habitat protection and improvement. Pages 310-319 *in* The desert bighorn: its life history, ecology, and management. G. Monson and L. Sumner, eds. University of Arizona Press, Tucson. 370pp.

Graham, H. 1971. Environmental analysis procedures for bighorn in the San Gabriel Mountains. Desert Bighorn Counc. Trans. 15:38-45.

Graham, H. 1980. The impacts of modern man. Pages 288-309 *in* The desert bighorn: its life history, ecology, and management. G. Monson and L. Sumner, eds. University of Arizona Press, Tucson. 370pp.

Gray, V. and J. Greaves. 1984. The Riparian Forest as Habitat for the Least Bell's Vireo. *In*: R. Warner and K. Hendrix (eds.), California Riparian Systems: Ecology, Conservation, and Productive Management. University of California Press, Davis, California.

Greaves, J. 1987. Least Bell's vireos at the Gibraltar Reservoir in Santa Barbara County, California in 1987. Unpublished report prepared for the Office of Endangered Species, U. S. Fish and Wildlife Service, U. S. Forest Service, and the California Department of Fish and Game.

Greaves, J. and Z. Labinger. 1997. Site tenacity and dispersal of least Bell's vireos. 1997 Transactions of the Western Section of the Wildlife Society 33:18-23.

Greenberg, C. H., S. H. Crownover, and D. R. Gordon. 1997. Roadside soil: a corridor for invasion of xeric scrub by nonindigenous plants. Natural Areas Journal 17:99–109.

Griffin, P. C. 1999. *Bufo californicus*, arroyo toad movement patterns and habitat preferences. Masters Thesis, Biology Department, University of California, San Diego.

Griffin, P. C., T. J. Case, and R. N. Fisher. 1999. Radio telemetry study of *Bufo californicus*, arroyo toad movement patterns and habitat preferences. Contract Report to California Department of Transportation Southern Biology Pool. 66 pp.

Griffith, J. and J. Griffith. 2000. Cowbird control and the endangered least Bell's vireo: a management success story. *In*: J. Smith, T. Cook, S. Rothstein, S. Robinson, and S. Sealy (eds.), Ecology and management of cowbirds and their hosts. Pp. 342-356. University of Texas Press, Austin, Texas.

Griffith Wildlife Biology (GWB). 1997. Survey and breeding study of the California gnatcatcher and coastal cactus wren at Marine Corps Base Camp Pendleton in 1993 and 1994. Unpublished report prepared for U. S. Marine Corps Camp Pendleton, California (Contract No. M00681-92-C-0079). September 25, 1997. 82 pp.

Grinnell, J. and A.H. Miller. 1944. The Distribution of the Birds of California. Pacific Coast Avifauna Number 27: 1-608, 337-338. Copper Ornithological Club, Berkeley, California. Reprinted by Artemisia Press, Lee Vining, California; April 1986. 617 pp.

Grinnell, J., and H. S. Swarth. 1913. An account of the birds and mammals of the San Jacinto area of southern California. Pages 322-323 *in* University of California Press 10(10):197-406.

Grinnell, J. and T. Storer. 1924. Animal life in the Yosemite. University of California press. Berkeley, California. Pp. 514-515.

Grishaver, M., P. Mock, and K. Preston. 1998. Breeding behavior of the California gnatcatcher in southwestern San Diego County, California. Western Birds 29:299-322.

Gross, R. 1987. Peninsular bighorn sheep of the Jacumba Mountains and Carrizo Canyon, San Diego, California, 1986. Report to the Anza-Borrego Desert Natural History Association, Borrego Springs, California. 36pp.

Haas, C. and K. Crooks. 1999. Carnivore Abundance and Distribution throughout the Puente/Chino Hills. Final report prepared for the Mountains Recreation and Conservation Authority and the State of California, Department of Transportation. 60 pp. + figures and appendices.

Hamilton, T. 1962. Species relationships and adaptations for sympatry in the avian genus *Vireo*. Condor 64:40-68.

Hamilton, K. M., S. A. Holl and C. L. Douglas. 1982. An evaluation of the effects of recreational activity on bighorn sheep in the San Gabriel Mountains, California. Desert Bighorn Counc. Trans. 26:50-55.

Hansen, C. G. 1980a. Habitat. Pages 64-79 *in* G. Monson and L. Sumner, editors. The desert bighorn: its life history, ecology, and management. University of Arizona Press, Tucson, USA.

Hansen, C. G., and O. V. Deming. 1980. Growth and development. Pages 152-171 *in* G. Monson and L. Sumner eds. The desert bighorn: its life history ecology and management. Univ. Arizona Press, Tucson.

Harrison, S. 1989. Long distance dispersal and colonization in the Bay Checkerspot butterfly, *Euphydryas editha*. Ecology 70: 1236-1243.

Hass, C. C. 1995. Gestation periods and birth weights of desert bighorn sheep in relation to other Caprinae. The Southwest. Nat. 40:139-147.

Hayes, C.L., E.S. Rubin, M.C. Jorgensen, R.A. Botta, and W.M. Boyce. 2000. Mountion lion predation on bighorn sheep in the peninsular ranges, California. Journal of Wildlife Management 64:954-959.

HELIX Environmenatl Planning, Inc. 2008b. Year 2007 Least Bell's Vireo (*Vireo bellii pusillus*) Protocol Survey Report for the Alternative Portion of the Sunrise Powerlink Project. Unpublished survey report for the USFWS. January 2, 2008.

Hensley, M. 1950. Notes on the breeding behavior of the Bell's vireo. Auk 67:243-244.

Hebert, D. M. 1973. Altitudinal migration as a factor in the nutrition of bighorn sheep. Dissertation, University of British Columbia, Vancouver.

Hicks, L. L. 1977. Human disturbance of the Mt. Baxter herd of Sierra Nevada bighorn sheep. M. S. Thesis, Univ. Michigan, Ann Arbor. 57 pp.

Hicks, L. L. 1978. The status and distribution of Peninsular Bighorn Sheep in the In-ko-pah Mountains, California. Bur. Land Manage., Riverside, Calif.. 81 pp.

Hicks. L. L., and J .M. Elder. 1979. Human disturbance of Sierra Nevada bighorn sheep. Journal Wildlife Management 43:909-915.

Hogg, J. T. 1984. Mating in bighorn sheep: multiple creative male strategies. Science 225:526-529.

Hoffman, S. M. and R. Zembal. 2007. Status and management of the least Bell's vireo and southwestern willow flycatcher in Santa Ana River Watershed 2006. Prepared for Orange County Water District and U. S. Fish and Wildlife Service.

Holl, S. A., H. Salwasser, and B. Browning. 1979. The diet composition and energy reserves of California mule deer during pregnancy. Calif. Fish and Game. 65:68- 79.

Holland, D., and R. Goodman. 1998. Sensitive species of amphibians and reptiles on MCB Camp Pendleton, San Diego County, California, with management recommendations. Prepared for AC/S Environmental Security, Resource Management Division, MCB Camp Pendleton. Contract #M00681-94-C-0039.

Holland, D. C. and N. R. Sisk. 2000. Habitat use and population demographics of the arroyo toad (*Bufo californicus*) on MCB Camp Pendleton, San Diego County, California: Final report for 1998-1999. Unpublished report submitted to MCB Camp Pendleton.

Holland, D. and N. Sisk. 2001. Habitat use and population demographics for the arroyo toad (*Bufo californicus*) on MCB Camp Pendleton, San Diego County, California 1998-2000. Prepared for AC/S Environmental Security, Resource Management Division, Marine Corps Base Camp Pendleton. Contract # M00681-97-C-0034. 32 pp. + append.

Holland, D., N. Sisk, and R. Goodman. 2001. Linear transect censuring of the arroyo toad (*Bufo californicus*) from 1996-2000 on MCB Camp Pendleton, San Diego County, California. Prepared for AC/S Environmental Security, Resource Management Division, MCB Camp Pendleton. Contract # M00681-98-C-3181.

Horesji, B. 1976. Some thoughts and observations on harassment and bighorn sheep. Proceedings of Northern Wild Sheep Council. 1976:1-14.

Hornocker, M. 1970. An analysis of mountain lion predation upon mule deer and elk in the Idaho Primitive Area. Wildlife Monographs 21:1-39.

Jaeger, J.R. 1994. Demography and Movements of Mountain Sheep in the Kingston and Clark Mountain Ranges, California. M.S. Thesis.

Jalkotzy, M.G., P.I. Ross, and M.D. Nasserden. 1997. The Effects of Linear Developments on Wildlife: A Review of Selected Scientific Literature. Prep. For Canadian Association of Petroleum Producers. Arc Wildlife Services Ltd., Calgary. 115pp.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California, under contract 8023.

Jessup, D. 1999. California Department of Fish and Game letter to U.S. Fish Wildlife Service) dated August 28, 1999. On file, Carlsbad Fish and Wildlife Office.

Johnson, H. B., F. C. Vasek, and T. Yonkers. 1975. Productivity, diversity, and stability

relationships in Mojave Desert roadside vegetation. Bulletin of the Torrey Botanical Club 102:106–115.

Jokerst, J.D. 1993. *A*. In J. C. Hickman (Ed.), the Jepson manual: Higher plants of California (pp. 1400). Berkeley: University of California Press.

Jones and Stokes. 2008. Results of the Coastal California Gnatcatcher Surveys for the Sunrise Powerlink Project. January 2008.

Jones, F .L., G. Flittner and R. Gard. 1957. Report on a survey of bighorn sheep in the Santa Rosa Mountains, Riverside County. Calif. Fish and Game 43:179-191.

Jorgensen, M. 2000. Electronic correspondence with U.S. Fish and Wildlife Service dated August 30, 2000. On file, Carlsbad Fish and Wildlife Office.

Jorgensen, M.C., and R. E. Turner. 1973. The desert bighorn sheep of Anza-Borrego Desert State Park. Desert Bighorn Counc. Trans. 17:81-88.

Jorgensen, M.C., and R. E. Turner. 1975. Desert bighorn of the Anza-Borrego Desert State Park. Desert Bighorn Counc. Trans. 19:51-53.

Jorgensen, P. D. 1973. A survey of human use at a desert bighorn watering area; Middle Willows, Anza-Borrego Desert State Park, California.

Jorgensen, P. D. 1974. Vehicle use at a desert bighorn watering area. Desert Bighorn Counc. Trans. 18:18-24.

Julander, O., W. L. Robinette, and D. A. Jones. 1961. Relation of summer range condition to mule deer herd productivity. J. Wildl. Manage. 25:54-60.

Keeley, J. E., M. Baer-Keeley, and C. J. Fotheringham. 2005. Alien plant dynamics following fire in Mediterranean-climate California shrublands. Ecological Applications 15(6):2109-2125.

Kim, D. 2007. Electronic correspondence dated March 14, 2008 to U.S. Fish and Wildlife Service. On file, Carlsbad Fish and Wildlife Office.

King, M. M. and G. W. Workman. 1986. Response of desert bighorn sheep to human harassment: management implications. Trans. North. Am. Wildl. and Nat. Res. Conf. 51:74-85.

Kirkpatrick, J. and C. Hutchinson. 1977. The community composition of Californian coastal sage scrub. Vegetation 35(1):21-33.

Krausman, P. R. 1993. The exit of the last wild mountain sheep. Pages 242-250, *in* G. P.

Krausman, P. R., R. C. Etchberger and R. M. Lee. 1996. Persistence of mountain sheep populations in Arizona. The Southwest. Nat. 41:399-402.

Krausman, P. R., and B. D. Leopold. 1986. The importance of small populations of desert bighorn sheep. Trans. North. Am. Wildl. and Nat. Res. Conf. 51:52-61.

Krausman, P. R., B. D. Leopold, R. F. Seegmiller, and S. G. Torres. 1989. Relationships between desert bighorn sheep and habitat in western Arizona. Wildl. Monogr. 102:1-66.

Krausman, P. R., S. Torres, L. L. Ordway, J. J. Hervert, and M. Brown. 1985. Diel activity of ewes in the Little Harquahala Mountains, Arizona. Desert Bighorn Counc. Trans. 29:24-26.

Krausman, P. R., W. C. Dunn, L. K. Harris, W. W. Shaw, W. M. Boyce. 2001. Can mountain sheep and humans coexist? Pages in Field, R., R. J. Warren, H. Okarma, and P. R. Sievert, eds. Wildlife, land, and people: priorities for the 21st century. Proceedings of the Second International Wildlife Management Congress. The Wildlife Society, Bethesda, Maryland, USA.

Kus, B. 1999. Impacts of brown-headed cowbird parasitism on productivity of the endangered least Bell's vireo. Research and management of the brown-headed cowbird in western landscapes. Studies in Avian Biology 18:160-166.

Kus, B. 2002. Fitness consequences of nest desertion in an endangered host, the least Bell's vireo. Condor 104:795-802.

Kus, B. and P. Beck. 1998. Distribution and abundance of the least Bell's vireo (*Vireo bellii pusillus*) and the southwestern willow flycatcher (*Empidonax traillii extimus*) at selected southern California sites in 1997. Prepared for the California Department of Fish and Game. 76 pp.

Kus, B. and K. Miner. 1989. Use of non-riparian habitats by least Bell's vireos. *In*: D. Abell (ed.), California riparian systems conference: protection, management, and restoration for the 1990's; September 22-24, 1988, Davis, California. USDA Forest Service General Technical Report PSW-110. Pp. 299-303.

Kus, B. and M. Whitfield. 2005. Parasitism, productivity, and population growth: response of least Bell's vireos (*Vireo bellii pusillus*) and southwestern willow flycatchers (*Empidonax traillii extimus*) to cowbird (*Molothrus* spp.) control. Ornithological Monographs 57:16-27.

Lande, R. and G. F. Barrowclough. 1987. Effective population size, genetic variation, and their use in population management, pp 87-124. *In* M. E. Soulé (ed.), Viable populations for Conservation, pp. 69-86. Cambridge University Press, Cambridge, United Kingdom.

Laycock, W. A., and D. A. Price. 1970. Factors influencing forage quality, environmental influences on nutritional value of forage plants. USDA Forest Service Miscellaneous Publication 1147.

Leopold, A. 1933. Game management. Charles Scribner's Sons, New York, NY.

Leslie, D. M., Jr. 1977. Home range, group size, and group integrity of the desert bighorn sheep in the River Mountains, Nevada. Desert Bighorn Counc. Trans. 21:25-28.

Leslie, D. M., and C. L. Douglas. 1980. Human disturbance at water sources of desert bighorn sheep. Wildl. Soc. Bull. 8:284-290.

Leslie, D. M., and C. L. Douglas. 1979. Desert bighorn sheep of the River Mountains, Nevada. Wildl. Monogr. 66:1-56.

Light, J. T. and R. Weaver. 1973. Report on bighorn sheep habitat study in the areas for which an application was made to expand the Mt. Baldy winter sports facility. U .S. For. Serv. Cajon Ranger Dist., San Bernardino Nat. For. 39 pp.

Logan, K. A., and L. L. Sweanor. 2001. Desert puma: evolutionary ecology and conservation of an enduring carnivore. Island Press, Washington, D. C., USA.

Logan, K. A., L. L. Sweaner, T. K. Ruth, and M. G. Hornocker. 1996. Cougars of the San Andres Mountains, New Mexico. Final Rep., Fed. Aid Wildl. Restor. Proj. W-128-R. New Mexico Dep. Game and Fish, Santa Fe, New Mexico.

Lonsdale, W. M. and L. A. Lane. 1994. Tourist vehicles as vectors of weed seeds in Kakadu National Park, northern Australia. Biological Conservation 69:277–283.

Lovich, J. E., T. B. Egan, and R. C. De Gouvenain. 1994. Tamarisk control on public lands in the desert of southern California: two case studies. Proc. Forty-sixth Calif. Weed Sci. Soc., San Jose, Calif.

MacArthur, R., R. H. Johnston and V. Geist. 1979. Factors influencing heart rate in free-ranging bighorn sheep: a physiological approach to the study of wildlife harassment. Can. J. Zool. 57:2010-2021.

MacArthur, R., V. Geist and R. H. Johnston. 1982. Cardiac and behavioral responses of mountain sheep to human disturbance. J. Wildl. Manage. 46:351-358.

Martin, T. and J. Clobert. 1996. Nest predation and avian life-history evolution in Europe versus North America: A possible role of humans? American Naturalist 147:1028-1046.

Matthiae, P. E. and F. Stearns. 1981. Mammals in forest islands in southeastern Wisconsin. *In* R. L. Burgesss and D. M. Sharpe (eds.), Forest Island Dynamics in Man Dominated Landscapes, pp. 55-66. Springer-Verlag, New York, New York.

Mattoni, R, G. F. Pratt, T. R. Longcore, J. F. Emmel and J. N. George. 1997. The endangered Quino checkerspot, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). J. Res. Lepid. 34: 99-118.

May, R. M. and R. M. Anderson. 1979. Population biology of infectious diseases: part II. Nature 280:455-461.

Mazet, J. A., W. M. Boyce, J. Mellies, I. A. Gardner, R. C. Clark, and D. A. Jessup. 1992. Exposure to *Psoroptes* sp. mites is common among bighorn sheep (*Ovis canadensis*) populations in California. J. Wildl. Dis. 28:542-547.

McMillian, S. 2006. Meeting to discuss past field work on San Diego thornmint in San Diego County with Jonathan Snapp-Cook (fish and wildlife biologist, Service) and Jessica Vinje (botanist, California natural lands management). Unpublished manuscript.

McQuivey, R.P. 1978. The desert bighorn sheep of Nevada. Nevada Department of Wildlife Biological Bulletin 6:1-81.

Merritt, M. F. 1974. Measurement of utilization of bighorn sheep habitat in the Santa Rosa Mountains. Desert Bighorn Council Transactions 18: 4-17.

Miller, G. D., M. H. Cochran and E. L. Smith. 1984. Nighttime activity of desert bighorn sheep. Desert Bighorn Counc. Trans. 28:23-25.

Miller, G. D., and E. L. Smith. 1985. Human activity in desert bighorn habitat: what disturbs sheep? Desert Bighorn Counc. Trans. 29:4-7.

Miller, G. D., and W.S. Gaud. 1989. Composition and variability of desert bighorn sheep diets. J. Wildl. Manage. 53:597-606.

Miner, K. 1989. Foraging ecology of the least Bell's vireo, *Vireo bellii pusillus*. M.S. Thesis, San Diego State University. vii + 87 pp.

Mock, P.J., B.L. Jones, and J. Konecny. 1990. California gnatcatcher survey guidelines. ERC Environmental and Energy Services Co.

Montgomery, D. R. 1994. Road surface drainage, channel initiation, and slope stability. Water Resour. Res. 30:1925-1932.

Monson, G., and L. Sumner, eds. 1980. The desert bighorn: its life history, ecology and management. The Univ. Arizona Press, Tucson. 370 pp.

Munz, P.A. 1974. A flora of Southern California. University of California Press, Berkeley, California.

Natural Resources Conservation Service (NRCS). 2006. California district helps watershed look like its old self again. Available at http://www.nrcs.usda.gov/news/thisweek/2004/041124/ caarundodonax.html.

Newman, J. 1992. Relationships between territory size, habitat structure, and reproductive success in the least Bell's vireo, *Vireo bellii pusillus*. M.S. Thesis, San Diego State University. vii + 85 pp.

Nolan, V. 1960. Breeding behavior of the Bell's vireo in southern Indiana. Condor 62: 225-244.

Noss, R.F. 1987. Corridors in real landscapes: a reply to Simberloff and Cox. Conservation Biology 1: 159-164.

Noss, R.F., and L.D. Harris. 1986. Nodes, networks, and MUMs: preserving diversity at all scales. Enviro. Mgt. 10:299-309.

Oberbauer, T., & Vanderwier, J.M. 1991. The vegetation and geologic substrate association and its effect on development in southern California. In P. L. Abbott, & W. J. Elliot (Eds.), Environmental perils, San Diego region (pp. 203-212). San Diego, California: San Diego Association of Geologists.

O'Leary, J. 1990. Californian coastal sage scrub: general characteristics and considerations for biological conservation. *In*: A. Schoenherr, ed. Endangered Plant Communities of Southern California. Southern California Botanists Special Publication Number 3. Pp. 24-41.

Olech, L.A. 1978. The behavior of the Peninsular bighorn sheep, Ovis Canadensis cremnobates Elliot, in Anza-Borrego Desert State Park, California. Thesis, San Diego State University, California.

Olech, L. A. 1979. Summer activity rhythms of Peninsular Bighorn Sheep in Anza-Borrego Desert State Park, San Diego County, California. Desert Bighorn Counc. Trans. 23:

Onderka, D. K., and W. D. Wishart. 1984. A major sheep die-off from pneumonia in southern Alberta. Proc. Bienn. Symp. North. Wild Sheep and Goat Counc. 4:356-363.

Ostermann, S. D., J. R. DeForge, and W. D. Edge. 2001. Captive breeding and reintroduction evaluation criteria: a case study of Peninsular bighorn sheep. Conservation Biology 15:749-760.

Orsak, L. J. 1978. The butterflies of Orange County, California. University of California, Irvine. 349 pp.

Padgett, P. E., and E. B. Allen. 1999. Differential responses to nitrogen fertilization in native shrubs and exotic annuals common to Mediterranean coastal sage scrub of California. Plant Ecology 144: 93-101.

Padgett, P. E., E. B. Allen, A. Bytnerowicz, and R. A. Minich. 1999. Changes in soil inorganic nitrogen as related to atmospheric nitrogenous pollutants in southern California. Atmospheric Environment 33: 769-781.

Papouchis, C. M., F. J. Singer, and W. Sloan. 1999. Effects of increasing recreational activity on desert bighorn sheep in Canyonlands National Park, Utah. Pages 364-391, *in* F. J. Singer and M.A. Gudorf., eds. Restoration of bighorn sheep metapopulations in and near 15 national parks: conservation of a severely fragmented species. U. S. Geol. Surv. Open File Rep. 99-102, Midcontinent Ecol. Serv. Cent., Fort Collins, Colo. 96 pp.

Papouchis, C. M., F. J. Singer, and W. Sloan. 2001. Responses of desert bighorn sheep to increased human recreation. Journal of Wildlife Management 65:573-582.

Patten, M.A., and K.F. Campbell. 1998. Has brood parasitism selected for earlier nesting in the California gnatcatcher? Western Birds 29:290-298.

Patten, M. A. and S. J. Myers. 1992. Geographic distribution. *Bufo microscaphus californicus*. Herpetological Review 23(4): 122.

Peterson, B. 2002. A multi-scale approach to nest predation of the least Bell's vireo (*Vireo bellii pusillus*). M.S. Thesis, San Diego State University. vii + 55 pp.

Peterson, B., B. Kus, and D. Deutschman. 2004. Determining nest predators of the least Bell's vireo through point counts, tracking stations, and video photography. Journal of Field Ornithology 75(1):89-95.

Pike, J. and L. Hays. 1992. The status and management of the least Bell's vireo within the Prado Basin, California, 1986-1991. Unpublished report, California State University, Long Beach Foundation and U. S. Fish and Wildlife Service, Laguna Niguel, California.

Pimm, S.L. and M.E. Gilpin. 1989. Theoretical issues in conservation biology. In: Roughgarden, J., R. May, and S.A. Levin (eds.). Perspectives in Ecological Theory. Princeton University Press, Princeton, NJ. Pp. 287-305.

Pitelka, F. and E. Koestner. 1942. Breeding behavior of the Bell's Vireo in Illinois. Wilson Bulletin 54:97-106.

Porter, S. D., and D. A. Savignano. 1990. Invasion of polygyne fire ants decimates native ants and disrupts arthropod community. Ecology 71:2095-2106.

Preston, K., P. Mock, M. Grishaver, E. Bailey, and D. King. 1998. California gnatcatcher territorial behavior. Western Birds 29:242-257.

Price, M. A., and R. G. White. 1985. Growth and development. Pages 183-213 *in* R. J. Hudson and R. G. White, eds. Bioenergetics of wild herbivores. CRC Press, Boca Raton, Fla.

Ramey, R .R., II. 1995. Mitochondrial DNA variation, population structure, and evolution of mountain sheep in the southwestern United States and Mexico. Molecular Ecol. 4:429-439.

Reijnen, R., R. Foppen, C.T. Braak, J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III: Reduction of density in relation to the proximity of main roads. Journal of applied ecology, 32:187-202.

Reiser, C. H. 1996. Rare plants of San Diego County (1996th Ed.). San Diego, California: Aquafir Press.

Riparian Habitat Joint Venture (RHJV). 2006. Website describing plans and objectives. Available at http://www.prbo.org/calpif/htmldocs/rhjv/.

Risenhoover, K. L. and J.A. Bailey. 1985. Foraging ecology of mountain sheep: implications for habitat management. J. Wildl. Manage. 49:797-804.

Rosenzweig, M. L. 1968. Net primary production of terrestrial communities: prediction from climatological data. Am. Nat. 102:67-74.

Rubin, E. S., W. M. Boyce, and V. C. Bleich. 2000. Reproductive strategies of desert bighorn sheep. J. Mammal. 81:769-786.

Rubin, E. S., W. M. Boyce, M. C. Jorgensen, S. G. Torres, C.L. Hayes, C. S. O'Brien, and D. A. Jessup. 1998. Distribution and abundance of bighorn sheep in the Peninsular Ranges, California. Wildl. Soc. Bull. 26:539-551.

Salata, L. 1983. Status of the least Bell's vireo on Camp Pendleton, California. Unpublished report prepared for U. S. Fish and Wildlife Service, Laguna Niguel, California. Contract No. 11100-0145-82. January 1983.

San Diego Gas & Electric (SDG&E). 1995. SDG&E Subregional Natural Community Conservation Plan. SDG&E Real Estate Operation Department, Dec. 15, 1995.

San Diego Gas & Electric (SDG&E). 2002. Water Quality Construction Best Management Practices Manual (BMPs).

San Diego Gas & Electric (SDG&E). 2008. Biological Assessment for the Sunrise Powerlink Project. Prepared by San Diego Gas and Electric Company, Ebbin Moser + Skaggs LLP, ICF Jones & Stokes, KP Environmental, John Messina, TRC Companies, Inc., Wildlife International. November 2008.

Sanchez, P. G. 1975. A tamarisk fact sheet. Desert Bighorn Counc. Trans. 19:12-14.

Sanchez, J. E. 1988. Decline of the Carrizo Canyon Peninsular desert bighorn population. M. S. Thesis, New Mexico State Univ., Las Cruces.

Sanchez, J. E., R. Valdez, V. W. Howard, M. C. Jorgensen, J. R. DeForge, and D. A. Jessup. 1988. Decline of the Carrizo Canyon Peninsular desert bighorn population. Desert Bighorn Counc. Trans. 32:31-33.

Schmidt, W. 1989. Plant dispersal by motor cars. Vegetatio 80:147–152.

Schwartz. O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biol. Conserv. 37:179-190.

Scott, J. E. 1986. Food habitats and nutrition of desert bighorn sheep (*Ovis canadensis cremnobates*) in the Santa Rosa Mountains, California. M. S. Thesis, California State Polytechnic Univ., Pomona.

Scott, T.A. 1993. Initial effects of housing construction on woodland birds along the wildland urban interface. *In:* Interface between Ecology and Land Development in California. Edited by J.E. Keeley. Southern California Academy of Sciences, Los Angeles, CA.

Scott, J.M. and D.S. Wilcove. 1998. Improving the future for endangered species. Bioscience. 48(8): 579-80.

Shackleton, D. M., R. G. Peterson, J. Haywood, and A. Bottrell. 1984. Gestation period in *Ovis canadensis*. J. Mammal. 65:337-338.

Shaffer, M. L. 1987. Minimum viable populations: coping with uncertainty. *In* M. E. Soulé (ed.), Viable populations for Conservation, pp. 69-86. Cambridge University Press, Cambridge, United Kingdom.

Sharp, B. 2002. Factors influencing the incidence of brood parasitism by brown-headed cowbirds (*Molothrus ater*) of least Bell's vireos (*Vireo bellii pusillus*). M.S. Thesis, San Diego State University. viii + 58 pp.

Sierra Nevada Bighorn Sheep Interagency Advisory Group. 1997. A conservation strategy for Sierra Nevada bighorn sheep. 31pp.

Simmons, N. M. 1980. Behavior. Pages 124-144 *in* G. Monson and L. Sumner, editors. The desert bighorn: its life history, ecology, and management. University of Arizona Press, Tucson, USA.

Small, M. and M. Hunter. 1988. Forest fragmentation and avian nest predation in forested landscapes. Journal of Wildlife Management 52:123-126.

Smith, N. S. and P. R. Krausman. 1988. Desert Bighorn Sheep: A guide to selected management practices. U. S. Fish and Widl. Serv. Biol. Rep. 88(35) 27pp.

Snapp-Cook, J. 2009. Personal communication between Amber Himes and Jonathan Snapp-Cook (U.S. Fish and Wildlife Service biologists). January 8, 2009.

Sockman, K.W. 1997. Variation in life-history traits and nest-site selection affects risk of nest predation in the California gnatcatcher. Auk 114: 324-332.

Soulé, M.E. 1980. Thresholds for survival: maintaining fitness and evolutionary potential. Pages 151-169 *in* M.E. Soulé and B.A. Wilcox, editors. Conservation biology: an evolutionary-ecological perspective. Sinauer Associates, Sunderland, Maryland, USA.

Soulé, M.E. 1991. Land use planning and wildlife maintenance: guidelines for conserving wildlife in an urban landscape. Journal of the American Planning Association 57:313-323.

Soulé, M.E., and D. Simberloff. 1986. What do genetics and ecology tell us about the design of nature reserves? Conservation Biology 35:19-40.

Soulé, M.E., D.T. Bolger, A.C. Roberts, R. Sauvajot, J. Wright, M. Sorice, and S. Hill. 1988. Reconstructed dynamics of rapid extinctions of chaparral-requiring birds in urban habitat islands. Conservation Biology 2:75-92.

Sovoda, M. A., A. B. Sargeant, and J. W. Grier. 1995. Differential effects of coyotes and red foxes on duck nest success. Journal of Wildlife Management 59:1-9.

Spraker, T. R. 1977. Fibrinous pneumonia of bighorn sheep. Desert Bighorn Council Transactions 21:17-18.

Stamp, N. E. 1984. Interactions of parasitoids and checkerspot caterpillars *Euphydryas* spp. (Nymphalidae). Journal of Research on the Lepidoptera 23: 2-18.

Stebbins, R. C. 1985. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston, MA. xiv + 336 pp.

Steek, D.M. 1995. Reproductive biology of a rare California annual, *A. duttonii*, and its congener, *A. obovata* ssp. *cordata*. [Masters thesis]. University of California). , 1.

Stemp, R.E. 1983. Heart rate response of bighorn sheep to environmental factors and harassment. M. S. Thesis, Univ. of Calgary, Alberta, Canada. 341 pp.

Stockwell, C. A., G. C. Bateman, and J. Berger. 1991. Conflicts in national parks: A case study of helicopters and bighorn sheep time budgets at the Grand Canyon. Biological Conservation 56:317-328.

Storer, T.I., R.L., Usinger, R.C. Stebbins, and J.W. Nybakken 1972. General Zoology. 5th edition. McGraw-Hill, New York.

Sweet, S. 1989. Observations on the biology and status of the arroyo toad, *Bufo microscaphus californicus*, with a proposal for additional research. Department of Biological Sciences, University of California, Santa Barbara, California.

Sweet, S. S. 1992. Initial report on the ecology and status of the arroyo toad (*Bufo microscaphus californicus*) on the Los Padres National Forest of Southern California with management recommendations. Contract report to Los Padres National Forest. 198 pp.

Sweet, S.S. 1993. Second report on the biology and status of the arroyo toad (*Bufo microscaphus californicus*) on the Los Padres National Forest of southern California. Report to United States Department of Agriculture, Forest Service, Los Padres National Forest, Goleta, California. ii+73pp.

Technology Associates International Corporation (TAIC). 2002. California gnatcatcher habitat evaluation model for USFWS. Digital Data. USFWS Office. Carlsbad CA.

Terborgh, J. 1988. The big things that run the world—a sequel to E. O. Wilson. Conservation Biology 2:402-403.

Thorne, E. T., R. E. Dean, and W. G. Hepworth. 1976. Nutrition during gestation in relation to successful reproduction in elk. J. Wildl. Manage. 40:330-335.

Torres, S. G., V. C. Bleich and J. D. Wehausen. 1994. Status of bighorn sheep in California, 1993. Desert Bighorn Counc. Trans. 38:17-28.

Torres, S. G., V. C. Bleich and J. D. Wehausen. 1996. Status of bighorn sheep in California, 1995. Desert Bighorn Counc. Trans. 40:27-34.

Turner, J. C. 1973. Water, energy, and electrolyte balance in the desert bighorn sheep, *Ovis canadensis*. Ph. D. Thesis, Univ. California, Riverside. 132 pp.

Turner, J.C. 1976. Bighorns. Pages 167-173 *in* I. P. Ting and B. Jennings, eds. Deep Canyon, a desert wilderness for science. Philip L. Boyd Deep Canyon Desert Research Center, Univ. California, Riverside.

Turner, J. C., and C. G. Hansen. 1980. Reproduction. Pages 145-151 *in* G. Monson and L. Sumner, eds. The desert bighorn: its life history, ecology, and management. The Univ. Arizona Press, Tucson. 370pp.

Turner, J. C. and J. B. Payson. 1982. The occurrence of selected infectious diseases in the desert bighorn sheep, *Ovis canadensis cremnobates*, herds of the Santa Rosa Mountains, California. California Fish and Game 68:235-243.

Turner, R.M. and D.E. Brown. 1982. 154.1 Sonoran desertscrub. Pages 181-221 in D.E. Brown, editor. Desert plants special issue biotic communities of the American Southwest-United States and Mexico. University of Arizona, Tucson, USA.

TRC. 2007. Quino Checkerspot Butterfly (Euphydryas editha quino), Unpublished Service Protocol Survey Report.

TRC. 2008. San Diego Gas & Electric Sunrise Powerlink Project Quino Checkerspot Butterfly (Euphydryas editha quino), Unpublished Service Protocol Survey Report.

Unitt, P. 1984. The birds of San Diego County. San Diego Society of Natural History: Memoir 13, San Diego, CA. 276pp.

Unitt, Philip. 2004. San Diego County Bird Atlas. San Diego Natural History Museum: 430-433.

Unitt, P. 2004a. Bell's Vireo *Vireo bellii*. San Diego County Bird Atlas. San Diego Natural History Museum. Ibis Publishing Company, San Diego, CA.

Unitt, P. 2004b. San Diego County Bird Atlas. San Diego Natural History Museum. Ibis Publishing Company, San Diego, CA. On Google Earth Presentation: http://www.sdnhm.org/ge_files/GE_atlas.html

U.S. Department of Agriculture (USDA) Forest Service. 2000. Southern California conservation strategy province consultation package. December 15. Unpublished document submitted to the U.S. Fish and Wildlife Service.

U.S. Department of Agriculture Forest Service (USFS). 2007. Modeled habitat for sensitive species on Cleveland National Forest lands. Unpublished GIS data.

U.S. Fish and Wildlife Service (Service). Reinitiated Biological Opinion on the Cleveland National Forest's Livestock Grazing Program, Orange, Riverside, and San Diego Counties, California (1-6-01-F-1694).

U. S. Fish and Wildlife Service (Service). 1986. Endangered and threatened wildlife and plants; Determination of endangered status for the least Bell's vireo; Final Rule. Federal Register 51:16474-16482.

U. S. Fish and Wildlife Service. 1992. Endangered and threatened wildlife and plants; proposed rule to list the Peninsular Ranges population of the desert bighorn sheep as endangered. Federal Register 57(90):19837-19843.

U. S. Fish and Wildlife Service (Service). 1993. Endangered and threatened wildlife and plants; Determination of threatened status for the Coastal California Gnatcatcher; Final Rule. Federal Register 58:16742-16757.

U. S. Fish and Wildlife Service (Service). 1993. Endangered and threatened wildlife and plants; Special rule concerning take of the threatened coastal California gnatcatcher: Final rule. Federal Register 58:65088-65096.

U.S. Fish and Wildlife Service (Service). 1994. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Arroyo Southwestern Toad. Federal Register 59: 63264.

U. S. Fish and Wildlife Service (Service). 1994a. Endangered and threatened wildlife and plants; Designation of critical habitat for the Least Bell's Vireo; Final Rule. Federal Register 59:4845-4867.

U.S. Fish and Wildlife Service (Service). 1994b. Endangered and Threatened Wildlife and Plants; Proposed Rule To List the Laguna Mountains Skipper and Quino Checkerspot Butterflies as Endangered. Federal Register 59: 39868. August 4, 1994.

U.S. Fish and Wildlife Service (Service). 1997. Endangered and threatened wildlife and plants: Determination of endangered status for the Laguna Mountains skipper and Quino checkerspot butterfly. Federal Register 62: 2313-2322. January 6, 1997.

U.S. Fish and Wildlife Service (Service). 1998. Endangered and Threatened Wildlife and Plants; Determinations of Endangered or Threatened Status; Final Rules and Withdrawal of Proposed Rule. Federal Register 63:54938-54956. October 13, 1998.

U.S. Fish and Wildlife Service (Service). 1998b. Determination of endangered or threatened status for four southwestern California plants from vernal wetlands and clay soils. Federal Register 63: 54975-54994.

U.S. Fish and Wildlife Service (USFWS). 1998c. Draft Recovery Plan for the Least Bell's Vireo (*Vireo bellii pusillus*). Portland, OR.

U.S. Fish and Wildlife Service (Service). 1999. Arroyo southwestern toad (*Bufo microscaphus californicus*) recovery plan. Portland, OR. 119 pp.

U.S. Fish and Wildlife Service (Service). 2000. Biological Opinion on the Effects of Ongoing Forest Activities that May Affect Listed Riparian Species on the Cleveland National Forest, the Los Padres National Forest, the San Bernardino National Forest and Angeles National Forest in Southern California (1-6-99-F-21). March 23, 2000.

U. S. Fish and Wildlife Service (Service). 2000. Recovery plan for bighorn sheep in the Peninsular Ranges, California. U. S. Fish and Wildlife Service, Portland, Oregon, USA.

U.S. Fish and Wildlife Service (Service). Endangered and threatened wildlife and plants, endangered status for the peninsular ranges population segment of the desert bighorn sheep in southern California. 63 FR 13134-13150.

U.S. Fish and Wildlife Service (Service). 2001. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for Peninsular Bighorn Sheep. Federal Register 66: 8649-8677. February 1, 2001.

U.S. Fish and Wildlife Service (Service). 2001. Biological and conference opinions on the continued implementation of land and resource management plans for the four southern California national forests, as modified by new interim management direction and conservation measures (1-6-00-F-773.2).

U.S. Fish and Wildlife Service (Service). 2001b. Endangered and threatened wildlife and plants; Final designation of critical habitat for the arroyo toad; Final rule. Federal Register 66: 9414-9474.

U.S. Fish and Wildlife Service (Service). 2002. Endangered and threatened wildlife and plants: Designation of critical habitat for the Quino checkerspot butterfly *(Euphydryas editha quino).* Federal Register 67:18355-18395. April15, 2002.

U. S. Fish and Wildlife Service (Service). 2003. Endangered and threatened wildlife and plants; Designation of critical habitat for the coastal California gnatcatcher (*Polioptila californica californica*) and determination of distinct vertebrate population segment for the California gnatcatcher (*Polioptila californica*); Proposed Rule. Federal Register 68:20228-20312.

U.S. Fish and Wildlife Service (Service). 2003a. Quino Checkerspot Butterfly *(Euphydryas editha quino)* Recovery Plan. Portland, Oregon.

U.S. Fish and Wildlife Service (Service). 2004. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Arroyo Toad (*Bufo californicus*); Proposed Rule. Federal Register 69: 23254-23328.

U.S. Fish and Wildlife Service (Service). 2005. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Arroyo Toad (*Bufo californicus*); Final Rule. Federal Register 70: 19562-19633.

U.S. Fish and Wildlife Service (Service). 2005b. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Recommended Quino Survey Areas map.

U. S. Fish and Wildlife Service (Service). 2006. Draft Least Bell's Vireo (*Vireo bellii pusillus*) 5-Year Review: Summary and Evaluation. Unpublished draft document prepared by the Carlsbad Fish and Wildlife Office. September 20, 2006.

U. S. Fish and Wildlife Service (Service). 2007. Endangered and threatened wildlife and plants; revised designation of critical habitat for the coastal California gnatcatcher (*Polioptila californica californica*); Final Rule. Federal Register 72:72010-72258. December 19, 2007.

United States Fish and Wildlife Service (Service). 2007a. Helix communication with USFWS biologist Chris Otahal. April 12.

United States Fish and Wildlife Service (Service). 2007b. Service Early Comments on the Listing of Mitigation Measures for the Sunrise Powerlink Project San Diego and Imperial Counties, California. June 29.

U.S. Fish and Wildlife Service (Service). 2007. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Acanthomintha ilicifolia* (San Diego thornmint); Proposed Rule. Federal Register 72:11946-11988. March 14, 2007.

U.S. Fish and Wildlife Service (Service). 2008. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Acanthomintha ilicifolia* (San Diego thornmint); Final Rule. Federal Register 73:50454-50496. August 26, 2008.

U.S. Fish and Wildlife Service (Service). 2008. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Quino Checkerspot Butterfly (*Euphydryas editha quino*); Proposed Rule. Federal Register 73: 3327-3373. January 17, 2008.

U.S. Fish and Wildlife Service (Service). 2008. Section 7 Consultation/Conference Opinion on the Eastern San Diego County Resource Management Plan (FWS-SDG-08B0465-08F0507). September 30, 2008.

U.S. Fish and Wildlife Service (Service). 2009. Quino Checkerspot Butterfly Monitored Reference Site Information. http://www.fws.gov/carlsbad/TEspecies/Quino_Monitor.htm. Site visited January 6, 2009.

U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Consultation Handbook, Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. March 1998. http://www.fws.gov/ endangered/consultations/s7hndbk/s7hndbk.htm.

U. S. Forest Service. 2005. Land Management Plan: Angeles National Forest, Cleveland National Forest, Los Padres National Forest, and San Bernardino National Forest (RSMB- 075). Plan for the U. S. Department of Agriculture, U. S. Forest Service, Pacific Southwest Region.

U. S. Geological Survey (USGS). 2002. Least Bell's vireo distribution and abundance in 2001: Summary. Unpublished data available from the USGS Western Ecological Research Center, San Diego Field Station, San Diego, California. Compiled November 22, 2002.

Vinje, J. 2006a. Field visit to San Diego thornmint sites at Palomar Airport road and El Camino Real on April 24, 2006 with Jonathan Snapp-Cook (Fish and Wildlife biologist, Service).

Vinje, J. 2006b. Email correspondence regarding *Acanthomintha ilicifolia* with Jonathan Snapp-Cook (Fish and Wildlife Biologist, Service); specifically regarding associated plant species.

Vinje, J. 2007. Manchester Habitat Conservation Area: Annual Report October 2005 – September 2006.

Wagner, G. D., and J. M. Peek. 1999. Activity patterns of Rocky Mountain bighorn ewes in central Idaho. Trans. Second North American Wild Sheep Conf.; Reno, Nev. 2:103-121.

Wagner, G. D. 2000. Diet selection, activity patterns, and bioenergetics of bighorn ewes in central Idaho. Dissertation, University of Idaho, Moscow, USA.

Wagner, G.D. and J.M. Peek. 2007

Weaver, R. A. 1972. Conclusion of the bighorn investigation in California. Desert Bighorn Counc. Trans. 16:56-65.

Weaver, R. A. 1973. Burro versus bighorn. Desert Bighorn Counc. Trans. 17:90-97.

Weaver, R. A. 1975. Status of the bighorn sheep in California. Pages 58-64 *in* J.V. Trefethern ed., The wild sheep in modern North America. The Winchester Press, New York. 302 pp.

Weaver, R. A. 1989. Status of bighorn sheep in California, 1988. Desert Bighorn Counc. Trans 33:11-12.

Weaver, K. L. 1998. Coastal sage scrub variations of San Diego County and their influence on the distribution of the California gnatcatcher. Western Birds 29:392-405.

Weaver, R. A., and J. L. Mensch. 1970. Bighorn sheep in southern Riverside County, California. Calif. Dep. Fish and Game, Wildl. Manage. Admin. Rep. No. 7-5.

Weaver, R. A., J. L. Mensch and W.V. Fait. 1968. A survey of the California desert bighorn (*Ovis canadensis*) in San Diego County. California Department Fish and Game. 27 pp.

Weaver, R. W., J. L. Mensch, W. Timmeran, J. M. Hall. 1972. Bighorn sheep in the San Gabriel and San Bernardino Mountains. Calif. Fish and Game Admin. Report. PR-W-51-R, 17pp + appendices.

Wehausen, J. D. 1979. Sierra Nevada bighorn sheep: an analysis of management alternatives. Coop. Adm. Rep., Inyo Nat. For, Sequoia Nat. Park, Kings Canyon Nat. Park, and Yosemite Nat. Park. 92pp.

Wehausen, J.D. 1980. Sierra Nevada bighorn sheep: history and population ecology. Ph. D. Thesis, Univ. Michigan, Ann Arbor. 243 pp.

Wehausen, J. D. 1983. White Mountain bighorn sheep: an analysis of current knowledge and management alternatives. U. S. For. Serv. Adm.. Rep., Inyo Nat. Forest Contract No. 53-9JC9-0-32. 93pp.

Wehausen, J. D. 1984. Comment on desert bighorn as relicts: further considerations. Wildl. Soc. Bull. 12:82-85.

Wehausen, J. D. 1992. Demographic studies of mountain sheep in the Mojave Desert: Rep. IV, White Mountain Research Station. Final report under interagency agreement (FG 9239) with California Department of Fish and Game.

Wehausen, J. D., and R. R. Ramey II. 1993. A morphometric reevaluation of the Peninsular bighorn subspecies. Desert Bighorn Counc. Trans. 37:1-10.

Wehausen, J. D., V. C. Bleich, and R. A. Weaver. 1987. Mountain sheep in California: a historical perspective on 108 years of full protection. Western Section of The Wildlife Society Trans. 23:65-74.

Weiss, S.B. 1999. Cars, cows, and butterflies: Nitrogen deposition and management of nutrient poor grasslands for a threatened species. Conservation Biology 13: 1476-1486.

Westman, W. 1981a. Diversity relations and succession in California coastal sage scrub. Ecology 62:170-184.

Westman, W. 1981b. Factors influencing the distribution of species of California coastal sage scrub. Ecology 62:439-455.

Whitcomb, R., C. S. Robbins, J. Lynch, B. Whitcomb, M. Klimkiewicz, and D. Bystrak. 1981. Effects of forest fragmentation on avifauna of the eastern deciduous forest. *In* R. Burgess and D. Sharpe (eds.), Forest island dynamics in man-dominated landscapes. Springer-Verlag, New York, New York.

White, R.G. 1983. Foraging patterns and their multiplier effects on productivity of northern ungulates. Oikos 40:377-384.

White, A. 1986. Effects of Habitat Type and Human Disturbance on an Endangered Wetland Bird: Belding's Savannah Sparrow. Unpublished MS Thesis, San Diego State University, California. 73 pp.

Whittaker, D., and R. L. Knight. 1998. Understanding wildlife responses to humans. Wildlife Society Bulletin 26:312-317.

Wilbur, S. 1980. The least Bell’s vireo in Baja California, Mexico. Western Birds 11:129-133.

Wilcove, D. S., C. H. McLellan, and A. P. Dobson. 1986. Habitat fragmentation in the temperate zone. *In* M. E. Soulé (ed.), Conservation Biology: The Science of Scarcity and Diversity, pp. 237-256. Sinauer Associates, Sunderland, Massachusetts.

Wilcox, B. A., and D. D. Murphy. 1985. Conservation strategy: The effects of fragmentation on extinction. American Naturalist 125:879-887.

Willis, E.O. 1974. Populations and local extinctions of birds on Barro Colorado Island, Panama. Ecological Monographs 44:153-169.

Willis, E. O. and E. Eisenmann. 1979. A revised list of birds in Barrow Colorado Island, Panama. Smithsonian Contributions in Zoology 291:1-31.

Wilson, L.O., J. Blaisdell, G. Welsh, R. Weaver, R. Brigham, W. Kelly, J. Yoakum, M. Hinkes, J. Turner and J. DeForge. 1980. Desert bighorn habitat requirements and management recommendations. Desert Bighorn Council Transactions 24:1-7.

Winchell, C.S., and P.F. Doherty. 2006. Estimation of California pair abundance and occupancy rates. Report prepared for the California Department of Fish and Game. On file: U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, Carlsbad, California.

Winchell, C.S. and P.F. Doherty. 2008. Using California Gnatcatcher to Test Underlying Models in Habitat Conservation Plans. The Journal of Wildlife Management 72:1322-1326.

Wirtz, II, W.O., A.L. Mayer, M.M. Raney, and J.L. Beyers. 1995. Effects of fire on the ecology of the California gnatcatcher, *Polioptila californica californica*, in California sage scrub communities. Proceedings: Fire Effects on Rare and Endangered Species and Habitats Conference, November 13-16; pp. 91-96.

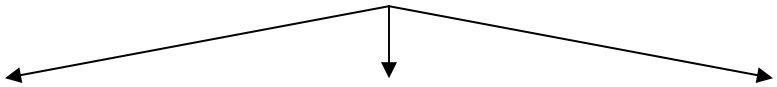
Wyatt, R. 1983. Pollinator-plant interactions and the evolution of breeding systems. Pages 51-95 *in* Pollination biology, L. Real, editor. Academic Press, Inc. 338 pp.

Yahner, R. and C. Delong. 1992. Avian predation and parasitism on artificial nests and eggs in two fragmented landscapes. Wilson Bulletin 104:162-168.

APPENDICES

APPENDIX A
Pre-Construction Consultation Process for the Sunrise Powerlink Project

The final project footprint and avoidance/minimization measures will be evaluated for consistency with the biological opinion: a) the limits of construction will be mapped and staked in the field; b) habitat for federally listed species within the action area will be evaluated and quantified; c) protocol surveys will be conducted within the action area for each federally listed species; d) SDG&E will list the avoidance and minimization measures used for each area where listed species were detected based on the survey results. SDG&E will compile this information, evaluate it for consistency with the biological opinion, and submit it to the Carlsbad Fish and Wildlife Office (CFWO), BLM, and USFS for review and approval prior to the clearing of vegetation or other construction-related activities.



If the proposed project is within the area anticipated to be impacted; b) impacts to listed species habitat are the same or less than anticipated in the biological opinion; c) impacts to individuals/populations of federally listed species are consistent with what was anticipated in the biological opinion (*e.g.*, no unexpected concentrations of species found within or adjacent to the project footprint); and d) the proposed avoidance/minimization measures are consistent with what was anticipated in the biological opinion, then:	If the project is changed or new information regarding the distribution and abundance of federally listed species affected by the proposed project becomes available, but the potential effects to federally listed species are minor (*i.e.*, the changes do not substantially increase the anticipated impacts to federally listed species or their habitat and do not substantially affect the likelihood that the project will jeopardize the survival and recovery of federally listed species), then:	If SDG&E is unable to implement their proposed offsetting conservation measures, or if changes to the project description or new information regarding the distribution and abundance of federally listed species affected by the proposed project that substantially increase anticipated impacts to federally listed species or their habitat, then:
⇩	⇩	⇩
The Service will amend the incidental take statement and specify the amount or extent of take anticipated for the federally listed animal species.	The Service will amend the biological opinion and incidental take statement (including specifying the amount or extent of take anticipated), while addressing the proposed changes in impact or new biological information. Such analysis will be streamlined (*i.e.*, analysis will limited to information necessary to evaluate the differences between the originally anticipated impacts and the revised impacts and potential effects to the survival	BLM and USFS shall reinitiate consultation with the Service, and the Service will provide a new biological opinion based on the new information.

APPENDIX B
Operations and Maintenance Consultation Process for the Sunrise Powerlink Project

Coordination with the Service is not necessary for routine operations, maintenance, and emergency activities described in the project description that involve no new habitat loss and incorporate the proposed avoidance/minimization measures. This includes maintenance of existing cleared areas but does not include vegetation removal in areas where maintenance has not been conducted and habitat has not been cleared at least once every two years. For operations and maintenance activities involving removal of habitat or new impacts to federally listed species, SDG&E will provide the Service and BLM or USFS with information on the amount and type of habitat and federally listed species potentially impacted and the avoidance/minimization measures that will be implemented in association with the activity. Upon receiving the information, the Service will advise SDG&E on the appropriate course of action. Depending on the anticipated effects of the activity, the Service will consult on the proposed activity using one of the following approaches[1]:

If potential effects to federally listed species are minor (*i.e.*, proposed activities do not substantially increase the anticipated impacts to federally listed species or their habitat and do not substantially affect the likelihood that the project will jeopardize the survival and recovery of federally listed species), then:

⇩

The Service will amend the biological opinion and, if necessary, develop a new take statement addressing the proposed changes in impact, but the analysis will be streamlined (*i.e.*, the analysis will only contain sufficient information to evaluate the differences between the originally anticipated impacts and the revised impacts and potential effects to the survival and recovery of the species).

If SDG&E is unable to implement the proposed offsetting conservation measures or if the proposed activity will substantially increase anticipated impacts to federally listed species or their habitat and/or potentially affect the survival and recovery of federally listed species, then:

⇩

BLM or USFS will reinitiate consultation with the USFWS, and the Service will provide a new biological opinion based on the new information.

[1]For emergency activities (e.g., an activity that is urgent enough to require a 24-hour response), SDG&E, BLM, and USFS will take all necessary actions to protect human health and property. If there is an opportunity, CFWO will be contacted regarding initial recommendations for avoiding and minimizing impacts to federally listed species and their habitat. These recommendations will not impede response efforts. Following the emergency, CFWO will be contacted to assess the appropriate approach for consultation. As with planned operations and maintenance activities, emergency actions that adversely affect federally listed species will be evaluated to determine if a streamlined amendment to this biological opinion is sufficient or if the impacts require the preparation of a new biological opinion.

APPENDIX C
Rationale for Determining Quino Occupied Acreage Outside Critical Habitat

Table 2 in the BA indicates that the proposed project would result in approximately 175.13 ha (432.75 ac) of permanent and 382.98 ha (946.37 acres) of temporary impacts to potential Quino habitat. However, because comprehensive habitat suitability and protocol surveys have not been conducted for the majority of the action area, it is likely that the impact acreages given in Table 2 overstate potential impacts to Quino.

SDGE subsequently revised the impact estimate downward based on 2008 surveys conducted in the general vicinity of the action area. Results of the 2008 surveys indicated that approximately 43 percent of previously identified suitable Quino habitat was unsuitable. In addition, only approximately 1 percent of the confirmed suitable habitat was found to be occupied by Quino. Although the proposed SRPL alignment has been refined since the 2008 surveys, the currently proposed alignment is in close proximity to the previous alignment in most locations; therefore, the current proposed alignment is expected to have similar habitat characteristics to the alignment that was surveyed in 2008.

Based on the 2008 survey results, SDG&E estimated that 43 percent of potential habitat along the current proposed alignment was unsuitable for Quino, and of the remaining 57 percent, no more than 10 percent would be occupied. Although the 2008 surveys found less than 1 percent of the area occupied by Quino, SDG&E estimated that up to 10 percent of the area could be occupied. SDG&E used 10 percent, rather than 1 percent, because Quino population size can be highly variable from year-to-year, depending on site specific ecological factors. All habitat within Quino critical habitat was assumed to be 100 percent occupied, therefore the 10 percent estimate was not applied to critical habitat.

Based on the above, impacts to Quino outside of designated critical habitat were calculated as follows:

<u>Permanent impacts:</u>
175.13 ha (432.75 ac) x 57% = 99.82 ha (246.67 ac) of Quino suitable habitat
99.82 ha (246.67 ac) x 10% = 9.98 ha (24.67 ac) of occupied Quino habitat

<u>Temporary impacts:</u>
382.98 ha (946.37 acres) x 57% = 218.3 ha (539.43 ac) of Quino suitable habitat
218.3 ha (539.43 ac) x 10% = 21.83 ha (53.94 ac) of occupied Quino habitat

Permanent impacts to occupied habitat outside critical habitat will increase 2.89 ha (7.15 ac [(from 432.75 ac to 439.90 ac]) if/when the proposed revisions to critical habitat are finalized. Temporary impacts to occupied habitat outside critical habitat will increase

12.16 ha (30.05 ac [from 946.37 ac to 976.42 ac]) if/when the proposed revisions to critical habitat are finalized. Based on the above, impacts to Quino outside of proposed revised critical habitat were calculated as follows:

Permanent impacts:
178.02 ha (439.90 ac) x 57% = 101.47 ha (250.74 ac) of Quino suitable habitat
101.47 ha (250.74 ac) x 10% = 10.15 ha (25.07 ac) of occupied Quino habitat

Temporary impacts:
395.14 ha (976.42 acres) x 57% = 225.23 ha (556.56 ac) of Quino suitable habitat
225.23 ha (556.56 ac) x 10% = 22.52 ha (55.66 ac) of occupied Quino habitat

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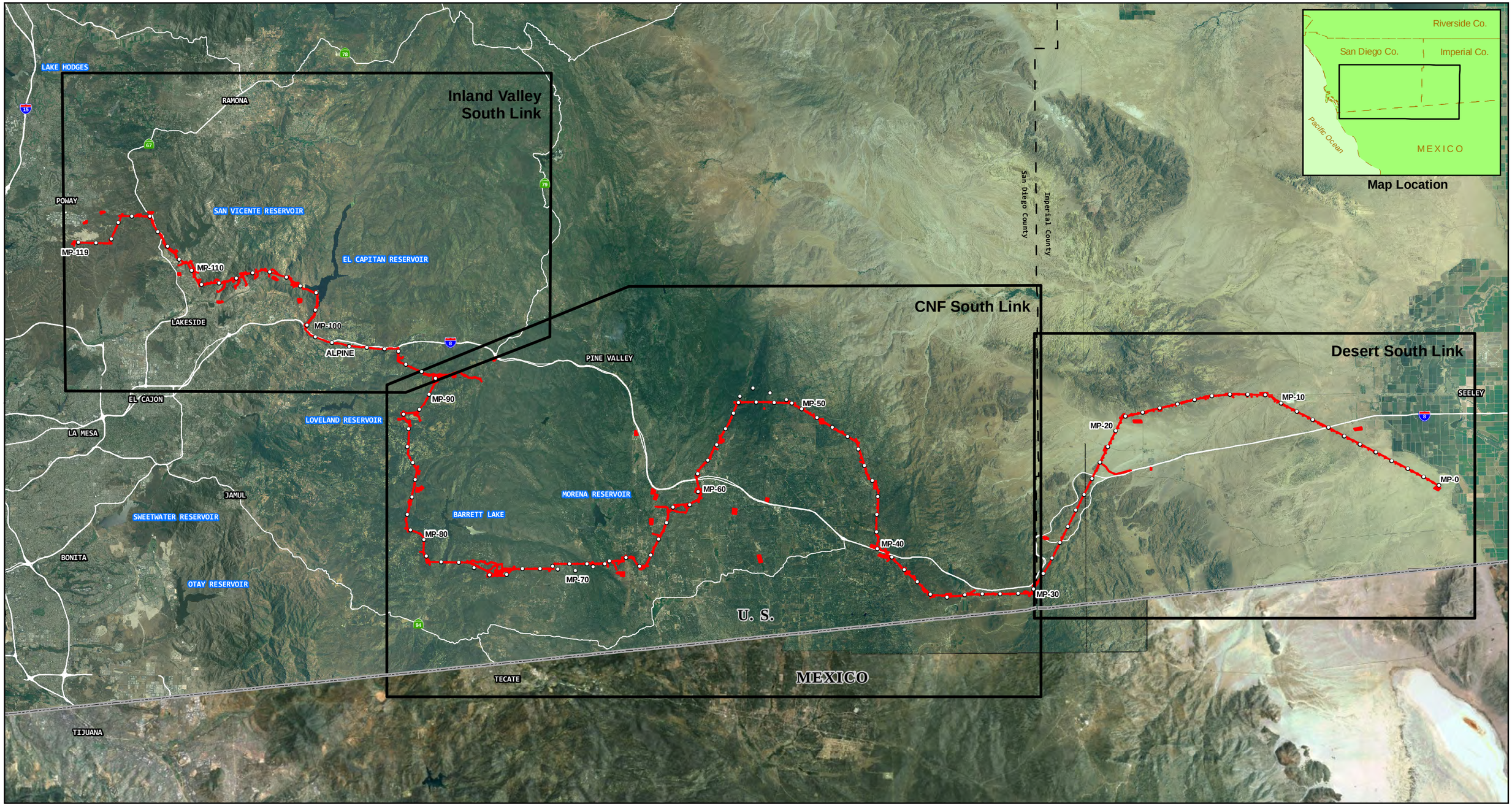
FIGURE 1.
Sunrise Powerlink project action area



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Action Area
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FIGURE 2.
Action area and distribution of San Diego thornmint

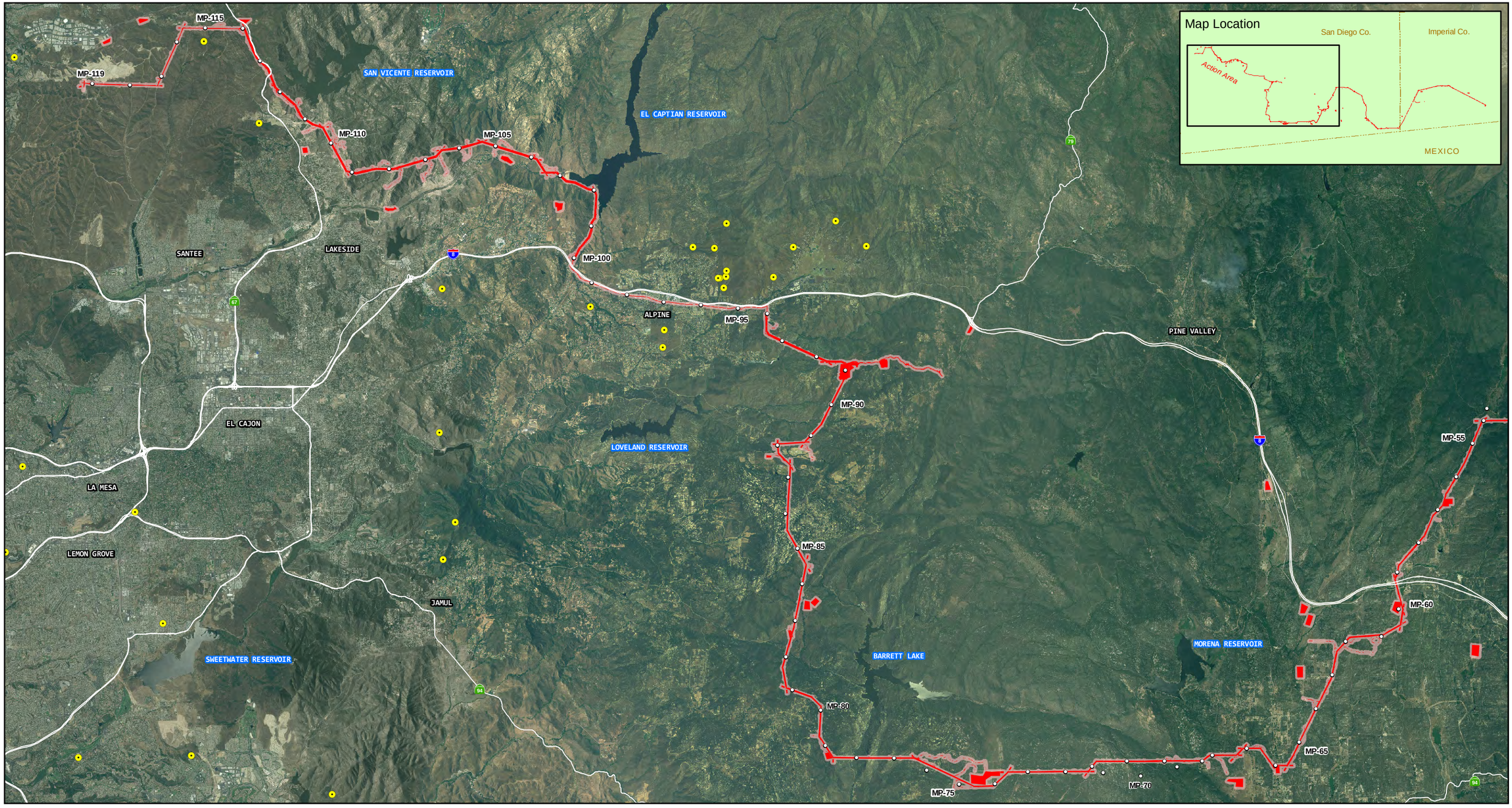

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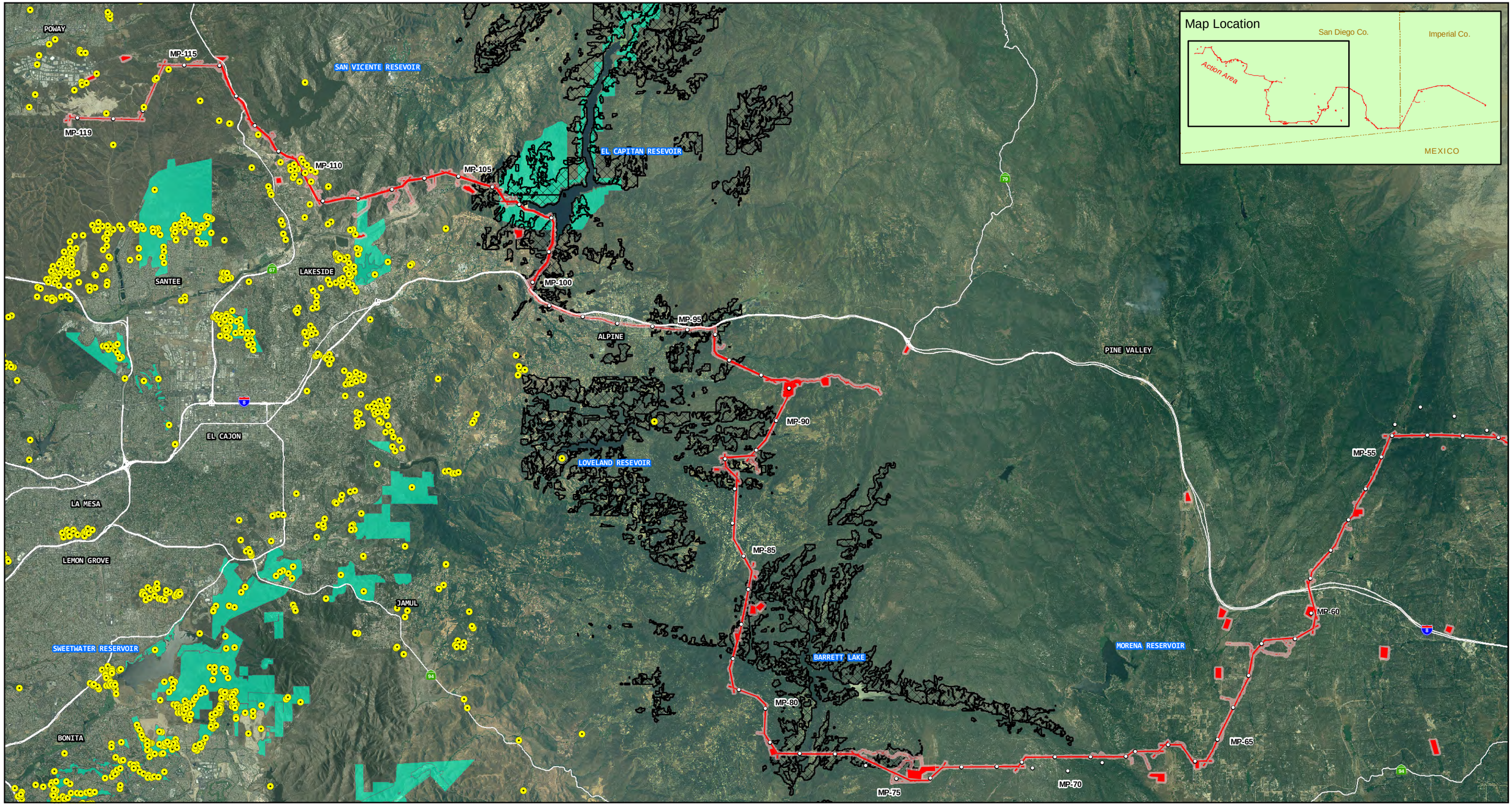
FIGURE 3.
Action area and distribution of coastal California gnatcatcher



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- Coastal California Gnatcatcher Occurrence Data
- CAGN Critical Habitat
- U.S. Forest Service CAGN Habitat Model
- Project Alignment (ROW, temp. & perm. impacts)
- Action Area
- Milepost

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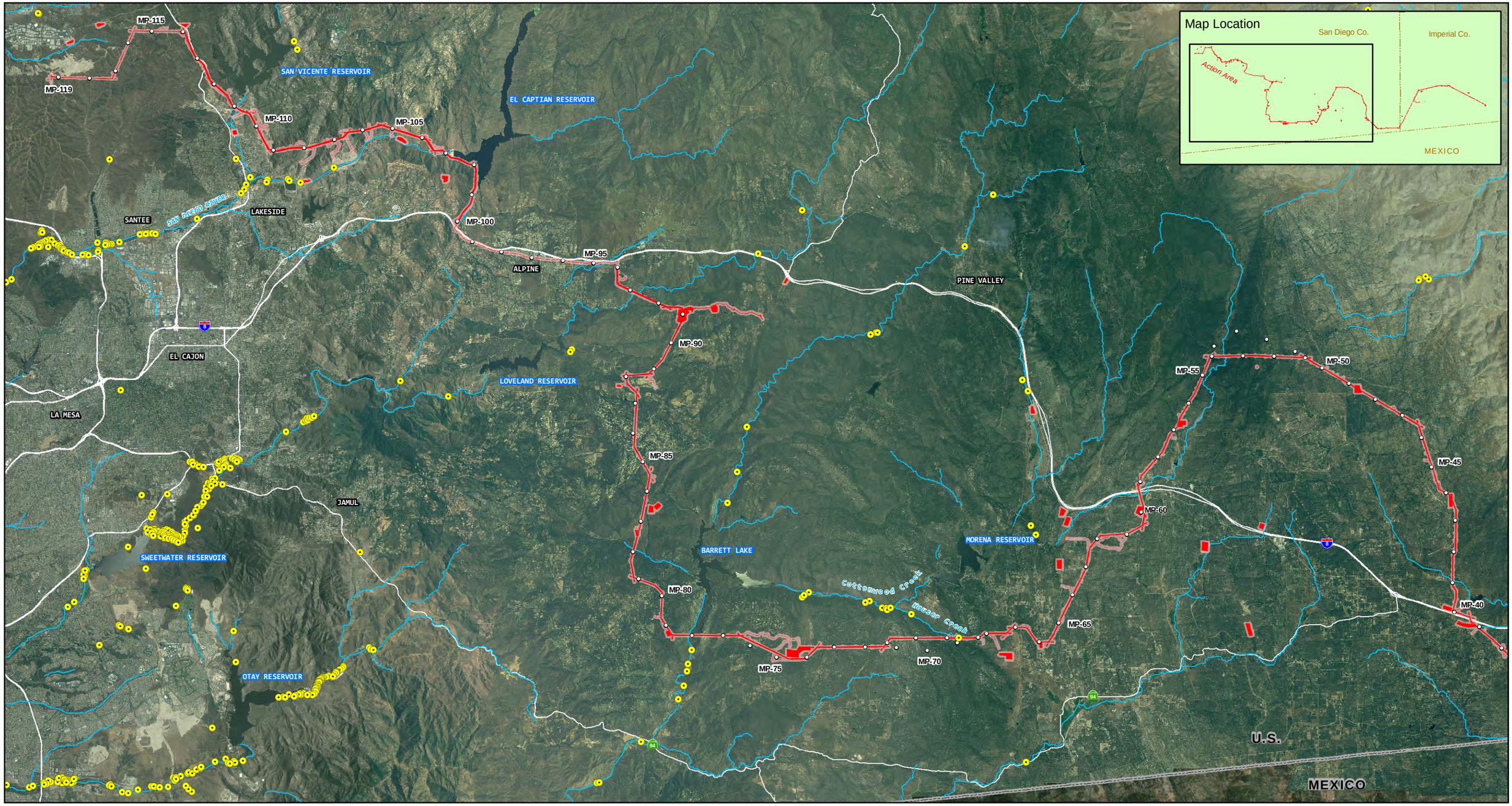
FIGURE 4.
Action area and distribution of least Bell's vireo



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- Least Bell's Vireo Occurrence Data
- Project Alignment (ROW, temp. & perm. impacts)
- Action Area
- Milepost
- River
- International Border

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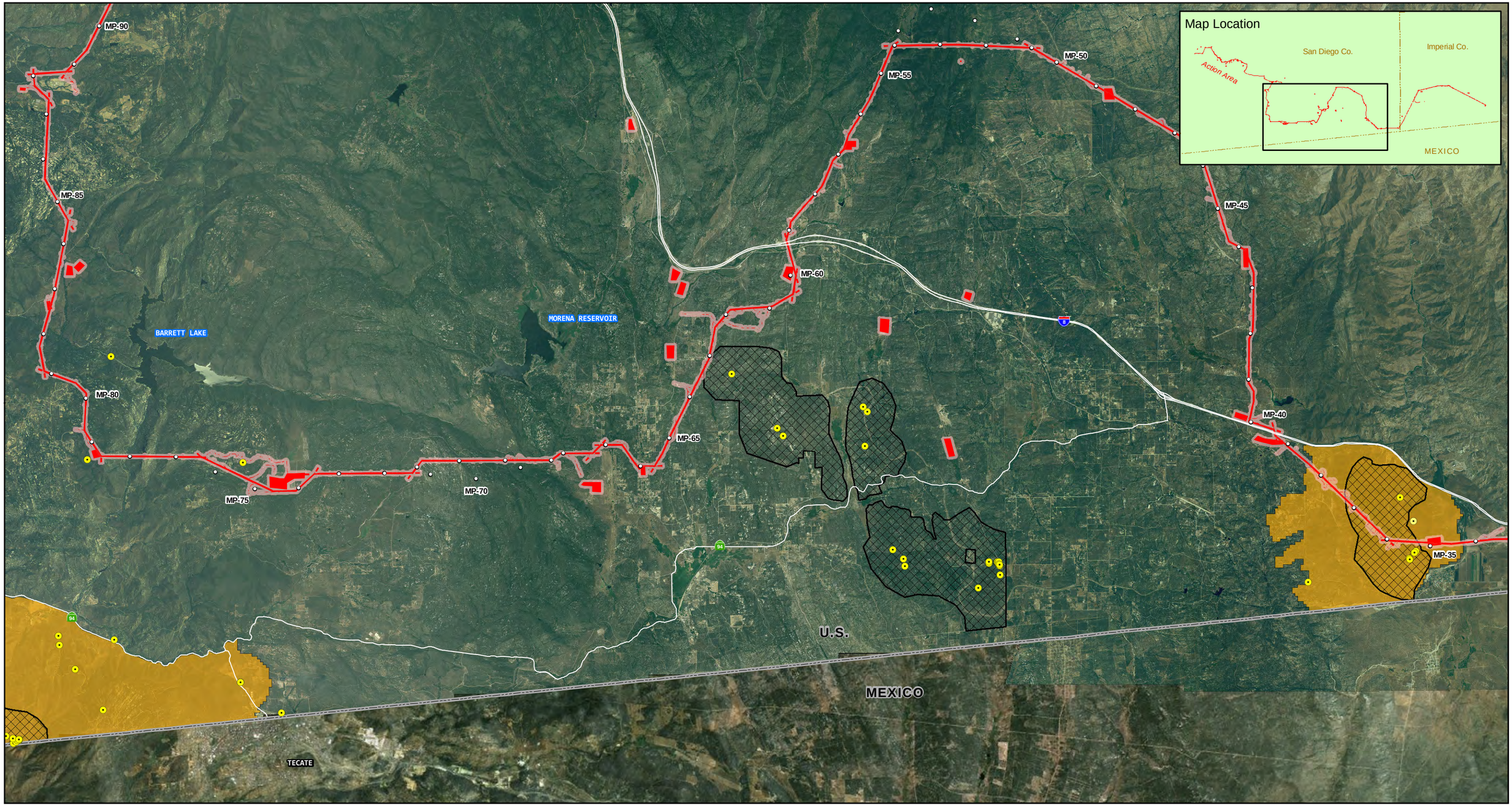
FIGURE 5.
Action area and distribution of Quino checkerspot butterflly



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CARLSBAD FIELD OFFICE

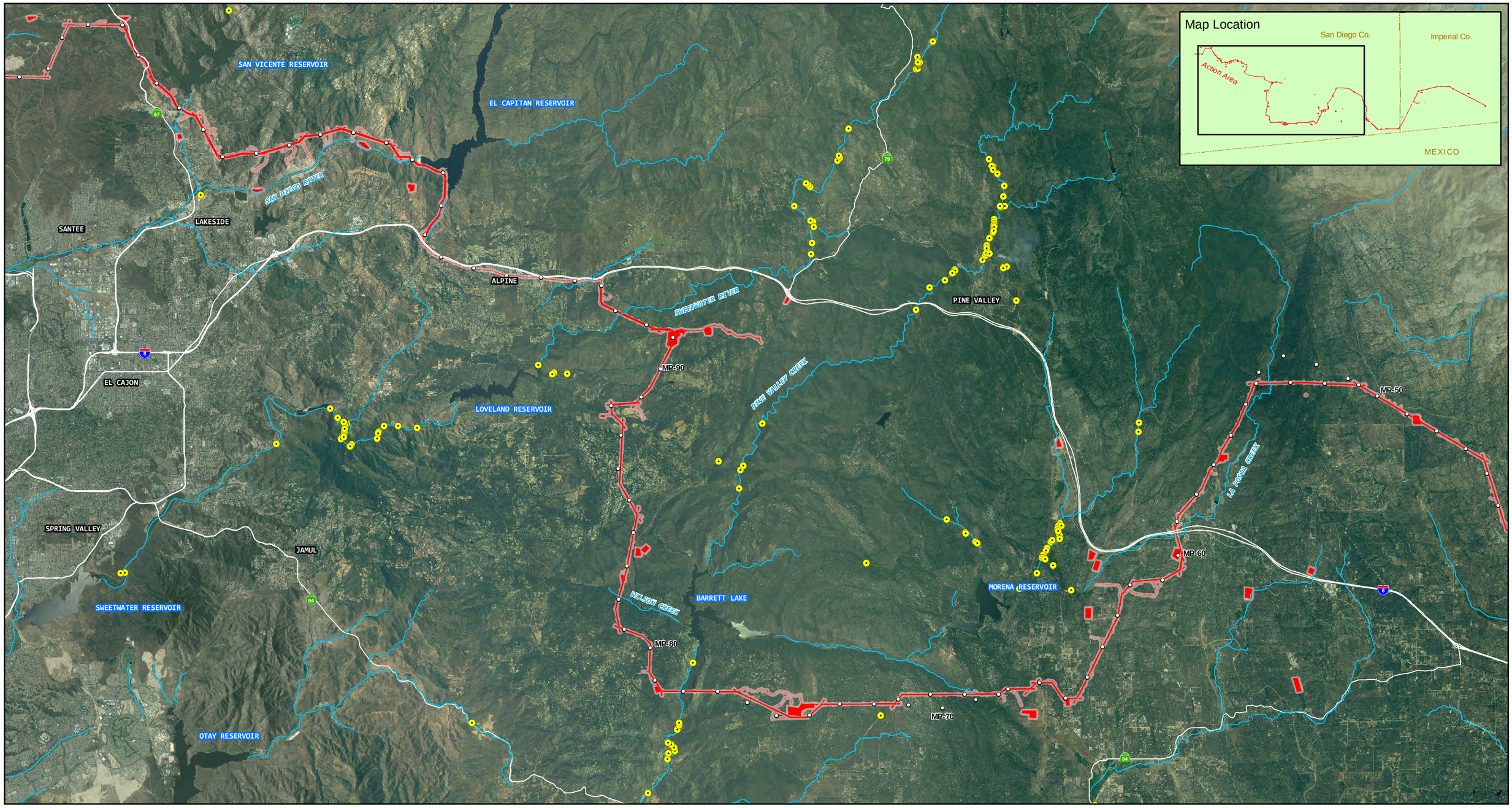
MAP DATE: 01/16/09
DATA SOURCE: FWS, CASIL, SDCO, CNDDB, SDG&E
IMAGE SOURCE: USDA NAIP 2005, i-CUBED 2009
S:\stem\Randy\projects\Sunrise_Powerlink\Revised_southern_routelreport_figures\quino.mxd

0 1 2 4 Miles
0 1 2 4 Kilometers

- Quino Occurrence Data
- Quino Critical Habitat
- Quino Proposed Critical Habitat
- Project Alignment (ROW, temp. & perm. impacts)
- Action Area
- Milepost
- International Border

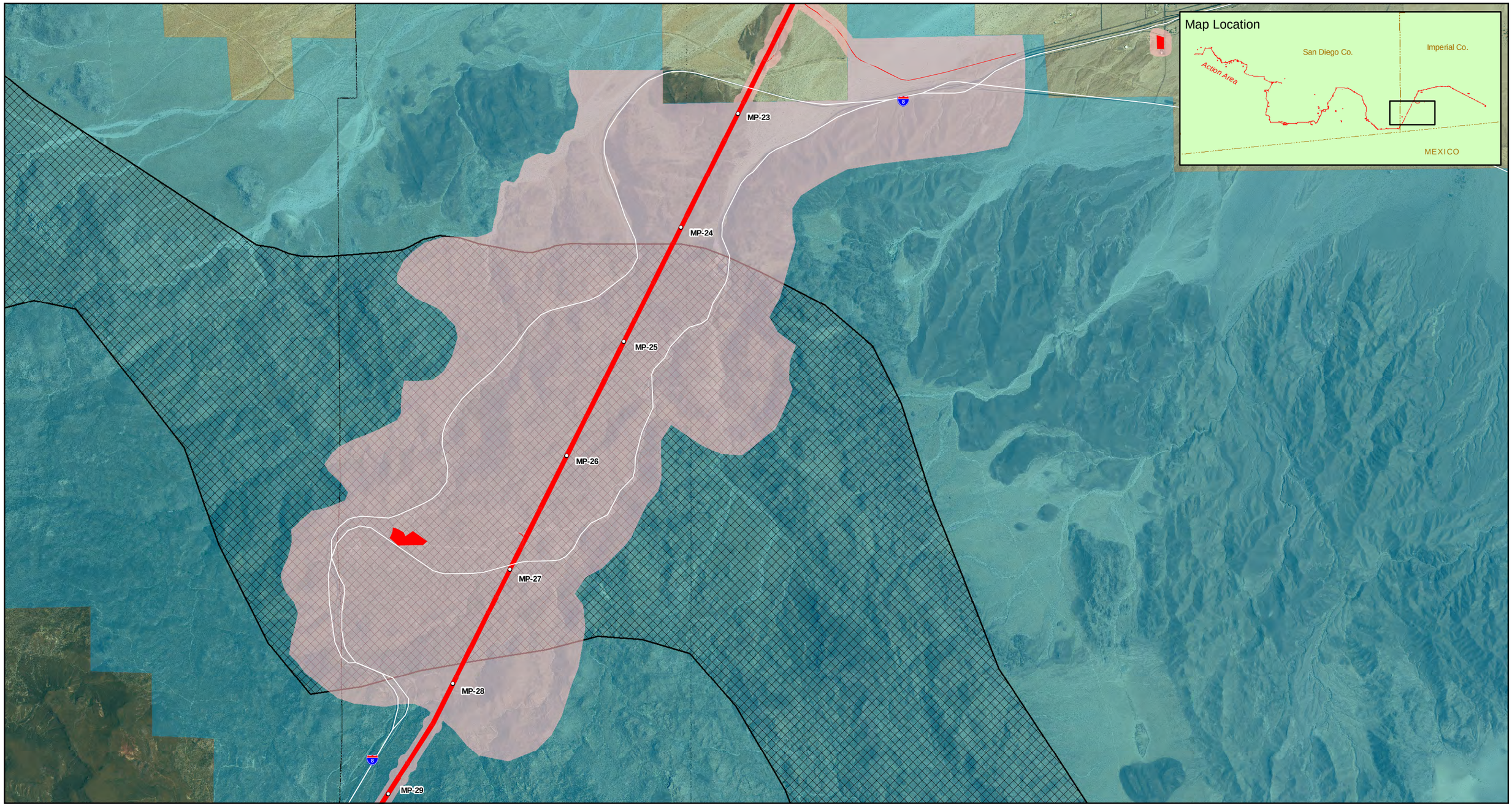
U.S. Fish & Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Carlsbad, California 92011

FIGURE 6.
Action area and distribution of arroyo toad



U.S. Fish & Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Carlsbad, California 92011

FIGURE 7.
Action area and peninsular bighorn sheep critical habitat



PRODUCED BY GIS SERVICES
CARLSBAD FIELD OFFICE

MAP DATE: 01/16/09
DATA SOURCE: FWS, CASIL, SDG&E
IMAGE SOURCE: USDA NAIP 2005, I-CUBED 2009
S:\stem\Randy\projects\Sunrise_Powerlink\Revised_southern_routelreport_figures\pbs.mxd

Attachment O

U.S. Bureau of Land Management Record of Decision

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

RECORD OF DECISION
for the
Sunrise Powerlink Transmission Project
and
Associated Amendment to the
Eastern San Diego County Resource Management Plan

CACA 47658

Imperial and San Diego Counties, California

Lead Agency:

Department of the Interior
Bureau of Land Management
El Centro Field Office

Cooperating Agencies:

United States Forest Service
Cleveland National Forest

United States Department of Defense
Marine Corps Air Station Miramar

United States Bureau of Indian Affairs

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APPENDICES

Appendix A: Mitigation Measures

Appendix B: Information on taking Appeals

FIGURES

Figure 1: Final Environmentally Superior Southern Route Alternative

EXECUTIVE SUMMARY

This document constitutes the Record of Decision (ROD) of the Department of Interior (DOI) and Bureau of Land Management (BLM) for the Sunrise Powerlink Transmission Project and Associated Amendment to the Eastern San Diego County Resource Management Plan (RMP). This ROD includes both plan amendment and right-of-way grant decisions. Amendment of the Eastern San Diego County RMP is required to allow for a one-time exemption of a single utility crossing of the Selected Alternative across public lands. This ROD applies only to BLM-administered lands. Each of the cooperating federal agencies is responsible for issuing their own decisions and applicable authorizations.

After extensive environmental analysis, consideration of public comments, and application of pertinent federal laws and policies, it is the decision of the BLM to amend the Eastern San Diego RMP to allow for a single utility crossing in the McCain Valley. It is the decision of the DOI to authorize a right-of-way grant and temporary use permit (TUP) for the construction, operation, and maintenance, and termination of a transmission line on an alignment identified as the BLM Agency Preferred Alternative in the Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) published in the Federal Register on October 17, 2008. The Final EIR/EIS is available online at: http://www.cpuc.ca.gov/Environment/info/aspen/sunrise/sunrise.htm.

The Final EIR/EIS analyzed the environmental impacts of the Sunrise Powerlink Transmission Project along a route proposed by SDG&E, the Proposed Action/Project, as well as a number of alternative routes. This decision approves the Sunrise Powerlink Transmission Project's Final Environmentally Superior Southern (SWPL) Route Alternative as analyzed in the Final EIR/EIS as BLM's Agency Preferred Alternative, which is also referred to as the Selected Alternative in this ROD. For the first 36 miles of the Selected Alternative route, the 500 kV transmission line will be built on BLM lands adjacent to the existing Southwest Powerlink 500 kV line. The Selected Alternative crosses approximately 49 miles of BLM land, approximately 19 miles of Forest Service land, approximately two miles of Department of Defense land, and approximately 0.4 miles of state land. The remainder of the line would cross lands in various ownership including private and local agencies.

Project Objectives, Purpose and Need. SDG&E has stated that it developed the Sunrise Powerlink Transmission Project for three major objectives: (1) to bring renewable energy resources to San Diego County from Imperial County by providing access to remote areas with the potential for significant development of renewable energy sources; (2) to improve electric reliability within the San Diego area by providing additional transmission during peak loading and for the region's growing economy; (3) and to reduce congestion and power supply costs of delivering electricity to ratepayers.

Plan Amendment and Environmental Review Process: BLM must comply with the planning provisions of section 202 of the Federal Land Policy and Management Act (FLPMA) as well as the implementing regulations for planning found in 43 Code of Federal Regulations (CFR) subparts 1601 and 1610 in considering amendments to land use plans. Planning requirements are integrated with the requirements for environmental review under the National Environmental Policy Act (NEPA). BLM served as the federal lead agency under NEPA for consideration of the

Sunrise Powerlink Transmission Project and the Eastern San Diego County RMP amendment. The Proposed Action/Project and several alternatives also included a proposed amendment to the California Desert Conservation Area (CDCA) Plan, because those route alignments would deviate from BLM-designated utility corridors in several areas. However, the Final Environmentally Superior Southern Route Alternative, which is the Selected Alternative, would remain within BLM CDCA-designated utility corridors, and thus, a CDCA Plan amendment is not required for this ROD.

The transmission line project and the plan amendment were analyzed in a jointly prepared EIR/EIS in compliance with California Environmental Quality Act (CEQA) and NEPA requirements, respectively. The California Public Utilities Commission (CPUC) served as the lead agency pursuant to CEQA. While BLM acted as the lead federal agency responsible for compliance with the requirements of NEPA, the Cleveland National Forest (CNF), Department of Defense Marine Corps Air Station (MCAS) Miramar, and Bureau of Indian Affairs (BIA) were cooperating federal agencies and provided information, analysis, and comment. The NEPA process included public scoping, a Draft EIR/EIS, a Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS) and a Final EIR/EIS, which are hereby incorporated by reference into this ROD. The proposed plan amendment was reviewed by the Governor's Office of Planning and Research following the issuance of the Final EIR/EIS and proposed plan amendment, and found to be consistent with state and local plans.

Public Involvement. Public review and comment on the Sunrise Powerlink Transmission Project were extensive. Public scoping, including 15 public meetings and numerous agency meetings, initiated the public review process. The combined comment periods on the Draft EIR/EIS, RDEIR/SDEIS, and BLM's proposed plan amendments occurred over five and a half months. BLM and CPUC held 14 public meetings and received approximately 3,900 pages of comments on two draft documents. All public comments received were carefully analyzed and agency responses are included in the Final EIR/EIS. As described further in this document, 20 protests to BLM's proposed plan amendments were considered and resolved by the Director of the BLM.

Consultation with Other Agencies: In addition to Forest Service, BIA, and MCAS Miramar, which all served as formal EIR/EIS cooperators, BLM and CPUC also coordinated and consulted with the US Fish and Wildlife Service, California Department of Fish and Game, California Department of Parks and Recreation, California Department of Transportation, Imperial and San Diego counties, Department of Defense El Centro Naval Air Station, City of San Diego, San Diego Regional Energy Office, California Department of Forestry and Fire Protection, Vista Irrigation District, Imperial Irrigation District and potentially affected Native American Tribes.

Decision Rationale: As described further in this ROD, the decisions are to: (1) amend the Eastern San Diego County RMP to allow for a one-time exemption, and (2) issue two right-of-way grants (one for temporary use) to SDG&E for the construction, operation, maintenance, and termination of the transmission line, ancillary facilities, and access roads across public lands. These decisions reflect careful consideration and resolution of the issues by BLM and the Department of the Interior (DOI), and were thoroughly analyzed in the Sunrise Powerlink Transmission Project environmental review process.

These decisions fulfill legal requirements for managing public lands. Granting the rights-of-way to SDG&E contributes to the public interest in reducing energy costs and providing a reliable electricity supply that allows for the importation of renewable power from the Imperial Valley to meet State and Federal renewable energy goals. The attached right-of-way grants and mitigation measures ensure that authorization of the Sunrise Powerlink Transmission Project will protect environmental resources and comply with environmental standards. These decisions reflect the careful balancing of the many competing public interests in managing the public lands for public benefit. These decisions are based on a comprehensive environmental analysis and full public involvement. BLM and CPUC have engaged highly qualified technical experts to analyze the environmental effects of the Sunrise Powerlink Transmission Project. Members of the public have contributed to the analysis and consideration of the many environmental issues arising out of the environmental review process. BLM, CPUC, DOI and other consulted agencies have used their expertise and existing technology to address the important issues of environmental resource protection. BLM and DOI have determined that the measures contained in the Final EIR/EIS, the programmatic agreement regarding the management of cultural resources, and the biological opinion significantly minimize and/or mitigate environmental damage and protect resources.

I. DECISION

This ROD for the Sunrise Powerlink Transmission Project and Associated Amendment to the Eastern San Diego County RMP approves the construction, operation and maintenance of the proposed Sunrise Powerlink Transmission Project on public lands in Imperial and San Diego Counties, as analyzed in the Sunrise Powerlink Transmission Project Final EIR/EIS and Proposed Land Use Amendment, issued October 17, 2008 in the EPA Federal Register. This approval will take the form of a BLM right-of-way grant, under 43 CFR, Part 2800 regulations.

The rights-of-way will grant SDG&E the right to use the described public lands to construct, operate, maintain and terminate a 500 kV electrical transmission line from Imperial Valley Substation to a newly-constructed 500/230 kV substation that was identified in the Final EIR/EIS (herein called Modified Route D Alternative Substation), a distance of approximately 92.53 miles. The right-of-way will also grant SDG&E the right to use the described public lands to construct, operate, maintain and terminate a 230 kV electrical transmission line from the Modified Route D Alternative Substation to Sycamore Canyon Substation, located in San Diego. This decision is conditioned, however, upon implementation of mitigation measures and monitoring programs as identified in the Final EIR/EIS.

This decision approves the Sunrise Powerlink Transmission Project's Final Environmentally Superior Southern Route Alternative as analyzed in the Final EIR/EIS, which is also referred to as the Selected Alternative in this ROD. For the first 36 miles of the Selected Alternative route, the 500 kV transmission line will be built on BLM lands adjacent to the existing Southwest Powerlink 500 kV line. The Selected Alternative crosses approximately 49 miles of BLM land, 19 miles of Forest Service land, two miles of Department of Defense land, and 0.4 miles of state land. The remainder of the line would cross lands in various ownerships, including private and local agencies.

The Selected Alternative is a combination of the following alternatives and route segment options, as shown in Figure 1. The decisions contained herein apply only to the BLM-administered public lands within the Selected Alternative.

- Interstate 8 Alternative between the Imperial Valley Substation and MP I8-40 (where the BCD Alternative diverges), including the following reroutes[1]:
  - Southwest Powerlink (SWPL) Archaeological Site Reroute; and
  - Jacumba SWPL Breakaway Point Revision.
- BCD Alternative and BCD South Option Revisions. Because it does not appear likely that easements can be secured by SDG&E for the Interstate 8 Alternative between McCain Valley Road and the eastern end of the Modified Route D Alternative across Tribal lands, the BCD Alternative and BCD South Option Revisions is approved. With implementation of Mitigation Measure WR-2a (Develop a reroute for the BCD Alternative Revision to reduce effects on recreation) the route would be relocated south of JAM property on Forest Service land.
- Modified Route D Alternative, including the Modified Route D Alternative Substation, as modified to incorporate the following SDG&E reroutes:
  - Cameron Reroute;
  - Pacific Crest Trail (PCT) Option A, which follows the existing SDG&E 69 kV line, is approved. BLM worked with the Forest Service to develop additional mitigation (WR-2c, PCT Route Impact Mitigation) for the PCT crossing that requires compensation to the Forest Service for the final impacts to the PCT identified by the route revision plan included in Mitigation Measure WR-2b (Evaluate and Implement PCT Route Revision). The full text of Mitigation Measures WR-2b (Evaluate and Implement PCT Route Revision) and WR-2c (PCT Route Impact Mitigation) is included in Appendix A of this ROD.
  - Western Modified Route D Alternative (MRDA) Reroute.
- Star Valley Option Revision was not found to be environmentally superior in the Final EIR/EIS if the eastern end of underground segment in Alpine Boulevard is deemed feasible. Since publication of the Final EIR/EIS, the Forest Service has selected the Star Valley Option Revision as its preferred route in this area, because use of the original Modified Route D Alternative to the Interstate 8 Alternative is located in a highly visible area and would require a more extensive road system. In addition, implementation of Mitigation Measure L-2b (Revise project elements to minimize land use conflicts) would minimize impacts of the route to landowners. As a result, the Forest Service has stated that the portion of the Modified Route D Alternative on Forest Service lands is not feasible as designed. In addition, in accordance with Mitigation Measure L-2b of the Final EIR/EIS, SDG&E has stated that they have a preliminary agreement with a landowner that would allow for the northwestern end of the

[1] Segments of several transmission line route alternatives and the Proposed Action/Project were modified following publication of the Draft EIR/EIS in order to reduce or avoid certain impacts. These reroutes and revisions were included in the Recirculated Draft EIR/Supplemental Draft EIS and Final EIR/EIS and many were incorporated into the Final Environmentally Preferred/Superior Southern Route Alternative, which is the Selected Alternative.

Star Valley Option route to be constructed on private land. This would result in the reduction of land use conflicts to other abutting private lands on Star Valley Road.

- Interstate 8 Alternative installed underground in Alpine Boulevard from the end of the Star Valley Option Revision to where it joins the Chocolate Canyon Option Revision.
- Chocolate Canyon Option Revision.
- Interstate 8 Alternative from the end of the Chocolate Canyon Option Revision to where it joins the Proposed Action/Project route at MP 130, incorporating the following SDG&E reroutes:
  - High Meadows Reroute; and
  - Highway 67 Hansen Quarry Reroute.
- Proposed Action/Project from MP 130 to the Sycamore Canyon Substation.
- Coastal Link System Upgrades Alternative Revision, which includes:
  - Reconductoring of the existing Sycamore Canyon–Pomerado double-circuit 69 kV on existing structures;
  - Installation of a third 230/69 kV transformer at the existing Sycamore Canyon Substation;
  - Installation of a new 230/138 kV transformer at the existing Encina Substation; and
  - Reconductoring of the Sycamore Canyon–Scripps 69 kV transmission line (added as part of the Coastal Link System Upgrades Alternative Revision).
  - Reconductoring of the existing Sycamore-Elliott 69 kV transmission line (also part of the Proposed Action/Project).

One right-of-way grant will be issued for a term of 50 years with a right of renewal so long as the lands are being used for the purposes specified in the grant. Additionally, a second right-of-way will be issued for a term of two years with a right of renewal for temporary use. SDG&E may, upon concurrence of the BLM, assign the right-of-way grants to another party. Construction of the project may be phased; however, the BLM typically requires the initiation of project construction within 18 months of the issuance of a right-of-way grant. In addition, initiation of construction will be conditioned upon final BLM approval of the construction plans. This approval will take the form of an official Notice to Proceed for each phase of construction.

DECISION TO AMEND THE EASTERN SAN DIEGO COUNTY RESOURCE MANAGEMENT PLAN

After considering the full agency and public record for the Sunrise Powerlink Transmission Project and the associated amendment to the Eastern San Diego County RMP, I have determined that the plan amendment is warranted and in the public interest. The plan amendment is necessary for the issuance of two right-of-way grants (one for temporary use) to SDG&E.

In accordance with section 202 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712), the implementing regulations (43 CFR subparts 1601 and 1610), section 102(c) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), and the implementing regulations of the Council on Environmental Quality and the Department of the Interior (40 CFR parts 1500-1508; 43 CFR. part 46), **I approve the following:**

> **An amendment to the Eastern San Diego County Resource Management Plan for an exception to the energy production and utility corridors element of the Plan, thereby allowing the issuance of two right-of-way grants (one for temporary use) to SDG&E for construction, operation, maintenance, and termination of the transmission line, ancillary facilities, and access roads on federal lands administered by the Bureau of Land Management. The approved alignment is the Final Environmentally Superior Southern Route Alternative which is shown on Figure 1 as the BCD Alternative and BCD South Option Revisions with implementation of Mitigation Measure WR-2a (Develop a reroute for the BCD Alternative Revision to reduce effects on recreation).**

Approved by:

January 20, 2009

Mike Pool, State Director
Bureau of Land Management
California State Office

Date

DECISION TO ISSUE TWO RIGHT-OF-WAY GRANTS FOR THE SUNRISE POWERLINK PROJECT

After considering the full agency and public record for the application for a right-of-way to construct, operate and maintain the Sunrise Project, I have determined that BLM shall proceed with implementation of the Sunrise Powerlink Project subject to the terms and conditions contained in this Record of Decision and attached hereto. Although BLM will not physically build and operate the Sunrise Powerlink Project, it will continue to have responsibility for overseeing its implementation on public lands and protecting public resources. BLM will continue working closely with SDG&E and other federal and state agencies involved in the Sunrise Powerlink Project, and the Counties of San Diego and Imperial, California, to ensure protection of the public interest.

In accordance with section 202 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712), the regulations implementing the Act's land use planning provisions (43 CFR subparts 1601 and 1610), section 102(c) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the regulations of the Council on Environmental Quality and the Department of the Interior implementing NEPA (40 CFR parts 1500-1508, 43 CFR part 43), **I approve the following:**

> **a right-of-way grant and temporary use permit will be offered to SDG&E for construction, operation, maintenance, and termination of the transmission line, ancillary facilities, and access roads of the Sunrise Powerlink Project across public lands administered by the BLM.**

The 50-year right-of-way grant is for a 200-foot wide right-of-way for a 500 kV single-circuit transmission line, a 300-foot wide right-of-way for a 230 kV double-circuit transmission line, and ancillary facilities, including helicopter pads and access roads. A portion of the centerline of the 500 kV transmission line will be 400 feet north of the centerline of the existing San Diego Gas & Electric (SDG&E) "Southwest Powerlink" 500 kV transmission line (CA-5865, 1982). This right-of-way, subject to terms and conditions contained in the right-of-way grant and Plan of Development, will terminate in 50 years unless, prior to that time, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of the grant or of any applicable federal law or regulation. The grant is subject to renewal. If renewed, the right-of-way grants shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the federal authorized officer deems necessary to protect the public interest.

The two-year right-of-way grant authorizes use of approximately 214.77 acres in addition to the transmission line right-of-way, and also authorizes use of other temporary use areas, such as temporary construction access roads, pull sites, fly yards and extra work areas. All temporary work areas shall be reclaimed to the satisfaction of the Authorized Office within 120 days after the completion of construction of the transmission line. This temporary use permit will terminate on December 31, 2012, unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable federal law or regulation. This grant is also subject to renewal, under the same terms set out above.

The approved route, ancillary facilities, and temporary work areas are described in detail in the Final EIR/EIS, and depicted on the Facility Alignment Sheets (Appendix K) in the Plan of Development. All adopted mitigation measures listed in Appendix A of this Record of Decision shall be incorporated into the right-of-way grant as terms and conditions. SDG&E shall comply with:

- all terms and conditions set forth in the right-of-way grants;
- the Biological Opinion issued by the FWS, and
- the Programmatic Agreement regarding the management of cultural resources.

Within 30 days after the date of publication in the Federal Register of this decision, an adversely affected party has the right of appeal to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations at Title 43 Code of Federal Regulations, Part 4.411.

Approved by:

January 20, 2009

Mike Pool, State Director
Bureau of Land Management
California State Office

Date

II. AUTHORITY

FLPMA establishes policies and procedures for management of public lands. In section 102(a)(8), Congress declared that it is the policy of the United States that:

> *the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use* (43 U.S.C.1701(a)(8)).

Section 202 of the FLPMA and the regulations implementing the Act's land use planning provisions (43 CFR subparts 1601 and 1610) provide a process and direction to guide the development, amendment, and revision of land use plans for the use of the public lands.

Section 102(c) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and the Council on Environmental Quality's and Department of the Interior's implementing regulations (40 CFR parts 1500-1508, 43 CFR part 46) provide for the integration of NEPA into agency planning to insure appropriate consideration of NEPA's policies and to eliminate delay.

III. REQUIRED ACTIONS

The following federal statutes require that specific actions be completed prior to issuance of a ROD and project approval:

Endangered Species Act of 1973. Under Section 7 of the Endangered Species Act, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with U.S. Fish and Wildlife Service (FWS). The BLM prepared a Biological Assessment for the FWS in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). FWS has issued a Biological Opinion determining that the project is not likely to jeopardize the species or result in adverse modification of critical habitat and has established mitigation measures to reduce any anticipated impacts.

National Historic Preservation Act. The basis for determining significance of cultural resources is driven by the National Historic Preservation Act (NHPA), 16 U.S.C. § 470 et seq. In particular, 16 U.S.C. § 470f (Section 106) requires federal agencies to take into account impacts upon resources listed or eligible for listing on the National Register of Historic Places (NRHP).

The Section 106 process has been completed for the selected route. Section 106 compliance is in accordance with the Programmatic Agreement (pursuant to 36 CFR 800.14(b)) executed by the BLM and the California State Historical Preservation Officer (SHPO) in December 2008. The Forest Service, MCAS Miramar, US Army Corps of Engineers, California Public Utilities Commission, San Diego Gas & Electric Company, and potentially affected Native American tribes are invited signatories and/or concurring parties.

Clean Air Act, as Amended in 1990 (42 USC Section 7606(c), Title 40 CFR Section 51, Subpart W - Determining Conformity of General Federal Actions to State or Federal Implementation Plans and Title 40 CFR Section 93, Subpart B - Determining Conformity of General Federal Actions to State or Federal Implementation Plans). The Sunrise Powerlink Transmission Project is expected to meet the requirements of the Clean Air Act. Section 176(c) of the Clean Air Act prohibits federal agencies from, among other things, issuing licenses or permits or approving any activity which does not conform to an approved State Implementation Plan. Both the San Diego and Salton Sea Air Basins are designated as non-attainment for ozone and the Salton Sea Air Basin is also designated as serious non-attainment for PM_{10}. Federal conformity regulations presume conformity with state plans where Project emissions are below applicable thresholds (the "*de minimis* thresholds"), and where no "regionally significant" emissions would occur. The applicable *de minimis* thresholds are 100 tons/year (NO_x), 100 tons/year (VOC) and 70 tons/year (PM_{10}). A regionally significant action would occur only where the direct and indirect emission of any pollutant represents 10 percent or more of a non-attainment area's emissions inventory for that pollutant.

Additionally, where, as here, the Federal action is a permit, license, or other approval for some aspect of a nonfederal undertaking, the relevant activity for conformity purposes is the part, portion, or phase of the nonfederal undertaking that requires the Federal permit, license, or approval. BLM does not have any practical control over emissions resulting from activities on non-BLM administered lands. As a result, this conformity evaluation is limited to direct and indirect emissions associated with construction activity on BLM-administered lands. Construction of the Sunrise Project is estimated to take approximately two years and is scheduled to begin in June 2010.

Construction emissions that may be associated with the future 500 kV expansion, Stirling Solar Project and the Esmeralda-San Felipe Geothermal Project on public lands, are either not currently identified or quantifiable due to the status and phasing of these potential projects and/or are not expected to overlap with construction for the preferred Environmentally Superior Southern Route. Additionally, these projects would be subject to additional environmental review under NEPA and the Clean Air Act, prior to any potential approvals.

As discussed in the Final EIR/EIS, construction of the Sunrise Powerlink Transmission Project would be a source of dust and other particulate matter. Over the course of construction, it is estimated that traffic and other activities related to construction along the Final Environmentally Superior Southern Route Alternative (the Selected Alternative) would result in the direct and indirect emission of 152.38 tons per year of PM_{10} on federal lands in the Salton Sea Air Basin non-attainment area in Imperial County that would be localized mainly at the construction site. *See* FEIS at Appendix 10. All of these emissions would be caused by construction activity on BLM-administered public lands, and exceed the PM_{10} *de minimis* threshold by 83 tons per year.

Construction of the Sunrise Powerlink Transmission Project would similarly be a source of NO_x and VOC emissions, which are precursors to ozone formation. More specifically, in the San Diego and Salton Sea Air Basins, it is estimated that construction activity along the Selected Alternative Route would result in the direct and indirect emission of 167.25 tons per year of NO_x

on BLM administered lands. *See* FEIS at Appendix 10. These emissions exceed the NO_x *de minimis* threshold by 67.25 tons per year.

BLM is requiring as a condition of this decision compliance with the attached mitigation measures to reduce air emissions. Additionally, EPA guidance permits Federal agencies to take measures to reduce emissions from the proposed action to fall below *de minimis* levels. Here, SDG&E, the Imperial County Air Pollution Control District, and the San Diego Air Pollution Control District have committed to identify appropriate emission reduction measures to be incorporated into the Project to bring the total direct and indirect emissions caused by the Project below the applicable General Conformity rule *de minimis* emission thresholds. The level of emissions reductions necessary to satisfy federal *de minimis* requirements are set forth above, and are required to be completed prior to the initiation of Project construction on BLM lands. Additionally, the levels of emissions associated with construction of the Sunrise Powerlink Transmission Project are not considered a regionally significant action. As a result, emissions from the Sunrise Powerlink Transmission Project will be below General Conformity thresholds, and no formal conformity determination is required.

Clean Water Act. The Sunrise Powerlink Transmission Project is expected to meet the requirements of the Clean Water Act (CWA). The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Point source discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process, outlined in CWA Section 402. NPDES permitting authority is delegated to, and administered by, California's nine Regional Water Quality Control Boards. California's State Water Resources Control Board regulates the NPDES storm water program. In addition, Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (ACOE) to regulate the discharge of dredged or fill materials into navigable waters of the U.S., including certain wetlands and other waters of the United States. The ACOE issues individual site-specific or general (nationwide) permits for such discharges.

As discussed in the Final EIR/EIS, construction of the Sunrise Powerlink Transmission Project may result in discharges to surface water and may require the construction of new access roads through streambeds that would require filling for access purposes. These and other potential impacts will require SDG&E to obtain approvals from the ACOE and the applicable Regional Water Quality Control Boards and the State Water Resources Control Board under the CWA, including certification (or a waiver) from the State that the proposed discharge complies with water quality standards. To ensure that no discharge to navigable waters will occur, this ROD and the BLM's right-of-way grants provide that no Notice(s) to Proceed may be issued to SDG&E for the Sunrise Powerlink Transmission Project until necessary authorization(s) under the CWA are obtained.

IV. MANAGEMENT CONSIDERATIONS AND DECISION RATIONALE

This decision approves two right-of-way grants for the Sunrise Powerlink Transmission Project as the Final Environmentally Superior Southern Route Alternative (Selected Alternative) as analyzed in the Final EIR/EIS. BLM's decision to authorize these activities is based on the following rationale:

1. Under the Energy Policy Act of 2005, federal agencies are directed to encourage the development of renewable energy. By entering into a Memorandum of Understanding (MOU) in November 2008 with California Department of Fish and Game, California Energy Commission, and FWS, BLM has committed to work with state agencies to achieve California's Renewable Portfolio Standards (RPS) energy goals and greenhouse gas emission reduction standards in a manner that is both timely and in compliance with federal and state environmental laws. The purpose of the MOU is to assist with the implementation of applicable state and federal laws, regulations, and policies. The purpose is also to facilitate coordination between the agencies to develop guidelines and a comprehensive conservation strategy that would help reduce timelines for siting, development, permitting and construction of qualifying RPS projects in the Mojave and Colorado Desert regions while enhancing and maximizing environmental protections.

   The Selected Alternative is the environmentally preferred transmission alternative that would both increase take-away capacity and provide direct access to new renewable generation in the Imperial Valley region. The Selected Alternative would assist in the development of solar and other qualified RPS energy development.

2. The construction, operation, and maintenance activities associated with the Selected Alternative, either singularly or with mitigation, are in conformance with the following land use factors:

   i. BLM policy and guidance for issuing rights-of-way including BLM Manual 2801.11;

   ii. California Desert Conservation Area Plan of 1980, as amended (CDCA Plan);

   iii. BLM Eastern San Diego County Resource Management Plan, as amended;

   Construction of the Selected Alternative is consistent with BLM Visual Resource Management (VRM) guidelines described in the BLM Eastern San Diego County Resource Management Plan.[2] Other alternatives analyzed in the FEIS (including the Proposed Action/Project) conflict with the BLM VRM guidelines.

3. The Selected Alternative meets all project objectives, is technically, legally and regulatorily feasible, and avoids incompatible Land Use Zones within Cleveland National Forest. Additionally, the BLM and CPUC consulted extensively with Forest Service and SDG&E to identify route modifications within the Cleveland National

[2] Section E.2.3.2 of the Final EIR/EIS and Section 3.3.2 of the RDEIR/SDEIS conclude that the Selected Alternative along the BCD Alternative Revision would be inconsistent with the BLM VRM guidelines. However, this conclusion was based on the Draft BLM Eastern San Diego County Resource Management Plan. The final Eastern San Diego County RMP ROD, which changed the VRM classifications from Class II to Class IV, was signed on October 10, 2008 and appeared in the November 12, 2008 Federal Register (73 Fed. Reg. 66918-66919) after the Final EIR/EIS for the Sunrise Powerlink Transmission Project was completed. This Sunrise Powerlink Transmission Project ROD reflects the new VRM classifications, and therefore, the Selected Alternative is consistent with VRM guidelines.

Forest that would minimize impacts to Forest Service resources and avoid land use zones that do not allow transmission lines or new access roads. The Selected Alternative has been found to be the environmentally preferable transmission route between Imperial Substation and the San Diego load center.

4. The location of the Selected Alternative in close proximity to other proposed and existing electrical transmission lines within existing utility corridors for the majority of the route allows the BLM to most effectively manage existing and future utility usage within the corridor and to minimize conflicts with other existing and proposed utility facilities. The Modified Route D Alternative, which is included as a segment of the Selected Alternative, has also been identified as a 368 corridor by the Department of Energy's Final West-wide Corridor Programmatic EIS.[3] In addition, placement of the Sunrise Powerlink Transmission Project within or parallel to existing utility and transportation corridors minimizes surface disturbances by allowing for sharing of access and spur roads between facilities. Although several of the other alternatives analyzed in the Final EIR/EIS and the Proposed Action/Project would generally follow existing utility corridors, many would create new transmission corridors where they diverge from the existing lines.

5. The Selected Alternative does not cross ABDSP and does not impact state-designated Wilderness.

6. The shorter length and reduced ground disturbance of the Final Environmentally Superior Southern Alternative as described in Section I above, which is also the Selected Alternative (approximately 118 miles, as compared to approximately 141 miles for the Northern Environmentally Superior Alternative route), results in reduced impacts in the areas of biological resources, geology, mineral resources, and soils, air quality, public health and safety, transportation and traffic, and socioeconomics, public services and utilities.

7. The Final EIR/EIS analyzed two non-wires alternatives, the New In-Area All-Source Generation Alternative and the New In-Area Renewable Generation Alternative. These alternatives were found to be environmentally superior to all of the transmission alternatives evaluated in the Final EIR/EIS because the impacts of both non-wires alternatives would be confined to specific areas and, in the case of the New In-Area All-Source Generation Alternative, would create impacts in more developed areas. Neither alternative was selected, however, by the CPUC or the BLM because neither meets all of the project objectives. Specifically, neither alternative was found to meet the second project objective specified above, to reduce congestion and power supply costs of delivering electricity to ratepayers. Additionally, both alternatives would create significant impacts as a result of extensive ground disturbance and habitat loss and cause significant impacts to visual, recreation, and water resources, and for the reasons discussed in this decision. Due to its location in the Borrego Valley, the solar thermal

[3] Energy Policy Act of 2005, Section 368, required designation of federal energy corridors. This alternative includes a corridor identified in West-wide Energy Corridor Final Programmatic EIS, published by the Department of Energy in the Federal Register on November 28, 2008, page 72521.

component of the New In-Area Renewable Generation Alternative would be highly visible from surrounding Anza-Borrego Wilderness areas, and the solar thermal component would require transmission line upgrades though the ABDSP.

8. The Final EIR/EIS found that the LEAPS Transmission-Only Alternative is the third most environmentally superior alternative and the overall environmentally superior transmission line route alternative because of its shorter length and reduced environmental impacts when compared to the other transmission route alternatives. The LEAPS Transmission-Only Alternative would still have significant and unavoidable adverse temporary impacts associated with construction as well as major permanent impacts to biological and visual resources. This alternative was not selected, however, because it was found not to meet all of the project objectives and for the reasons discussed in this decision. Specifically, the LEAPS Transmission-Only Alternative will not facilitate the development of renewable energy. Similarly, although the No Action Alternative would likely have fewer environmental impacts (depending upon the energy options that would be required to replace the Sunrise Powerlink, it too would not meet all Project Objectives.

9. The major resource issues identified through BLM interdisciplinary review have been addressed in the analysis and considered in the decision. Based on the analysis in the Final EIR/EIS, many of the impacts of the activities to be authorized will be mitigated to less than significant. In addition, many impacts have been avoided or minimized to the degree feasible. Although significant and unmitigable impacts were identified in Section E of the Final EIR/EIS for biological resources, visual resources, wilderness and recreation, agricultural resources, cultural resources, noise, air quality, and fire and fuels management, all of the other major alternatives considered would also have significant and unmitigable impacts. Based on the rationale listed above along with an extensive alternatives comparison in Section H of the Final EIR/EIS, a determination has been made that the Selected Alternative is the BLM preferred alternative between Imperial Valley Substation and San Diego.

10. A one-time amendment to the Eastern San Diego County RMP is warranted. The record indicates that it is unlikely that SDG&E will be able to secure easements for the Interstate 8 Alternative between McCain Valley Road and the eastern end of the Modified Route D Alternative across Tribal land. Therefore, the BCD Alternative and BCD South Option Revisions and an amendment to the Eastern San Diego County Plan are approved in this ROD. The Interstate 8 Alternative west of McCain Valley Road is shorter in length, located in a less remote area, and would result in fewer significant, unmitigable impacts to biological resources, recreation, and visual resources than would the BCD/BCD South Option Revisions. However, because SDG&E likely will not be able to secure easements for the Interstate 8 Alternative between McCain Valley Road and the eastern end of the Modified Route D Alternative across Tribal land, BLM approves an amendment to the Eastern San Diego County RMP to provide a one-time exception to the plan requirement that new gas, electric, and water transmission facilities and cables for interstate communication be allowed only within designated corridors. The plan amendment applies to the public lands along the BCD/BCD South Option Reroute portion of the Environmentally Superior Southern (SWPL) Route Alternative.

V. ALTERNATIVES CONSIDERED

The following alternatives were considered in the Sunrise Powerlink Transmission Project Final EIR/EIS, published in the Federal Register on October 17, 2008. The alternatives are described in detail in the Final EIR/EIS and are briefly summarized below.

The *Proposed Action/Project* includes an approximately 150-mile transmission line (676 new towers) from Imperial County to coastal San Diego County. The proposed 500 kV line would pass through ABDSP, and a 230 kV line would continue through rural San Diego County (communities of San Felipe, Santa Ysabel, Ramona) with both overhead and underground segments. It would also include a new substation in central San Diego County and upgrades at four existing substations.

In total, the alternatives screening process culminated in the identification and preliminary screening of over 100 potential alternatives or combinations of alternatives. These alternatives ranged from minor routing adjustments to SDG&E's Proposed Action/Project route, to entirely different transmission line routes, to alternate system voltages, and system designs. Renewable resource technologies, distributed generation, and demand-side management were also considered. The alternatives that were eliminated did not meet project objectives, did not meet legal, regulatory, and technical feasibility criteria, and/or did not avoid or reduce environmental effects of the Proposed Action/Project.

The Proposed Action/Project and variations on the proposed route have become known throughout the course of this proceeding as the "Northern Route Alternatives," and they are sometimes referred to interchangeably as the "Northern Routes." These Northern Route Alternatives all pass through ABDSP. The Southwest Powerlink Alternative routes and variations on the Southwest Powerlink Alternative routes have become known as the "Southern Route Alternatives," and they are sometimes referred to interchangeably as the "Southern Routes." These Southern Route Alternatives all parallel the existing 500 kV Southwest Powerlink transmission line for a portion of their eastern segments. The terms Northern Route and Southern Route are used to identify the two primary transmission "spines" that could bring power from the Imperial Valley to San Diego – either north through ABDSP, or south, avoiding ABDSP.

Northern Transmission Line Route Alternatives

The *FTHL Eastern Alternative* was developed by the EIR/EIS team as a way to avoid almost two miles within the Flat-Tailed Horned Lizard (FTHL) Management Area in Imperial County between MP 3 and MP 8.8.

The SDG&E West of Dunaway Alternative would diverge from the Proposed Action/Project at MP 4 and would follow the existing SWPL #1 approximately 1.7 miles farther west-northwest than the Proposed Action/Project. The alternative would rejoin the proposed route at MP 7.9. Although the route would be 2.2 miles longer, it would avoid a major planned land development project that the proposed route would bisect.

The *SDG&E West Main Canal–Huff Road Modification Alternative* would diverge from the Proposed Action/Project at MP 11 and follow the IID Westside Main Canal to the east-northeast, and then turn north on Huff Road. The lengths of this alternative and the proposed route would be essentially the same; however, this route would avoid direct effects to the Bullfrog Farms and also to the Raceway development.

The *Partial Underground 230 kV ABDSP SR78 to S2 Alternative* would include installation of a double-circuit bundled 230 kV line (as opposed to 500 kV with the Proposed Action/Project) that would be installed underground and overhead in and along SR78 through ABDSP (including the segment of SR78 in which SDG&E proposed to underground the existing 92 and 69 kV lines as part of the Proposed Action/Project) and in and along Highway S2. The proposed Central East Substation would not be constructed with this alternative. Instead, a new 500 kV/230 kV substation would be constructed adjacent to the existing IID San Felipe Substation to accommodate the new transmission line. An all-underground option is also considered in the Final EIR/EIS, in which the two overhead segments of this alternative would remain underground within Highways SR78 and S2. These segments would cross and parallel the Earthquake Valley Fault.

The *Overhead 500 kV ABDSP within Existing Right-of-Way Alternative* would minimize impacts on Pinyon Ridge Wilderness Area by staying within a 100 foot-wide corridor along the existing right-of-way through the ABDSP, and not requiring the additional 50 foot-wide expansion needed by the Proposed Action/Project. The alternative would follow the same route as the Proposed Action/Project, except in the Grapevine Canyon area where the alternative would remain within the existing SDG&E 69 kV right-of-way/easement and towers would not be located on State-designated Wilderness through the ABDSP.

The *East of Tamarisk Grove Campground Option* would follow the 150 foot-wide right-of-way outlined in the Proposed Action/Project, and not the existing right-of-way through the ABDSP, between the eastern Park boundary (MP 60.9) and the west side of Tamarisk Grove Campground (MP 74.8) near the SR78/Highway S3 intersection. In comparison to the Overhead 500 kV ABDSP within Existing Right-of-Way Alternative, this option would move the new 500 kV transmission line farther from SR78 and Tamarisk Grove Campground, reducing highway encroachment and tree trimming around the campground. Use of the option would require discretionary action/approval from California State Park that may not be otherwise required under the Overhead 500 kV ABDSP within Existing Right-of-Way Alternative.

In comments on the Draft EIR/EIS, SDG&E requested that the following reroutes be considered:

- Under the *Overhead 500 kV ABDSP Within Existing Right-of-Way Alternative Revision* all project activities would remain within the existing transmission corridor through ABDSP. This design revision would relocate access roads, pull sites, etc. and would thereby locate the 500 kV transmission line entirely within a 100-foot corridor and out of state-designated Wilderness through ABDSP.
- *Around Narrows Substation Revision*. Instead of crossing over the existing Narrow Substation (MP 69.7) to its south side, the reroute would remain within SDG&E's easement and the 500 kV line would be rerouted to the north side of the substation.

The *Santa Ysabel Existing Right-of-Way Alternative* would follow an existing 69 kV transmission line right-of-way east of SR79 and along the toe slope for the southern portion of the alternative. This alternative would begin at MP 100 and would travel south for approximately 4.7 miles on the west side of SR79, following the west side (farther from SR79) of an existing SDG&E 69 kV transmission line. Where the southern border of the Santa Ysabel Reservation no longer parallels the east side of SR78 and the valley begins to open up, the alternative route and the existing 69 kV transmission line would cross to the east side of SR79 (approximately 1,800 feet south of School House Canyon Road). The route would continue south rejoining the Proposed Action/Project at approximately MP 109.5.

The *Santa Ysabel All Underground Alternative* would include undergrounding the 230 kV transmission line within SR79 through Santa Ysabel. A portion of the Santa Ysabel All Underground Alternative under SR79 would be located partially on Santa Ysabel Tribal lands. The 8.9 mile alternative route would diverge from the Proposed Action/Project at MP 100 and would follow the existing 69 kV right-of-way overhead for approximately 1,100 feet south until the line would be west of the Alquist-Priolo Fault Zone. The line would transition underground and would travel south in dirt roads and hay fields on private ranch lands generally parallel to SR79 until it would intersect SR79. South of Mesa Grande Road, this alternative would be the same as the Santa Ysabel Partial Underground Alternative (see below). The route would travel underground in SR79 and then in access roads for the existing Santa Ysabel–Creelman 69 kV transmission line. Where the existing 69 kV line turns southwest, this alternative would turn west-southwest and would follow an existing dirt road to rejoin the Proposed Action/Project at approximately MP 109.4 where it would transition overhead.

The *Santa Ysabel Partial Underground Alternative* would begin at MP 105.5, would transition underground at the southern side of Mesa Grande Road, and would travel underground to the Mesa Grande Road/SR79 intersection. Once this alternative turns south in SR79, it would be the same as the Santa Ysabel All Underground Alternative described above.

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- The *SDG&E Santa Ysabel Partial Underground Alternative Revision* would reduce potential impacts to cultural resources, including human remains buried at the cemetery at the Santa Ysabel Mission, and would also minimize impacts to properties and traffic in SR79. The underground reroute would diverge from the original Santa Ysabel Partial Underground Alternative approximately 2,200 feet east of where it would originally reach SR79. The reroute would turn south in ranching roads cutting across grazing lands for approximately one mile. At this point, the reroute would turn east along a parcel boundary and would rejoin the original alternative in SR79, near MP SYPU-2. Approximately one mile south of this point the next segment of the reroute would diverge from the original alternative just north of the town of Santa Ysabel passing the west side of the town and rejoining the original alternative along a private ranching road at a parcel boundary.

The *SDG&E Mesa Grande Alternative* would reduce visibility of the overhead line west of Mesa Grande Road. The route would diverge from the proposed route at MP 101.5 and would travel southeast for approximately 0.7 miles. At MP 102.2 it would turn southwest along the lower

portion of the northwesterly facing slope of a small valley running from the northeast to the southwest to cut the angle and rejoin the Proposed Action/Project at MP 103.5, on the southerly side of Mesa Grande Road.

The *CNF Existing 69 kV Route Alternative* would avoid scattered single-family residences on SR78 and Deer Canyon Drive in unincorporated San Diego County. At MP 111.5 where the proposed 230 kV and existing 69 kV transmission lines would be routed west for 0.5 miles and then south for approximately 0.5 miles to avoid Cleveland National Forest (CNF), the CNF Existing 69 kV Route Alternative would remain in the existing 69 kV right-of-way heading southwest through Cleveland National Forest for approximately 0.5 miles to rejoin the Proposed Action/Project at MP 112.5.

The *Oak Hollow Road Underground Alternative* would be constructed as an underground facility following a portion of Oak Hollow Road. The purpose of this alternative would be to extend the proposed underground segment of the 230 kV line further east so it would be underground through the residential valley area. This alternative would transition underground at approximately MP 116.7 within Mt. Gower Open Space Preserve and would rejoin the underground segment of the proposed route at MP 117.3 along Gunn Stage Road.

The *San Vicente Transition Alternative* would move the transition structure from its proposed location along San Vicente Road (MP 121.9) approximately 0.3 miles west to MP 122.2.

The *Chuck Wagon Road Alternative* would follow existing roads and transmission rights-of-way. The underground transmission line would diverge from the underground proposed route at MP 121.7 (approximately 0.2 miles east of the proposed transition point) and would turn south in Chuck Wagon Road. The alternative route would continue underground south in Chuck Wagon Road for approximately 1.6 miles. The route would transition to overhead and would turn west for 1.2 miles to rejoin the Proposed Action/Project at MP 125.6.

The majority of the *Pomerado Road to Miramar Area North Alternative* is underground with the exception of the east and west ends where the line is overhead within existing right-of-way. This alternative would exit the Sycamore Substation at MCAS Miramar overhead westerly within an existing right-of-way toward Pomerado Road. The line would cross Pomerado Road just north of Legacy Road and would transition underground just east of the roadway. The underground portion of the route would be located within existing roadways through generally commercial and industrial land use areas. The line would transition to overhead and would be located within the existing 230 kV right-of-way heading northward into the Peñasquitos Substation.

The *Los Peñasquitos Canyon Preserve and Mercy Road Alternative* would vary from the Proposed Action/Project east of the Chicarita Substation. The entire alternative would be underground except the eastern and western ends where the line transitions to overhead structures. Under this alternative, the transmission line would bypass the Chicarita Substation and would come from the Sycamore Substation and connect to an existing right-of-way along Scripps-Poway Parkway in the vicinity of Ivy Hill Drive. From here the line would transition to underground to its terminus at Black Mountain Road. At Black Mountain Road the line would

remain underground heading north then west at Park Village Drive where the line would rejoin the Proposed Action/Project.

The *Black Mountain to Park Village Road Underground Alternative* would deviate from the Proposed Action/Project alignment where the line approaches Black Mountain Road. Under this alternative, the line would remain underground but would be located underneath Black Mountain Road and would turn west onto Park Village Drive, following the Proposed Action/Project alignment into the Peñasquitos Substa¬tion via the Los Peñasquitos Canyon Preserve.

The *Coastal Link System Upgrade Alternative* is a transmission system modification that would require the following:

- Reconductoring of the existing Sycamore Canyon–Pomerado 69 kV circuit on existing structures;
- Reconductoring of the existing Pomerado-Poway 69 kV circuit on existing structures;
- Reconductoring of the existing Sycamore Canyon-Elliott 69 kV transmission line (also part of the Proposed Action/Project);
- Installation of a third 230/69 kV transformer at the existing Sycamore Canyon Substation (expansion of the Sycamore Canyon Substation would occur within the existing easement of the substation); and
- Installation of a new 230/138 kV transformer at the existing Encina Substation or upgrading (reconductoring the existing Sycamore Canyon–Chicarita 138 kV circuit using 34 existing wood frame structures).

It would eliminate all associated impacts of the Coastal Link of the Proposed Action/Project between Sycamore Canyon and Peñasquitos Substation.

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- The *Coastal Link System Upgrade Alternative Revision* would include one additional transmission upgrade to the Coastal Link System Upgrades Alternative analyzed in the Draft EIR/EIS, the upgrade of the Sycamore-Scripps 69 kV line.

Substation Alternatives to Central East Substation

The *Top of the World Substation Alternative* would be located approximately one mile west of the proposed Central East Substation. The transmission line routes into the substation would follow the Proposed Action/Project route to the point where the line to the proposed Central East Substation site is proposed to jog southeast (at approximately MP 92.7). At this point the alternative 500 kV route would turn west for 1.1 miles to enter the alternative site. Exiting the substation, the line would travel southwest for 400 feet and then west and north-northwest to rejoin the Proposed Action/Project around MP 95.

In comments on the Draft EIR/EIS, SDG&E requested that the following reroute be considered:

- *Top of the World Substation Alternative Revision*. The principal revisions are that the reroute would shorten a bend in the 500 kV ingress transmission line east of the Top of the World Substation Alternative, and the 230 kV egress line would parallel the ingress line, rather than heading northwest from the substation.

Southern Transmission Line Route Alternatives

All of the southern transmission alternatives would avoid ABDSP, which is the major reason that they were considered. All transmission line routes that would follow a portion of the existing Southwest Powerlink would pass through the Cleveland National Forest (CNF), which require an amendment of the recently approved Forest Plan. The Interstate 8 (I-8) Alternative and associated options would also parallel a portion of the I-8 freeway, which runs on an east-west path across the southern Imperial and San Diego Counties.

In addition, there are three alternative route segments for the I-8 Alternative that are listed here and addressed in greater detail below:

- BCD Alternative: Replacement of MP I8-39.5 to MP I8-58 of the I-8 Alternative.
- Route D Alternative: Replacement of the Interstate 8 Substation and 230 kV segment with a continuation of the 500 kV segment that would turn north at MP I8-70 and pass through the Boulder Creek area of the Cleveland National Forest, joining the Proposed Action/Project route at MP 114 at the Central South Substation Alternative.
- Modified Route D Alternative: Replacement of the Interstate 8 route from about MP I8-47 to MP 70 and of the Interstate 8 Alternative Substation. It would require a new 500/230 kV substation south of the I-8 freeway.

In addition, five short options are included in this description of the Interstate 8 Alternative: the Campo North Option, the Buckman Springs Underground Option, the West Buckman Springs Option, the South Buckman Springs Option, and the Chocolate Canyon Option. These options are described after the description of the main route below.

The route of the I-8 Alternative would be located adjacent to the existing 500 kV Southwest Powerlink, separated by an average of 400 feet, for the first 35.7 miles. This segment generally parallels I-8. The route would begin at the Imperial Valley Substation, paralleling the Southwest Powerlink to a point about six miles west of the San Diego/Imperial County line. At that point, the Sunrise Powerlink's 500 kV line would turn northwest, passing less than one mile southeast of the southwest corner of ABDSP and crossing I-8 freeway just west of the BLM Carrizo Gorge Wilderness Area and one mile east of the community of Boulevard. After approaching I-8 from the southeast, the I-8 Alternative route would cross to the north side of I-8 about a mile east of Boulevard, then turn west following the freeway. The route would cross the freeway several times in order to avoid residential areas and a major wind farm, and would enter the Interstate 8 Alternative Substation at MP I8-65. The line would exit the substation to the west at 230 kV. At the eastern end of Alpine Boulevard, the route would transition to underground and travel in Alpine Boulevard, before transitioning back to overhead and eventually rejoining the Proposed Action/Project at its MP 131. A portion of the I-8 Alternative would cross both the Campo and the La Posta Indian Reservations.

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

- The *SWPL Archaeological Site (Plaster City) Reroute* is a 3.3-mile segment of the I-8 Alternative (about 11 miles west of the Imperial Valley Substation) that would diverge from the existing Southwest Powerlink to the north in order to avoid passing through an archaeological site.
- The *Jacumba SWPL Breakaway Point Reroute* would eliminate the need for one large angle structure by spanning directly between two smaller angle structures without impacting additional parcels. Specifically, at MP 35.2 the reroute would diverge from the I-8 Alternative and head northwest for 1,700 feet.
- The *High Meadows Reroute* would minimize land use and visual impacts to the High Meadows Ranch Subdivision. The reroute would diverge south from the Interstate 8 Alternative at MP I8-87.1 and would parallel the Interstate 8 Alternative to its south and then west and would rejoin the Interstate 8 Alternative at MP I8-89.3.
- The *Highway 67 Hansen Quarry Reroute* would minimize impacts to aggregate mineral resources at an operational quarry along the Interstate 8 Alternative. The Highway 67 Hansen Quarry Reroute would continue from the northern end of the High Meadows Reroute at MP I8-89.3 and would rejoin the Interstate 8 Alternative at MP I8-91.9.

The *Interstate 8 Alternative Substation* would be used if the adopted transmission line route requires a conversion to 230 kV to allow the underground segment through Alpine. It would be located southwest of Descanso on private land adjacent to Cleveland National Forest land. The 500 kV line would enter the substation from the east, and a double-circuit 230 kV transmission line would exit the substation to the west after conversion from 500 to 230 kV.

The *Campo North Route Option* would remain north of the freeway across Tribal lands in the vicinity of the Kumeyaay Wind Energy Project, passing immediately adjacent to the southernmost wind turbine in the wind farm (at about MP I8-45) and just north of the Caltrans right-of-way. This option would avoid two freeway crossings and shorten the route by about 0.5 miles.

In the area of Buckman Springs, three route options are considered, two to preserve hang gliding and paragliding opportunities in Horse Canyon and one to utilize an existing transmission line corridor. The I-8 Alternative as defined would be located between the Horse Canyon take off and landing points, presenting a safety risk to glider pilots.

- Option 1 – *Buckman Springs Underground Option*. This option would require construction of two overhead/underground transition stations for the 500 kV line and installation of an underground route segment for approximately 1.9 miles.
- Option 2 – *West Buckman Springs Option*. This option would minimize hang gliding and paragliding impacts by moving the transmission line to a location west of Buckman Springs Valley, rather than east where the route is currently proposed.

- Option 3 – *South Buckman Springs Option*. This option would avoid passing through Backcountry Non-Motorized Land Use Zones within the CNF that occur north and east of Interstate 8, by crossing south of the freeway.

The *Chocolate Canyon Option* is a 230 kV segment option that would replace the Interstate 8 Alternative from MP I8-79.0 to MP I8-82.3. The route would run at a much lower elevation in the canyon so it would be less visible from residences west of the canyon.

In comments on the Draft EIR/EIS, SDG&E requested the *SDG&E Chocolate Canyon/Peutz Valley Revision* be a reroute for the Interstate 8 Alternative at the west end of the underground segment in Alpine Boulevard. The revised route would minimize visual impacts by keeping the transmission line underground, below the I-8 Freeway, until the north side of the freeway.

The *BCD Alternative* would avoid ABDSP and also avoid the residential areas through which the existing 69 kV lines pass. This 500 kV alternative would diverge from the Interstate 8 Alternative about one mile northeast of Boulevard, where it would cross I-8 to the north, then it would head north-northwest, generally paralleling McCain Valley Road. It would pass directly adjacent to and west of the Carrizo Gorge Wilderness ACEC. The route would pass within one mile and east of Lark Canyon Campground and OHV Area and pass about three miles southwest of the Carrizo Overlook. After passing through the CNF, the route would join the Interstate 8 Alternative north of Buckman Springs. The 19.5-mile BCD segment of this route would include 6.5 miles within the CNF, 11 miles on BLM land, 0.2 miles on State of California conservation land, and 1.8 miles on private lands.

The *BCD South Option* would eliminate the westernmost 6 miles of the BCD Alternative by turning southwest just one mile after entering CNF. It would remain within the Backcountry Land Use Zone of CNF, which allows transmission lines, and it would eliminate effects on the Cibbets Flat Campground and the nearby crossing of the Pacific Crest Trail. The BCD South Option would also avoid all tribal land.

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

- *BCD Alternative and BCD South Option Revisions*. Revision of these two alternative segments was suggested by SDG&E with input from the Forest Service, as well as the CPUC and BLM, to avoid Backcountry Non-Motorized Land Use Zones in the Cleveland National Forest and to minimize disturbance and visibility on CNF. The BCD Alternative and BCD South Option Revisions would replace part of the BCD Alternative and all of the BCD South Option. The BCD Alternative Revision would diverge from the BCD Alternative at MP BCD-9. It would head to the northwest for just over four miles and then turn and head south-southwest for two miles to where it would cross the original BCD Alternative. This is the point where the BCD South Option Revision begins. The BCD South Option Revision would roughly parallel the BCD South Option's original route for 3.8 miles, crossing Interstate 8 approximately 0.25 miles west of the original BCD South Option crossing. The revised route would remain approximately 0.5 miles west of the original BCD South Option and join the Modified Route D Alternative at MP MRD-3.6.

The *Route D Alternative* (north of I-8) would be a 500 kV alternative that would diverge from the I-8 Alternative at MP I8-70.3. The Route D Alternative would pass through the Boulder Creek Valley north of the town of Descanso. The Route D Alternative would require use of the Central South Substation Alternative in order to convert from 500 kV to 230 kV. Approval of this route would require that only existing roads be used through a 1.5 mile segment that would pass through an Inventoried Roadless Area (IRA) northwest of Descanso in the CNF. This route would also require a Forest Land Management Plan (LMP) amendment as it would pass through several sensitive areas of National Forest System lands.

The *Modified Route D Alternative* (south of I-8) was identified as a route to be evaluated because the alternative transmission line route would be consistent with the Forest Land Management Plan's Land Use Zones and it would diverge from the existing Southwest Powerlink at a point east of the area of greatest fire risk. The majority of this alternative has also been identified as a 368 corridor by the Department of Energy's Final West-wide Corridor Programmatic EIS.[4] The Modified Route D Alternative route would start by diverging from the Interstate 8 Alternative at MP I8-48.7, and would travel southwest and west eventually passing between BLM's Hauser Mountain Wilderness area and the CNF's Hauser Wilderness. At MP MD-22.5, the route would turn north, pass immediately east of the existing Barrett Substation, and would re-enter the CNF. This route would include the Modified Route D Substation, located on private land about 1.5 miles south of Interstate 8. The Modified Route D Alternative would have two options for connecting with the Proposed Action/Project route:

- Remain at 500 kV, cross Interstate 8 and connect with the Route D Alternative, continuing north through the Boulder Creek area to the Central South Substation Alternative (MP 113.5).
- Convert to 230 kV at a new substation, the Modified Route D Alternative Substation (see description below). In this option, an overhead double-circuit 230 kV transmission line would exit the substation, continue north, and would transition underground at the same point as the Interstate 8 Alternative (at the east end of Alpine Boulevard). In addition, the 230 kV segment has a route option, the Star Valley Option (see below), which would reduce the length of underground construction in Alpine Boulevard and would avoid cultural resources of concern.

In comments on the Draft EIR/EIS, SDG&E requested the following mitigation reroutes be considered:

- The *Cameron Reroute* would diverge from the Modified Route D Alternative just west of Buckman Springs Road. The rerouted line would be located a maximum of approximately 150 feet southeast of its original location for 0.3 miles in order that the line does not cross a corner of a CNF land use zone that does not allow transmission lines, and it would remain entirely on private land.

[4] Energy Policy Act of 2005, Section 368, required designation of federal energy corridors. This alternative includes a corridor identified in West-wide Energy Corridor Final Programmatic EIS, published by the Department of Energy in the Federal Register on November 28, 2008, page 72521.

- *Pacific Crest Trail (PCT) Route Options*. The original Modified Route D Alternative, also called PCT Option A below, has been retained in the Final EIR/EIS as part of the Final Environmentally Superior Southern Route Alternative. PCT Option B was described and analyzed in the RDEIR/SDEIS, but it has since been eliminated from consideration. Finally, PCT Reroute Option C/D was analyzed in the Final EIR/EIS in order to allow agencies the opportunity to include either option as part of the approved route. The three options are described as follows:
    - PCT Option A (original Modified Route D Alternative route). PCT Option A is the same as the original Modified Route D Alternative route. The route would be located on BLM land just south of the CNF boundary between MP MRD-11.7 and MP MRD-14. The route would follow the existing 69 kV transmission corridor, and would maximize use of existing access roads. Both the 69 kV and 500 kV lines would cross the PCT three times within a space of about 0.25 mile.
    - PCT Option B would minimize impacts to its crossing of the Pacific Crest Trail; however, due to the development of PCT Option C/D, it has been eliminated from consideration.
    - PCT Option C/D would create a new transmission line right-of-way and the towers would be constructed by helicopter (thus eliminating the need for access roads to the extent feasible). With this reroute, PCT users would cross under the 69 kV line, then cross below the 500 kV line only once farther to the southwest.
- The *Western Modified Route D Alternative Reroute* would minimize impacts to properties. The portion of the reroute around the Modified Route D Alternative Substation has been modified to fit updated substation civil and electrical engineering and to provide for increased separation between the incoming 500kV line and the outgoing 230kV line to accommodate future transmission expansion. The Western MRDA Reroute would first diverge from the north side of Modified Route D Alternative at MP MRD-18.5 and then would parallel the Modified Route D Alternative, being alternately east or west of the alternative at various locations. At MP MRD-31, the reroute would be located east of the original alternative until it would cross to its west and continue 0.2 miles into the alternative substation.

The *Modified Route D Alternative Substation* would be located on private land west of Japatul Valley Road. It would be the same size (about 40 acres) as the proposed Central East Substation, and it would have to accommodate future 230 kV circuits exiting the substation when demand growth justifies the need for additional lines.

The *Star Valley Option* would reduce the length of underground construction in Alpine Boulevard and would avoid cultural resources of concern. The Star Valley Option, as discussed above, would exit the Modified Route D Alternative Substation to the west-northwest and would be an overhead double-circuit 230 kV transmission line. This option would join the Interstate 8 Alternative as underground at Alpine Boulevard at MP I8-73.6.

In comments on the Draft EIR/EIS, SDG&E requested the *Star Valley Option Revision* be considered. This reroute was suggested by SDG&E in an effort to reduce visual impacts to

residences. The outgoing 230 kV line was modified leaving the Modified Route D Substation Alternative to accommodate future transmission expansion. The reroute would extend in nearly a straight line between the Modified Route D Substation Alternative to a point where the Star Valley Option turns due north. It would replace with a straight alignment a portion of the Star Valley Option that has two dog legs in its alignment and would rejoin the Star Valley Option at MP SVO-2.3.

Project Route and System Transmission Lines Alternatives

System Alternatives rely on different transmission line upgrades and interconnections. Within the project area, these alternatives include upgrades to the existing transmission infrastructure, different voltage configurations of the proposed lines, interconnections to points other than the Imperial Valley Substation, or alternative transmission technologies. Two options from the Lake Elsinore Advanced Pumped Storage (LEAPS) Project Alternative were fully evaluated in the EIR/EIS.

- *LEAPS Generation and Transmission Alternative*. The LEAPS Project is also described in the LEAPS Project Final EIS (published by the Federal Energy Regulatory Commission as Lead Agency, with Forest Service as a cooperating agency, FERC Project No. 11858, FERC/FEIS 0191F, January 2007). The LEAPS Project is co-sponsored by the Elsinore Valley Municipal Water District, a public non-profit agency, and the Nevada Hydro Company, Inc. (co-applicants). This alternative would fully implement the "preferred alternative" or "staff alternative" identified in the January 2007 LEAPS Project Final EIS, with both pumped storage and transmission components.
- *LEAPS Transmission-Only Alternative*. The LEAPS Transmission-Only Alternative would include a new 500 kV line known as the Talega-Escondido/Valley-Serrano (TE/VS) Interconnect. This alternative would involve only the transmission components of the LEAPS Generation and Transmission Alternative (see above) and modifications to the existing SDG&E Talega-Escondido 230 kV transmission lines to accommodate the interconnection of the new 500 kV line and northern substation. The new 500 kV transmission line would be constructed along the same corridor as the LEAPS Project, but no reservoir or pumped storage generation would be built.

Non-Wires Alternatives

The non-wires alternatives would avoid major new transmission projects by focusing on generation as a way for SDG&E to perform its function as a load-serving entity. The projects considered in the Final EIR/EIS are representative of reasonable generation scenarios, and are not intended to depend on the progress of contracts for individual utility projects.

Including the components of the non-wires alternatives in the Sunrise Powerlink Transmission Project EIR/EIS does not automatically lead these alternatives to be built because additional approvals or agency actions would be necessary to implement them. Each generator included in the non-wires scenarios would require permitting and CEQA and/or NEPA compliance for each project.

The *New In-Area Renewable Generation Alternative* would involve development of various in-area renewable projects that together could provide sufficient generation capacity to defer the need for the Proposed Action/Project. No single in-area renewable generation project would be likely by itself to provide the necessary capacity to serve as a viable alternative to the Sunrise Powerlink Transmission Project. By considering the availability of in-area renewable resources as a whole, this alternative offers a scenario of in-area renewable generation development. The types of resources involved would be solar thermal, solar photovoltaic, wind, and biomass/biogas.

A second non-wire alternative, the *New In-Area All-Source Generation Alternative*, would include a combination of fossil-fired central station generation, renewable generation, and non-renewable distributed generation (DG). Except for solar thermal, this alternative would also involve renewable projects discussed for the New In-Area Renewable Generation Alternative above. One optional scenario, or "resource bundle," that could occur in conjunction with the New In-Area All-Source Generation Alternative would be to include 231 and 249 MW of demand response by 2010 and 2016, respectively. A second optional scenario, or second "resource bundle," that could occur in conjunction with the New In-Area All-Source Generation Alternative would be to combine the All-Source Generation Alternative with demand response and the use of Renewable Energy Credits (RECs) for RPS compliance.

Under the *No Action Alternative*, the BLM would not issue a Right-of-Way Grant for the construction of the Sunrise Powerlink Transmission Project.

VI. MITIGATION AND MONITORING

The Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) for this project is located in Section I of the Final EIR/EIS. This plan is available in its entirety on the following CPUC agency website under the San Diego Gas & Electric's Sunrise Powerlink Transmission Project Final EIR/EIS Section I, Mitigation Monitoring and Reporting:

http://www.cpuc.ca.gov/Environment/info/aspen/sunrise/feir/I%20Mitigation%20Monitoring.pdf

The BLM is a lead agency, along with the CPUC, in ensuring compliance with all adopted mitigation measures, which are attached to this ROD as part of the right-of-way grant (Appendix A). The BLM would incorporate this mitigation into the right-of-way grant as terms and conditions. Failure on the part of the grant holder to adhere to these terms and conditions could result in various administrative actions up to and including a termination of the grant and requirements to remove the facility and rehabilitate disturbances. All practicable means to avoid or minimize environmental harm have been adopted under this decision. Major elements of this mitigation/monitoring plan, including adopted mitigation measures and related monitoring and enforcement activities for the Selected Alternative, are attached to the right-of-way grant (Appendix A).

VII. PUBLIC INVOLVEMENT

<u>Scoping</u>

The BLM published the Notice of Intent (NOI) to prepare a joint EIS/EIR and Proposed Land Use Plan Amendment for the Proposed Sunrise Powerlink Transmission Project on August 31, 2006 in the Federal Register. A Notice of Public Scoping Meetings was mailed to federal, state, regional, and local agencies, elected officials of affected areas, and the general public. Copies of the NOI were available at 26 local repositories. The comment period began on August 31, 2006, the day of the NOI publication, and ended October 20, 2006.

Newspaper advertisements appeared in 11 local and regional newspapers between September 15 and 22, 2006 for the October scoping meetings and in eight newspapers between January 20 and February 2, 2007 for the February meetings. The February meetings had an additional focus on alternatives under consideration. As part of outreach to Spanish-speaking populations, newspaper advertisements were published in two Spanish-language newspapers. Public scoping meetings were held on:

- October 2, 2006 at 4:30 p.m. in El Centro, California
- October 3, 2006 at 4:00 p.m. and 7:00 p.m. in Ramona, California
- October 4, 2006 at 2:00 p.m. and 6:00 p.m. in Borrego Springs, California
- October 5, 2006 at 2:00 p.m. in San Diego–Mission Valley, California
- October 5, 2006 at 6:30pm in San Diego–Rancho Peñasquitos, California
- February 5, 2007 at 12:30 p.m. in El Centro, California
- February 5, 2007 at 7:30 p.m. in San Diego–Rancho Peñasquitos, California
- February 6, 2007 at 2:00 p.m. in Julian, California
- February 6, 2007 at 7:00 p.m. in Ramona, California
- February 7, 2007 at 1:00 p.m. in Boulevard, California
- February 7, 2007 at 6:30 p.m. in Alpine, California
- February 8, 2007 at 2:30 p.m. in Borrego Springs, California
- February 9, 2007 at 1:00 p.m. in Temecula, California

Cleveland National Forest requested and received an extension on the January-February 2007 scoping comment period, and in April 2007, CNF requested that an alternative be fully analyzed that would not require an amendment to the Cleveland National Forest's 2005 Land Management Plan. To notify the public and to allow the public to respond to this additional alternative, on May 16, 2007 the BLM mailed a notice describing the new alternative and the rationale for its consideration, as well as a map of the route. A 30-day comment period followed, closing on June 16, 2007.

The scoping process for the Sunrise Powerlink Transmission Project was designed to solicit input from the public, federal, state, and local agencies, and other interested parties on the scope of issues that should be addressed in the Draft EIR/EIS. The scoping process was also intended to identify significant issues related to the Sunrise Powerlink Transmission Project. The Sunrise Powerlink Transmission Project and alternatives were revised to address comments and concerns raised during the scoping process.

Review of Draft EIR/EIS

A Notice of Availability (NOA) for the Draft EIR/EIS was published in the Federal Register on January 11, 2008. This initiated a 90-day public comment period. The NOA was mailed to 13,616 interested parties, agencies, county and city departments, special districts, property owners, and occupants on or adjacent to the Sunrise Powerlink Transmission Project and alternative routes. Copies of the Draft EIR/EIS were shipped to 181 interested parties, and 561 copies of the Executive Summary and 570 copies of the DVD were also mailed. Informational workshops on the Draft EIR/EIS were held on:

- January 28, 2008 at 12:30 p.m. in El Centro, California
- January 28, 2008 at 7:00 p.m. in Alpine, California
- January 29, 2008 at 1:00 p.m. in Temecula, California
- January 29, 2008 at 7:00 p.m. in San Diego–Rancho Peñasquitos, California
- January 30, 2008 at 2:00 p.m. in Ramona, California
- January 30, 2008 at 7:00 p.m. in Warner Springs, California
- January 31, 2008 at 3:30 p.m. and 7:00 p.m. in Pine Valley, California
- February 1, 2008 at 1:00 p.m. in Borrego Springs, California

Public participation hearings on the Draft EIR/EIS were conducted on:

- February 25, 2008 at 6:30 p.m. in Pine Valley, California
- February 26, 2008 at 1:00 p.m. in Borrego Springs, California
- February 26, 2008 at 7:00 p.m. in Ramona, California
- May 12, 2008 at 1:00 p.m. and 6:30 p.m. in Borrego Springs

Review of Recirculated Draft EIR/Supplemental Draft EIS

Due to additional information submitted following publication of the Draft EIR/EIS, BLM prepared and published a Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS) in July 2008. The RDEIR/SDEIS was released for public review on July 11, 2008 with a 45-day comment period (ending on August 25, 2008). Following the release of the Recirculated Draft EIR/Supplemental Draft EIS the CPUC and BLM held two informational workshops in Jacumba, California on August 4, 2008.

Review of the Final EIR/EIS

The Final EIR/EIS was distributed to a variety of federal, state, and local government agencies, elected officials, environmental organizations, Native American tribes, and other interested parties for review. A NOA for the Final EIR/EIS was published in the Federal Register, October 17, 2006. This started a 30-day public review period for the Final EIR/EIS. The BLM has considered all comments received on the Final EIR/EIS in the development of this ROD. In addition, the BLM will:

1. Distribute a news release about the ROD in the local and regional media;
2. Send the ROD to all those on the distribution list; and
3. Make the ROD available on the BLM website and to all who request a copy.

Summary of Protests and Comments

The U.S. Environmental Protection Agency's Notice of Availability of the Final EIS/EIR was issued on October 17, 2008. Release of the Final EIR/EIS initiated the 30-day protest period, which closed on November 15, 2008. During that period, any person who participated in the planning process and believed they would be adversely affected by the plan amendments had the opportunity to protest the proposed amendment to the Director of the BLM. Twenty (20) formal protest letters were filed with BLM, and of the 22 protest letters, three letters were determined to contain valid protest points.

In general the protesters and commenters were in support of the No Action/Project Alternative and/or the two in-basin, non-wires alternatives (an all-renewable generation alternative and a conventional-plus-renewable generation alternative) that were analyzed in the EIR/EIS. Some of the issues raised in the protest letters include: adequacy of the cumulative impact assessment; rationale for BLM's agency preferred decision; adequacy of analysis/mitigation for environmental impacts; timing of publication of the RMP and plan amendment; level of effort made with Caltrans to route an alternative within its right-of-way; failure to conduct sufficient surveys; claimed violation of Section 7 of the Federal Endangered Species Act; deferral of scientific surveys, reviews, consultations, public involvement; insufficient opportunity for public comment; and adequacy of analysis of the impacts of the plan amendment.

The Protesters received detailed responses from the BLM Director/Assistant Director specifying how the issues were addressed in the Final EIR/EIS. The responses concluded that BLM followed applicable planning procedures, laws, regulations, and policies and considered all relevant resource functions and public input in developing the Final EIR/EIS and Proposed Plan Amendment. Therefore, no changes to the proposed decision were determined warranted and the Director/Assistant Director dismissed all protests.

In addition to the 22 formal protest letters that were submitted to BLM, BLM also received 12 comments on the Final EIR/EIS. The issues raised in the comments generally include: concerns about economic costs/benefits of project and alternatives; concerns about water resources, air quality and conformance with State Implementation Plan; legal adequacy of cumulative and environmental justice analyses; legality of any routes on Viejas Tribal Fee lands; concerns that visual and noise impacts would be greater to Tamarisk Grove Campground than the EIR/EIS states; changes to the CEQA notification provisions and findings required for public acquisition of agricultural lands per Williamson Act statue and Gov Code 51291; adequacy of analysis/mitigation for environmental impacts; rationale that a southern route would be environmentally preferred; adequacy of analysis of impacts to CNF, McCain Valley and Boulevard from Sunrise Powerlink Transmission Project and other wind proposals; and changes to the solar thermal component of the all-renewable alternative. BLM reviewed the comments to the Final EIR/EIS and determined that they did not raise any significant new circumstances or information relevant to environmental concerns associated with the Sunrise Powerlink Transmission Project. Therefore no changes to the proposed decision were determined warranted.

Form 1842-1
(September 2006)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INFORMATION ON TAKING APPEALS TO THE INTERIOR BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS
1. This decision is adverse to you,
AND
2. You believe it is incorrect

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED

I. NOTICE OF APPEAL

A person who wishes to appeal to the Interior Board of Land Appeals must file in the office of the officer who made the decision (not the Interior Board of Land Appeals) a notice that he wishes to appeal. A person served with the decision being appealed must transmit the *Notice of Appeal* in time for it to be filed in the office where it is required to be filed within 30 days after the date of service. If a decision is published in the FEDERAL REGISTER, a person not served with the decision must transmit *a Notice of Appeal* in time for it to be filed within 30 days after the date of publication (43 CFR 4.411 and 4.413).

2. WHERE TO FILE

NOTICE OF APPEAL

U.S. Dept. of the Interior
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, CA 92243

And

U.S. Dept. of the Interior
Office of Hearings & Appeals
Interior Board of Land Appeals
801 North Quincy St., MS 300-QC
Arlington, VA 22203

WITH COPY TO SOLICITOR

U.S. Dept. of the Interior
Office of the Solicitor-Pacific Southwest Region
2800 Cottage Way, Room E-2753
Sacramento, CA 95825-1890

3. STATEMENT OF REASONS

Within 30 days after filing the *Notice of Appeal,* file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. If you fully stated your reasons for appealing when filing the *Notice of Appeal,* no additional statement is necessary (43 CFR 4.412 and 4.413).

WITH COPY TO SOLICITOR

U.S. Dept. of the Interior
Office of the Solicitor-Pacific Southwest Region
2800 Cottage Way, Room E-2753
Sacramento, CA 95825-1890

U.S. Dept. of the Interior
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, CA 93342

4. ADVERSE PARTIES

Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the *Notice of Appeal,* (b) the Statement of Reasons, and (c) any other documents filed (43 CFR 4.413).

5. PROOF OF SERVICE

Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (43 CFR 4.401(c)).

6. REQUEST FOR STAY

Except where program-specific regulations place this decision in full force and effect or provide for an automatic stay, the decision becomes effective upon the expiration of the time allowed for filing an appeal unless a petition for a stay is timely filed together with *a Notice of Appeal* (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Interior Board of Land Appeals, the petition for a stay must accompany your *Notice of Appeal (43* CFR 4.21 or 43 CFR 2801.10 or 43 CFR 2881.10). A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and Petition for a Stay **must** also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay. Except as otherwise provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards: (I) the relative harm to the parties if the stay is granted or denied, (2) the likelihood of the appellant's success on the merits, (3) the likelihood of immediate and irreparable harm if the stay is not granted, and (4) whether the public interest favors granting the stay.

Unless these procedures are followed, your appeal will be subject to dismissal (43 CFR 4.402). He certain that all communications are identified by serial number of the case being appealed.

NOTE: A document is not filed until it is actually received in the proper office (43 CFR 4.401(a)). See 43 CFR Part 4, Subpart B for general rules relating to procedures and practice involving appeals.

(Continued on page 2)

43 CFR **SUBPART** 1821--GENERAL **INFORMATION**

Sec. 182I.10 Where are BLM offices located? (a) In addition to the Headquarters Office in Washington, D.C. and seven national level support and service centers, BLM operates 12 State Offices each having several subsidiary offices called Field Offices. The addresses of the State Offices can be found in the most recent edition of 43 CFR 1821.10. The State Office geographical areas of jurisdiction are as follows:

STATE OFFICES AND AREAS OF JURISDICTION:

Alaska State Office - - - - - - Alaska
Arizona State Office - - - - - - Arizona
California State Office - - - - - California
Colorado State Office - - - - - Colorado
Eastern States Office - - - - - - Arkansas, Iowa, Louisiana, Minnesota, Missouri and, all States east of the Mississippi River
Idaho State *Office* — Idaho
Montana State Office - - - - - - Montana. North Dakota and South Dakota
Nevada State Office - - - - - - - Nevada
New Mexico State Office - - - New Mexico, Kansas, Oklahoma and Texas
Oregon State Office - - - - - - - Oregon and Washington
Utah State Office - - - - - - - - - Utah
Wyoming State Office - - - - - Wyoming and Nebraska

(b) A list of the names, addresses, and geographical areas of jurisdiction of all Field Offices of the Bureau of Land Management can be obtained at the above addresses or any office of the Bureau of Land Management, including the Washington Office, Bureau of Land Management, 1849 C Street, NW, Washington, DC 20240.

APPENDIX A: Mitigation Measures

Introduction

All mitigation measures presented in the Final EIR/EIS that apply to the Final Environmentally Preferred/Superior Southern Route Alternative are listed below. Measures are presented by environmental discipline. Following the mitigation measures are the Applicant Proposed Measures that SDG&E presented in its Proponent's Environmental Assessment for the Proposed Project. While these APMs were not specifically developed to apply to a Southern Route, most are not geographically specific so would apply to transmission line and substation construction in any location.

Mitigation Measures

The text of some of the mitigation measures originally included reference to specific geographic locations that would not be affected by the Final Environmentally Superior Southern Route Alternative. These portions of the Mitigation Measures have been deleted. Additionally, some biological resources mitigation measures require specific amounts of habitat to be restored or mitigated. The acreage defined herein for specific habitats is specific to the Final Environmentally Superior Southern Route Alternative as presented in the Final EIR/EIS.

Biological Resources

The Applicant Proposed Mitigation measures for biology (BIO-APMs) referred to in some of the mitigation measures below include environmental measures that are already required by existing regulations and/or requirements, or are SDG&E's standard practices designed to address temporary and/or permanent impacts, as well as impacts anticipated during operations and maintenance of the completed project. The applicable parts of these measures would be implemented regardless of any regulatory oversight by the CPUC and BLM and are not measures added to the project based on the EIR/EIS analysis. Rather, they are integrated as part of the project description. However, it should be noted that some APMs were based on SDG&E's NCCP, which is not applicable (see discussion in Section D.2.3.3). As a result, in some cases, portions of the APMs are not appropriate or are not adequate to provide mitigation for the project's impacts. In these cases, the portions of the APMs which are not appropriate or adequate are shown in struck text in Appendix 8N, and the mitigation measures that are proposed in addition to the applicable portions of the APMs to avoid, minimize, or mitigate the relevant impacts of the project are shown in the second column of Appendix 8N. Appendix 8N clarifies applicable requirements for the Mitigation Monitoring Reporting Program (Section D.2.27).

Final EIR/EIS Appendix 8P presents a Consolidated Biology Impact Matrix that includes the acreage of impacted habitat for vegetation communities and special status animal species for the Final Environmentally Superior Southern Route Alternative.

B-1a **Provide restoration/compensation for affected sensitive vegetation communities.** Surface-disturbing components of the project shall be located in previously disturbed areas or where habitat quality is poor to the extent possible, and disturbance of vegetation and soils shall be minimized. Temporary construction mats may be used to minimize vegetation and soil disturbance only where deemed appropriate by the qualified biologist (see Mitigation Measure B-1c). The construction mats shall not be left on the ground for more than three weeks. Use of construction mats shall be considered a temporary impact to vegetation and shall be mitigated in accordance with this mitigation measure. If avoidance of sensitive vegetation communities is not feasible due, for example, to physical or safety constraints, the applicant shall restore temporarily

impacted areas to pre-construction conditions following construction (or emergency repairs) and shall permanently block off all public access to them, and/or shall purchase/dedicate suitable habitat for preservation to off-set permanently impacted areas. Restoration of some vegetation communities in temporarily impacted areas may not be possible if those areas are subject to vegetation management to maintain proper clearance between transmission lines and vegetation. In those instances, the mitigation shall consist of off-site acquisition and preservation of the vegetation community instead. Any area that can be preserved as intact or restored habitat, or if it contains any species (plant or animal) that require project-related compensatory mitigation will qualify as off-site mitigation lands. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (i.e., weeding, replacement planting, supplemental watering, etc.) and monitoring the restored area for a period five years (or less if the restoration meets all success criteria). Restoration in ABDSP shall be maintained and monitored for a minimum of five years. The success of the restoration is usually based on how the habitat compares with similar, nearby, undisturbed habitat. Any restoration efforts would be subject to a Habitat Restoration Plan approved by the CPUC, BLM, Wildlife Agencies, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). Mitigation ratios and mitigation acreages for construction within authorized limits are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). The mitigation ratios also apply to impacts from emergency repairs. In cases where the impacts to sensitive vegetation communities occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.

All limits of construction shall be delineated with orange construction fencing. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local land owner/administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. SDG&E shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the CPUC, BLM, and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates. To control unauthorized use of project access roads by off-road vehicle enthusiasts, SDG&E shall provide funding to land management entities responsible for areas set aside for habitat conservation to provide for off-road vehicle enforcement patrols. The responsible land management entities will formulate what funding is reasonable to control unauthorized use of project access roads.

Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio (5.5:1 in FTHL MA). Restoration of the unauthorized impacts shall be credited at a 1:1 ratio (i.e., mitigated by in-place habitat restoration); the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

Areas to be restored shall include all areas temporarily impacted by construction, such as tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations where towers are removed. Where on-site restoration is planned, the applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Habitat Restoration Plan, for restoring temporarily impacted sensitive vegetation

communities, to be approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration). The applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. This Habitat Restoration Plan must be approved in writing by the above-listed agencies prior to the initiation of any vegetation disturbing activities. Hydroseeding, drill seeding, or an otherwise proven restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC, Wildlife Agencies, BLM, State Parks (for ABDSP restoration), and USDA Forest Service (for National Forest land restoration).

The Habitat Restoration Plan shall incorporate Desert Bioregion Revegetation/Restoration Guidance measures for restoration of temporary impacts to desert scrub and dune habitats. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

The Habitat Restoration Plan shall also incorporate the measures identified in the May 25, 2006 Memorandum of Understanding among Edison Electric Institute, USDA Forest Service, BLM, USFWS, National Park Service, and the Environmental Protection Agency (Edison Electric Institute, et al., 2006) where applicable. The MOU discusses vegetation management along ROWs for electrical transmission and distribution facilities on federal lands. The major provisions of the MOU include reducing soil erosion and water quality impacts; promoting local ecotypes in revegetation projects; planting native species and protecting rare species; and reducing the introduction of non-native, invasive or noxious plant species to the ROWs. The MOU can be viewed online at http://www.eei.org/industry_issues/environment/land/vegetation_management/EEI_MOU_FINAL_5-25-06.pdf.

The following habitat restoration requirements are not included in the MOU described above. The restoration of habitat shall be maintained and monitored for five years after installation by an experienced, licensed Habitat Restoration Contractor, or until established success criteria identified in the Restoration Plan (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met. Maintenance and monitoring for restoration in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Maintenance and monitoring shall be conducted following a prescribed schedule to assess progress and identify potential problems with the restoration. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken by an experienced, licensed Habitat Restoration Contractor during the maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established success criteria after the maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. For areas where habitat restoration cannot meet mitigation requirements, as determined by the Habitat Restoration Specialist in coordination with CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies, off-site purchase and dedication of habitat shall be provided at the mitigation ratios provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives) or as otherwise required by

the Wildlife Agencies, ABDSP, or USDA Forest Service (supersedes the mitigation ratios in BIO-APM-1).

Tree Mitigation. Mitigation for loss of native trees or native tree trimming shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (i.e., planting) trees on land that would not be subject to vegetation clearing (either in the applicant's ROW and/or on land acquired and preserved). Any land to be used for this mitigation shall be approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

For habitat acquisition and preservation, the mitigation ratios shall follow those in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). For example, removal of coast live oak trees (that occur in coast live oak woodland) shall require mitigation at a 3:1 ratio based on the permanent impact to the summed acreage of all individual coast live oak trees impacted. Therefore, if the total acreage of all individual coast live oak trees in coast live oak woodland impacted is 10 acres, then 30 acres of coast live oak woodland shall be acquired and preserved. For all trimmed native trees, the trees shall be monitored for a period of three years. If a trimmed tree declines or suffers mortality during that period, the tree shall be replaced in-kind (by species) at a 2:1 or 5:1 ratio as recommended by the CDFG (see below). If a tree does not decline or suffer mortality, no mitigation shall be required.

For restoration (planting trees), these guidelines, based on recommendations from the CDFG, shall be followed.

Native trees that are removed shall be replaced in-kind (by species) as follows.

- Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1
- Trees between five and 12 inches DBH shall be replaced at 5:1
- Trees between 12 and 36 inches shall be replaced at 10:1
- Trees greater than 36 inches shall be replaced at 20:1

Native trees that are trimmed shall be replaced in-kind (by species) as follows.

- Trees less than 12 inches DBH shall be replaced at 2:1
- Trees greater than 12 inches DBH shall be replaced at 5:1

All restoration shall be maintained and monitored for a minimum of 10 years. The restoration shall be directed according to a Habitat Restoration Plan approved by the CPUC, BLM, State Parks (for ABDSP restoration), USDA Forest Service (for National Forest land restoration), and the Wildlife Agencies.

Mitigation Parcels/Habitat Management Plans. All off-site mitigation parcels shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for impacts to ABDSP), and USDA Forest Service (for alternatives with impacts to National Forest lands) and must be acquired or their acquisition must be assured before the line is energized . To demonstrate that such parcels shall be acquired, SDG&E shall submit a Habitat Acquisition Plan at least 120 days prior to any ground disturbing activities. The Plan shall be submitted to the CPUC, BLM, the Wildlife Agencies, State Parks (for impacts in ABDSP) and USDA Forest Service (for impacts on National Forest Lands) for review and approval, and shall include, but shall not be limited to: legal descriptions and maps of all parcels to be acquired; schedule that includes phasing relative to impacts; timing of conservation easement recording; initiation of habitat management activities

relative to acquisition; and assurance mechanisms (e.g., performance bonds to assure adequate funding) for any parcels not actually acquired prior to vegetation disturbing activities.

A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired off-site mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any vegetation disturbing activities. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, off-site mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all mitigation parcels
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-1c **Conduct biological monitoring.** Monitoring shall be provided by a qualified biologist approved by the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure that all impacts occur within designated limits. Monitoring entails communicating with contractors, taking daily notes, and ensuring that the requirements of the APMs and mitigation measures are being met by being present during construction activities including all initial grubbing and clearing of vegetation. Additionally, a qualified biologist employed by SDG&E shall be present during maintenance involving ROW repair requiring ground disturbance (i.e., grading/repair of access road and work areas and spot repair of areas subject to flooding or scouring). Biological monitoring of these maintenance activities is to prevent impacts to vegetation communities or wildlife habitat not within the permanent project impact footprint or to record and report unauthorized impacts outside the footprint to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies to ensure the unauthorized impacts are mitigated in accordance with Mitigation Measure B-1a. The qualified biologist shall conduct monitoring for any area subject to disturbance from construction and the maintenance activities listed above (or access

roads used during maintenance activities in the case of vernal pools/water-holding basins; see Mitigation Measure B1b). The qualified biologist shall perform periodic inspections of construction once or twice per week, as defined by the Wildlife Agencies, depending on the sensitivity of the resources. The qualified biologist shall send weekly monitoring reports to the CPUC and BLM and shall record any reduction or increase in construction impacts so that mitigation requirements can be revised accordingly. The final impact/mitigation calculations shall be submitted to the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), and the Wildlife Agencies for review and approval. The qualified biologist shall send annual monitoring reports of maintenance activities to the CPUC, BLM, State Parks (for monitoring of maintenance activities in ABDSP), and USDA Forest Service (for alternatives that require monitoring of maintenance activities on National Forest lands) that describe the types of maintenance that occurred, at what locations they occurred, and whether or not there were unauthorized impacts that require mitigation. The applicant, its contractors and subcontractors, and their respective project personnel, shall refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste, or questions about environmental impacts to the qualified biologist. Experts in wildlife handling (e.g., Project Wildlife) may need to be brought in by the qualified biologist for assistance with wildlife relocations.

The qualified biologist shall have the authority to issue stop work orders if any part of the mitigation measures or APMs are being violated. The qualified biologist shall immediately notify the CPUC, BLM, State Parks (for monitoring in ABDSP), USDA Forest Service (for alternatives that require monitoring on National Forest lands), the Wildlife Agencies, and SDG&E of any significant events, including impacts outside the construction zone or maintenance impacts outside the authorized permanent impact footprints if they are discovered during construction or monitoring of maintenance activities. Reinitiation of work following a stop work order shall only occur when the CPUC, BLM, State Parks (for impacts in ABDSP), USDA Forest Service (for alternatives with impacts on National Forest lands), and the Wildlife Agencies are satisfied that the impacts have been fully documented, that compensation for these impacts shall be made, and that any additional protection measures they deem necessary shall be undertaken.

B-1k **Re-seed disturbed areas after a transmission line–caused fire.** Should a fire occur and be determined by the CPUC's Consumer Protection and Safety Division (CPSD) or the California Department of Forestry and Fire Protection (CAL FIRE) to be caused by the Proposed Project or a constructed alternative, the Applicant shall re-seed all natural areas—both public and private—that are burned as a result of the project-caused fire. Re-seeding shall be required for areas that have been burned due to the minimum 10-year period required for arid chaparral to establish an adequate seed bank and thereby resist vegetation type conversion. A re-seeding plan shall be developed with input from Cal Fire, the US Forest Service, BLM, and CPUC, based on a native seed mix. Seeds shall be raked into the soil to avoid seed predation, and re-seeding shall be carried out once to coincide with the rainy season (October 1 through April 1) to increase the likelihood of germination success. The Applicant shall provide a written report documenting all re-seeding activities to the CPUC. The Applicant shall make a good faith effort to obtain approval to re-seed on private lands as appropriate, and documentation of this good faith effort shall be submitted to the CPUC upon request. Specific re-seeding requirements stipulated in this mitigation measure shall be subject to approval and modification by any public landowning agency.

B-1l **SDG&E shall continue to work with the USDA Forest Service to minimize impacts to the RCA between Structures 184 and 187.** SDG&E shall continue to work with the USDA Forest Service to adjust the siting of project features to minimize impacts to the RCA located between Structures 184 and 187 of the BCD South Option. SDG&E shall continue to coordinate with the

USDA Forest Service until the impacts to this RCA are fully resolved to the satisfaction of the USDA Forest Service.

B-2a **Provide restoration/compensation for affected jurisdictional areas.** Impacts to areas under the jurisdiction of the ACOE, Regional Water Boards, State Water Board, and CDFG shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible (including for emergency repairs), the applicant shall provide the necessary mitigation required as part of wetland permitting by creation/restoration/preservation of suitable jurisdictional or equivalent habitat along with adequate buffers to protect the function and values of jurisdictional area mitigation. The location(s) of the mitigation would be determined in consultation with the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation in ABDSP), USDA Forest Service (for alternatives with mitigation on National Forest lands), ACOE, Regional Water Boards, State Water Board, and CDFG as part of the wetland permitting process. It is anticipated that the sites would be in close proximity to the impacts or in the same watershed. A jurisdictional delineation and impact assessment shall be prepared based on the final alignment and final engineering plans when they are complete. Mitigation ratios would range from 1:1 up to 4:1 and would depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. The width of wetland buffers would also depend on the sensitivity of the jurisdictional habitat and on the requirements of the wetland permitting agencies. Recommended mitigation ratios for vegetation communities that generally occur in jurisdictional areas are provided in Table D.2-7 for the Proposed Project (see Impacts to Vegetation Communities and Required Mitigation tables in alternatives sections for the alternatives). It is anticipated that at least a 1:1 ratio of the mitigation would include creation of jurisdictional habitat so there would be no net loss of jurisdictional habitat. For example, permanent impacts to emergent wetland would require a 2:1 mitigation ratio. Half (or 1:1) of the mitigation acreage would have to consist of created emergent wetland in an appropriate location to be preserved, and the other half (1:1) would require acquisition and preservation of already-existing emergent wetland (or other wetland community acceptable to the permitting agencies — ACOE, Regional Water Boards, State Water Board, and CDFG). It is also anticipated that a 1:1 ratio would be required for impacts to jurisdictional non-wetland Waters of the U.S. in the form of wetland enhancement, restoration, or creation as determined in consultation with the permitting agencies. Wetland permits shall be obtained from the ACOE, Regional Water Boards, State Water Board, and CDFG prior to initiating construction in jurisdictional areas.

All limits of construction shall be delineated with orange construction fencing and/or silt fencing. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete. If silt fencing is used to delineate the limits of construction or as part of implementation of erosion control BMPs, the silt fencing may be left in place longer than 30 days if erosion control is still necessary. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

Any impacts associated with unauthorized activity (e.g., exceeding approved construction footprints) shall be mitigated at a 5:1 ratio, unless otherwise directed by the ACOE, Regional Water Boards, State Water Board, and CDFG: restoration of the unauthorized impacts shall be credited at a 1:1 ratio; the remaining 4:1 (or 4.5:1 in FTHL MA) shall be acquired off site.

The applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for restoration in ABDSP), and USDA Forest Service (for alternatives with restoration on National Forest lands). The Habitat Restoration Specialist shall prepare and implement a Wetland Mitigation Plan to be approved in writing by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board,

CDFG, State Parks (for ABDSP mitigation), and USDA Forest Service (for alternatives with mitigation on National Forest lands). The applicant shall work with the above-listed agencies until a plan is approved by all. The mitigation of habitat shall be maintained and monitored for five years after installation, or until established success criteria (specified percent cover of native and non-native species, species diversity, and species composition as compared with an undisturbed reference site) are met, to assess progress and identify potential problems with the mitigation. Maintenance and monitoring in ABDSP shall be for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional planting, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the maintenance and monitoring period if necessary to ensure the success of the mitigation. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for ABDSP restoration), and USDA Forest Service (for alternatives with restoration on National Forest lands).

A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, ACOE, Regional Water Boards, State Water Board, CDFG, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) for all acquired off-site mitigation parcels. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact jurisdictional areas. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired, off-site mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all mitigation parcels
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-3a **Prepare and implement a Weed Control Plan.** The applicant shall prepare and implement a comprehensive, adaptive Weed Control Plan for pre-construction and long-term invasive weed abatement. Where the applicant owns the ROW property, the Weed Control Plan shall include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC**)**, or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, USDA Forest Service (for alternatives routes within Cleveland National Forest lands), Wildlife Agencies, and State Parks (ABDSP) the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the ROW land-holding governmental agencies for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions for the implementation of the Weed Control Plan. Prior to implementation, the applicant shall work with the landowners to obtain authorization of the weed control treatment that is required. State Parks shall have review and approval authority over the Weed Control Plan for ROW within or adjacent to the boundaries of ABDSP. Developed land shall be excluded from weed control.

The Weed Control Plan shall include the following:

- A pre-construction weed inventory shall be conducted by surveying the entire ROW and areas immediately adjacent to the ROW (where access and permission can be secured) as well as at all ancillary facilities associated with the project for weed populations that: (1) are considered by the San Diego County Agriculture Commissioner or State Parks (for ROW within or adjacent to ABDSP) as being a priority for control and (2) aid and promote the spread of wildfires (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]). These populations shall be mapped and described according to density and area covered. These plant species shall be treated (where access and permission can be secured) prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with the San Diego County Agriculture Commissioner's Office and Cal-IPC, or the tribal government, as appropriate.
- A pre-construction weed inventory shall also be conducted by surveying areas that will be directly impacted by the project for weed populations that are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006) or are weed species of concern to State Parks (for ROW within or adjacent to ABDSP). These plant species shall be treated prior to construction or at a time when treatments would be most effective based on phenology according to control methods and practices for invasive weed populations designed in consultation with Cal-IPC and State Parks (for treatment in ROW within ABDSP).
- Weed control treatments shall include all legally permitted chemical, manual and mechanical methods applied with the authorization of the San Diego County Agriculture Commissioner and the ROW easement land-holding agencies where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA) and implemented by a Licensed Qualified Applicator. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County Agriculture Commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County Agriculture Commissioner,

State Parks (for treatment in ABDSP) and Cal-IPC, or the tribal government, as appropriate, with the goal of controlling populations before they start producing seeds.

For the lifespan of the project (i.e., as long as the project is physically present), long-term measures to control the introduction and spread of noxious weeds in the project area shall be taken as follows.

— From the time construction begins until two years after construction is complete, annual surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required in the survey areas described above. After this time, surveying for new invasive weed populations and monitoring of identified and treated populations shall be required at an interval of every two years. However, the treatment of weeds shall occur on a minimum annual basis, unless otherwise approved by the PCA, the San Diego County Agriculture Commissioner, State Parks (for treatment in ABDSP) and Cal-IPC.

— During project construction and operation/maintenance, all seeds and straw materials shall be certified weed free, and all gravel and fill material shall be certified weed free by the San Diego County Agriculture Commissioner's Office, or the tribal government, as appropriate.

— During project construction and operation/maintenance, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) at an off-site washing facility (e.g., a car wash or truck wash) immediately before project construction begins and prior to returning to project construction should equipment be used in a different construction area. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed at an off-site washing facility immediately before project construction begins and prior to returning to project construction should tools be used in a different construction area. In addition, vehicles, tools, and equipment shall be washed at an off-site washing facility should these vehicles, tools, and equipment have been used in an area where invasive plants have been mapped during the pre-construction weed control inventory and as directed by the biological construction monitor, prior to entering a project area free of populations of invasive plants (as determined by the pre-construction weed control inventory). Finally, vehicles, tools, and equipment used for maintenance shall be washed at an off-site washing facility immediately before each maintenance event. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill; an effort shall be made to use wash facilities that use recycled water. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC, BLM, USDA Forest Service (for alternative routes within Cleveland National Forest lands), Wildlife Agencies, State Parks (for weeds in ABDSP), tribal governments (for weeds on tribal lands), and biological monitor for inspection at any time and shall be submitted to the CPUC on a monthly basis during construction and submitted annually to the CPUC during operation/maintenance.

B-5a Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. A qualified biologist shall survey for special status plants in the spring of a year with adequate rainfall prior to initiating construction activities in a given area. If a survey can not be conducted due to inadequate rainfall, then SDG&E shall consult with the Wildlife Agencies, State Parks (for impacts in ABDSP), and the USFS (for impacts on National Forest

lands) to determine if construction may begin in the absence of survey data and what mitigation would be required, or whether construction would not be allowed until such data is collected. A report of special status plants observed shall be prepared and submitted for approval by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies prior to activities which may impact the plant resources.

All special status plant populations shall be staked or flagged by a qualified biologist approved by the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies. All stakes, flagging, or fencing shall be removed no later than 30 days after construction is complete.

Impacts to federal or State listed plant species shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through salvage and relocation (salvage and relocation for plants in ABDSP shall be determined in consultation with, and approval of, State Parks) via a restoration program and/or off-site acquisition and preservation of habitat containing the plant at a 2:1 ratio. Avoidance may not be feasible due to physical or safety constraints. The CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies shall decide whether the applicant can restore rare plant populations or shall acquire habitat with rare plant populations off site (locations to be approved by the CPUC, BLM, State Parks [for activities in ABDSP], USDA Forest Service [for alternatives with activities on National Forest lands], and the Wildlife Agencies). A qualified biologist shall prepare a Restoration Plan that shall indicate where restoration would take place. The restoration plan shall also identify the goals of the restoration, responsible parties, methods of restoration implementation, maintenance and monitoring requirements, final success criteria, and contingency measures. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service (for alternatives with restoration on National Forest lands) until a plan is approved by all.

Impacts to moderately sensitive plant species (i.e., BLM Sensitive, USDA Forest Service Sensitive, CNPS List 1 and 2 species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock) or relocation to temporarily disturbed areas (reseeding and relocation of plants in ABDSP shall be determined in consultation with, and approval of, State Parks). Avoidance may not be feasible due to physical or safety constraints. Mitigation Measure B-1a would also provide habitat-based mitigation for these impacts.

Where reseeding or salvage and relocation is required, the applicant shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies. The Habitat Restoration Specialist shall prepare and implement a Restoration Plan for reseeding or salvaging and relocating special status plant species to be approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies in writing prior to impacting the plant resources. The applicant shall work with the above-listed agencies until a plan is approved by all. The reseeding or relocation of plants shall be maintained and monitored for five years after installation, or until established success criteria are met, to assess progress and identify potential problems with the mitigation. The reseeding or relocation of plants in ABDSP shall be maintained and monitored for a minimum of five years, even if established success criteria are met before the end of five years. Remedial action (e.g., additional seeding, weeding, erosion control, use of container stock, supplemental watering, etc.) shall be taken during the

maintenance and monitoring period if necessary to ensure the success of the restoration. If the restoration fails to meet the established performance criteria after the five-year maintenance and monitoring period, maintenance and monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise approved by the CPUC, BLM, State Parks (for restoration in ABDSP), USDA Forest Service (for alternatives with restoration on National Forest lands), and the Wildlife Agencies.

A Habitat Management Plan for any required, off-site mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact special status plant resources. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired off-site mitigation parcels. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) off-site mitigation parcels approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all mitigation parcels
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-7a **Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals)**. BIO-APM-14 shall be modified to ensure that all steep-walled trenches or excavations used during construction shall be covered at all times except when being actively utilized. If the trenches or excavations cannot be covered, exclusion fencing (i.e., silt fencing) shall be installed around the trench or excavation, or it shall be covered to prevent entrapment of wildlife. Open trenches, or other excavations that could entrap wildlife shall be inspected by the qualified biologist (see Mitigation Measure B-1c) a minimum of three times per day and immediately before backfilling. Furthermore, employees and contractors shall look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment would be moved until the animal has

left voluntarily or is removed by the qualified biologist. Should a dead or injured listed species be found in a trench or excavation or anywhere in the construction zone or along an access road, the qualified biologist shall contact the CPUC, BLM, State Parks (for activities in ABDSP), USDA Forest Service (for alternatives with activities on National Forest lands), and the Wildlife Agencies within 48 hours of the finding. The qualified biologist shall report the species found, the location of the finding, the cause of death (if known), and shall submit a photograph and any other pertinent information.

B-7b Implement avoidance/mitigation/compensation according to the Flat-Tailed Horned Lizard Rangewide Management Strategy. Mitigation for impacts to the FTHL shall follow all applicable measures in the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003). This mitigation includes, but is not limited to, locating impacts outside of MAs, delineating work limits, using existing roads, biological monitoring, and worker education.

According to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Flat-Tailed Horned Lizard Interagency Coordinating Committee, 2003), compensation for FTHL habitat impacts could involve purchase of FTHL habitat and/or monetary compensation as determined by the Flat-Tailed Horned Lizard Interagency Coordinating Committee. Impacts shall be mitigated at a 1:1 ratio for habitat outside a MA. Furthermore, mitigation inside a MA shall be at a 3.5:1 ratio for temporary impacts (2.5:1 for disturbed habitat, developed land, or agriculture) and a 5.5:1 ratio for permanent impacts (4.5:1 for disturbed habitat, developed land, or agriculture). For the Project, the required mitigation for FTHL impacts (if off-site acquisition is the method of compensation) is 403.48 acres. On-site restoration requirements for the Project would be 232.84 acres. Any FTHL habitat acquired shall be approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP).

A Habitat Management Plan shall be prepared by a biologist approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) for all acquired FTHL habitat. The Habitat Management Plan must be approved in writing by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the FTHL or its habitat. The applicant shall work with the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired FTHL habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) FTHL habitat approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP)
- Baseline biological data for all acquired FTHL habitat
- Designation of a land management entity approved by the Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan

- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline exotic, non-native species control fence/sign replacement or repair, public education trash removal and annual reports to Flat-Tailed Horned Lizard Interagency Coordinating Committee, CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).

B-7c **Minimize impacts to Peninsular bighorn sheep and provide compensation for loss of critical habitat.** With regard to timing of activities, construction and maintenance activities (including the use of helicopters) in bighorn sheep critical habitat shall be limited to outside the lambing season and the period of greatest water need, or a minimum ceiling of 1,500 feet for helicopter flights shall be maintained. The lambing season is January 1 through June 30. The period of greatest water need is May through September. Construction and maintenance activities in PBS critical habitat may occur during the lambing season and/or period of greatest water need if prior approval is obtained from the Wildlife Agencies.

To help reconnect PBS subpopulations and at least partially offset impacts to the overall population of PBS caused by the project, the applicant shall:

- fund the design and construction of an overpass (for sheep) or tunnel (for vehicles) to facilitate PBS movement across a highway at a location determined by the USFWS (in coordination with State Parks and CDFG). Tunnel or overpass design must be approved by the Wildlife Agencies.
- fund removal of tamarisk and fences for the life of the project, and install and maintain water sources at locations determined by the USFWS (in coordination with State Parks and CDFG)
- fund a minimum 10-year-long program to monitor the effects of the project on PBS behavior, movements, and dispersal in the project corridor (ten years is needed to measure the influence of the project while factoring in rainfall cycles, vegetative productivity, and drought). This program would be implemented by the Wildlife Agencies and State Parks following construction.

Furthermore, the applicant shall provide compensation for direct loss of critical habitat at a 5:1 ratio for permanent impacts and at a 3:1 ratio (including a combination of on-site restoration and off-site purchase) for temporary impacts with PBS critical habitat or other habitat acceptable to the Wildlife Agencies, BLM, and State Parks (for critical habitat in ABDSP). Impacts to PBS critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred. For the Project, the required mitigation for PBS impacts includes off-site purchase of 525.71 acres and on-site restoration of 111.81 acres. The determination of impact acreage shall be based on the definition of critical habitat in effect as of the time of publication of the Final EIR/EIS.

A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and State Parks for all acquired PBS habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) PBS or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the

preservation and in-perpetuity management of all acquired PBS habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) PBS habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP)
- Baseline biological data for all acquired PBS habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).

B-7d Conduct burrowing owl surveys, and implement appropriate avoidance/minimization/ compensation strategies. A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. In addition, the burrowing owl shall be looked for opportunistically as part of other surveys and monitoring required during project construction. If the burrowing owl is absent, then no mitigation is required.

If the burrowing owl is present, no disturbance shall occur within 50 meters (approximately 160 ft) of occupied burrows from September 1 through January 31 or within 75 meters (approximately 250 ft) of occupied burrows from February 1 through August 31 (CDFG, 1995).

During construction, any pipe or similar construction material that is stored on site for one or more nights shall be inspected for burrowing owls by a qualified biologist before the material is moved, buried, or capped.

Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters from the impact zone and that are within or contiguous to a minimum of 6.5 acres of preserved (or acquired and preserved if not already preserved) foraging habitat for each relocated owl (single owl or owl pair). Passive relocation is accomplished by first creating two artificial burrows in contiguous, preserved foraging habitat (if no natural burrows exist) for each occupied burrow that would be impacted; and second, installing one-way doors on occupied burrow entrances so owls can leave the burrow but not re-enter it. Following passive relocation, the area of impact and the preserved foraging habitat with alternate burrows are surveyed daily for one week to confirm owl use of alternate burrows before excavation of burrows in the impact zone. All passive relocation shall be conducted by a biologist approved by

the CDFG. If the alternate burrows are not used by the relocated owls, then the applicant shall work with the CDFG to provide alternate mitigation for burrowing owls. If the alternate burrows are used, no other mitigation shall be required.

If it is not possible to preserve contiguous habitat on which to provide alternate burrows (e.g., on private land), and occupied owl burrows would be directly impacted, then the owls shall be passively relocated without the creation of alternate burrows prior to construction (relocation should only be implemented during the non-breeding season [September 1 through January 31]). The loss of occupied owl habitat shall be mitigated by acquiring and preserving other occupied habitat elsewhere (as explained below) per the Staff Report on Burrowing Owl Mitigation (CDFG, 1995) and the Burrowing Owl Survey Protocol and Mitigation Guidelines (The Burrowing Owl Consortium, 1993), or as otherwise determined in consultation with the CDFG.

Impacted occupied habitat shall be mitigated by 1) acquiring and preserving occupied habitat at a rate of 1.5 times 6.5 acres (or 9.75 acres) per pair or single bird impacted, or 2) acquiring and preserving unoccupied habitat contiguous with currently occupied habitat at a rate of two times 6.5 acres (or 13 acres) per pair or single bird impacted, or 3) acquiring and preserving suitable unoccupied habitat at a rate of three times 6.5 acres (or 19.5 acres) per pair or single bird impacted. All acquired habitat shall be acceptable to the CDFG and shall be protected and managed for the burrowing owl in perpetuity.

The survey required within 30 days prior to the initiation of construction will determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond and whether or not the mitigation needs to be revised.

A Habitat Management Plan shall be prepared by a biologist approved by the CPUC, BLM, CDFG, and State Parks (for land in ABDSP) for all acquired burrowing owl habitat. The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and State Parks (for land in ABDSP) prior to the initiation of any activities which may impact (directly or indirectly) the burrowing owl or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, and State Parks until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired burrowing owl habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) burrowing owl habitat approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP)
- Baseline biological data for all acquired burrowing owl habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair,

public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and State Parks (for mitigation parcels to be part of ABDSP).

B-7e **Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.** All grading or brushing taking place within riparian habitats of the least Bell's vireo or southwestern willow flycatcher during construction shall be conducted from September 16 (October 1 in ABDSP) through March 14, which is outside the least Bell's vireo and southwestern willow flycatcher breeding seasons.

When conducting all other construction activities during the breeding season of March 15 through September 15 (September 30 in ABDSP) within 500 feet (USFWS, 2007b) of habitat in which least Bell's vireos and/or southwestern willow flycatchers are known to occur or have potential to occur, a biologist permitted by the USFWS shall survey for least Bell's vireos and southwestern willow flycatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

If least Bell's vireos or southwestern willow flycatchers are present, a permitted biologist shall survey for nesting vireos and flycatchers approximately once per week within 500 feet of the construction area (USFWS, 2007b), for the duration of the activity in that area during the breeding season.

If/when an active nest is located, a 300-foot no-construction buffer zone (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The Applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. No construction shall take place within this buffer until the nest is no longer active unless there are physical or safety constraints. If construction must take place within the buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied vireo/flycatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies, State Parks (for activities in ABDSP), and USDA Forest Service (for activities on National Forest lands) to devise methods to reduce the noise and/or disturbance. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting birds and the activities, and working in other areas until the young have fledged. The permitted biologist shall monitor the nest daily until either activities are no longer within 300 feet of the nest, or the fledglings become independent of their nest.

Mitigation for the loss of least Bell's vireo- or southwestern willow flycatcher-occupied habitat (or designated critical habitat for the flycatcher) shall be implemented as follows. Permanent impacts to occupied habitat and/or designated critical habitat shall include off-site acquisition and preservation of occupied habitat or designated critical habitat at a 3:1 ratio. Temporary impacts to occupied habitat or designated critical habitat shall include 1:1 on-site restoration and 2:1 off-site acquisition and preservation of occupied habitat and/or designated critical habitat. Impacts to least Bell's vireo or southwestern willow flycatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred.

For the Project, the required mitigation for least Bell's vireo occupied habitat is on-site restoration of 13.5 acres and off-site acquisition and preservation of 52.8 acres of least Bell's vireo occupied habitat. For the Project, the required mitigation for southwestern willow flycatcher occupied

habitat is on-site restoration of 33.14 acres and off-site acquisition and preservation of 68.41 acres of southwestern willow flycatcher occupied habitat If a USFWS protocol, pre-construction survey, conducted in an area where presence of the vireo or flycatcher was assumed in this analysis (see Appendix 8B) determines that the species is absent, then the mitigation shall be reduced accordingly. Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

A Habitat Management Plan for any required, off-site mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the least Bell's vireo or southwestern willow flycatcher or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired vireo or flycatcher habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) least Bell's vireo or southwestern willow flycatcher habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all least Bell's vireo or southwestern willow flycatcher habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-7h **Implement appropriate avoidance/minimization strategies for eagle nests.** No construction or maintenance activities shall occur within 4,000 feet of an eagle nest during the eagle breeding season (December through June).

B-7i **Conduct Quino checkerspot butterfly surveys, and implement appropriate avoidance/ minimization/compensation strategies.** A biologist permitted by the USFWS shall determine suitable habitat areas (i.e., non-excluded areas per the 2002 USFWS protocol; USFWS, 2002b) within any designated USFWS QCB survey area (e.g., Survey Area 2) that would be impacted by project construction.

A pre-construction, USFWS protocol presence/absence survey for the adult QCB shall be conducted within all suitable habitat for this species in the construction zone within any designated USFWS QCB survey area. The survey shall be conducted in a year where the QCB is readily observed at USFWS QCB-monitored reference sites to determine what areas are occupied by the QCB (i.e., any suitable habitat within 1 km of a current QCB sighting is considered occupied) and what areas are not occupied. The USFWS permitted biologist shall record the precise locations of QCB larval host plants within the construction zone (and 10 meters beyond) using GPS technology.

If the protocol pre-construction survey is conclusive for determining absence of the QCB, then areas without the butterfly would not require mitigation.

If the protocol pre-construction survey is not conclusive for determining QCB absence (due to limited detectability per the 2002 protocol, for example), or if a survey is not conducted, then all suitable habitat areas would be considered potentially occupied and would require mitigation as follows. If construction occurs outside the larvae and adult activity season (June 1 through October 15) and stays at least 10 meters away from all host plant locations, then no mitigation is required (USFWS, 2007d). If construction occurs between October 16 and May 31 or within 10 meters of host plant locations, or within designated critical habitat, then (1) temporary impacts to the habitat shall be mitigated through on-site restoration of temporarily disturbed areas and off-site acquisition and preservation of an equal sized area of QCB-occupied habitat (a 2:1 mitigation ratio) and (2) permanent impacts shall be mitigated through off-site acquisition and preservation of QCB-occupied habitat (or QCB-designated critical habitat for impacts to designated critical habitat) at a 2:1 ratio (i.e., two acres acquired for each acre lost). Any acquired habitat shall be approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation land to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). A USFWS permitted biologist shall be present during all construction activities in potentially occupied habitat to monitor and assist the construction crews to ensure impacts occur only as allowed. This same mitigation shall apply where the protocol pre-construction survey was conclusive for determining that the QCB is present and where construction would occur in designated critical habitat. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred.

For the Project, the required mitigation for impacts to designated critical habitat includes 55.7 acres of onsite restoration and 94.12 acres of offsite acquisition and preservation of acres of QCB critical habitat or other habitat acceptable to Wildlife Agencies, BLM, or other applicable agencies. Impacts to QCB critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred.

If host plant mapping is not possible during the pre-construction survey (e.g., drought prevents plant germination), then all suitable habitat (i.e., non-excluded habitat per the 2002 protocol) shall be considered occupied by the QCB and mitigated under the assumption that the QCB is present.

A Habitat Management Plan for any required, off-site mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the QCB or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, State Parks, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity

management of all acquired QCB habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) QCB habitat approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all QCB habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, State Parks (for mitigation parcels to be part of ABDSP), and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-7j Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/compensation strategies. A pre-construction, USFWS protocol survey shall be conducted for the toad in the construction zone (by a biologist permitted by the USFWS to handle the toad), where absence of the species has not been proven, to conclusively define the impacts to occupied habitat. In the absence of this survey data, the mitigation acreages required below shall stand. Where the pre-construction survey determines the species is absent, the mitigation shall be reduced accordingly.

The removal of toad riparian breeding habitat shall occur from October through December to minimize potential impacts to breeding adults (including potential sedimentation impacts to toad eggs) and dispersing juveniles.

Where the toad is present (or assumed to be present if no pre-construction survey is conducted), the construction zone shall be fenced with exclusion fencing to prevent toad access to it. The fencing shall be a silt-screen type barrier comprised of a minimum 24-inch high fence with the remainder (minimum 12 inches) anchored firmly against the ground. The fence may be buried if necessary to exclude toad access. The fence locations shall be identified by a USFWS permitted biologist and adjusted as necessary. Exclusion fencing shall be monitored daily by a qualified biologist (see Mitigation Measure B-1c) and maintained in its original condition by construction personnel for the entire length of the construction period in toad habitat.

Pre- and post-exclusion fencing surveys within the construction zone shall be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. Prior to construction commencement, a minimum of three surveys shall be conducted by this biologist following installation of the fencing and prior to construction activities. One of these clearance surveys must take place no more than 24 hours prior to activity commencement. These surveys shall be conducted during appropriate climatic conditions and during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If conditions are not appropriate for arroyo toad movement during surveys, the biologist may attempt to elicit a response from the

toads during nights (i.e., at least one hour after sunset), provided that temperatures are above 50°F, by spraying the project area with water to simulate a rain event. After the three clearance surveys outlined above have been completed, daily surveys shall be conducted each morning prior to the continuation of construction or maintenance activity. Any toads found shall be relocated to appropriate similar habitat outside project impact areas.

Mitigation for the loss of arroyo toad-occupied habitat shall be implemented as follows. Permanent impacts to occupied, arroyo toad breeding habitat shall include off-site acquisition and preservation of occupied arroyo toad breeding habitat at a 3:1 ratio. Permanent impacts to occupied, upland burrowing habitat shall include off-site acquisition and preservation of occupied, upland burrowing habitat at a 2:1 ratio. Temporary impacts to occupied breeding habitat shall include 1:1 on-site restoration and 2:1 off-site acquisition and preservation of occupied breeding habitat. Temporary impacts to occupied, upland burrowing habitat shall include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied, upland burrowing habitat. For the Proposed Project, the required mitigation for arroyo toad occupied habitat includes 150.69 acres of on-site restoration and 216.18 acres of off-site acquisition and preservation of occupied toad habitat consisting of 0.6 acres of breeding habitat and 215.58 acres of upland burrowing habitat. Any acquired arroyo toad habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

A Habitat Management Plan for any required, off-site mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the arroyo toad or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired arroyo toad habitat. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) arroyo toad habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all arroyo toad habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-7l **Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.** All brushing or grading taking place within occupied habitat of the coastal California gnatcatcher (defined as within 500 feet of any gnatcatcher sightings [USFWS,

2007b]) during construction shall be conducted from September 1 through February 14, which is outside the coastal California gnatcatcher breeding season.

When conducting all other construction activities during the coastal California gnatcatcher breeding season of February 15 through August 30, within habitat in which coastal California gnatcatchers are known to occur or have potential to occur, the following avoidance measures shall apply.

A USFWS permitted biologist shall survey for coastal California gnatcatchers within 10 calendar days prior to initiating activities in an area. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities. If coastal California gnatcatchers are present, but not nesting, a USFWS permitted biologist shall survey for nesting coastal California gnatcatchers approximately once per week within 500 feet of the construction area for the duration of the activity in that area during the breeding season.

If/when an active nest is located, a 300-foot no-construction buffer (USFWS, 2007b) shall be established around each nest site; however, there may be a reduction of this buffer zone depending on site-specific conditions or the existing ambient level of activity. The applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. To the extent feasible, no construction shall take place within this buffer until the nest is no longer active. However, if construction must take place within the 300-foot buffer, a qualified acoustician shall monitor noise as construction approaches the edge of the occupied gnatcatcher habitat as directed by the permitted biologist. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the activities in general are disturbing the nesting activities, the biologist shall have the authority to halt construction and shall consult with the Wildlife Agencies to devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nesting coastal California gnatcatchers and the activities, and working in other areas until the young have fledged.

Mitigation for the loss of coastal California gnatcatcher-occupied habitat shall be implemented as follows. Permanent impacts to occupied habitat shall include off-site acquisition and preservation of occupied habitat at a 2:1 ratio. Temporary impacts to occupied habitat shall be mitigated at a 2:1 ratio and shall include 1:1 on-site restoration and 1:1 off-site acquisition and preservation of occupied habitat.

Mitigation for the loss of unoccupied designated critical habitat for the gnatcatcher shall be implemented as follows. Permanent impacts to unoccupied designated critical habitat shall include off-site acquisition and preservation of designated critical habitat at a 2:1 ratio. Temporary impacts to unoccupied designated critical habitat shall include 1:1 on-site restoration. Impacts to coastal California gnatcatcher critical habitat must be mitigated within the same Critical Habitat Unit where the impacts occurred.

For the Proposed Project, the required mitigation for the loss of assumed occupied gnatcatcher habitat includes 52.69 acres of on-site restoration and 103.73 acres of off-site acquisition and preservation of occupied gnatcatcher habitat. Furthermore, the required mitigation for the loss of unoccupied designated critical habitat includes 32.97 acres of on-site restoration and off-site acquisition and preservation of 4.44 acres of designated critical habitat for the gnatcatcher. Any acquired coastal California gnatcatcher habitat shall be approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

A Habitat Management Plan for any required, off-site mitigation shall be prepared by a biologist approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation

parcels to be National Forest lands). The Habitat Management Plan must be approved in writing by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) prior to the initiation of any activities which may impact (directly or indirectly) the coastal California gnatcatcher or its habitat. The applicant shall work with the CPUC, BLM, Wildlife Agencies, and USDA Forest Service until a plan is approved by all. The Habitat Management Plan shall provide direction for the preservation and in-perpetuity management of all acquired coastal California gnatcatcher. The Habitat Management Plan shall include, but shall not be limited to:

- Legal descriptions of all acquired or assured (as defined in Mitigation Measure B-1a) coastal California gnatcatcher habitat approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands)
- Baseline biological data for all coastal California gnatcatcher habitat
- Designation of a land management entity approved by the CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands) to provide in-perpetuity management
- A Property Analysis Record prepared by the designated land management entity that explains the amount of funding required to implement the Habitat Management Plan
- Designation of responsible parties and their roles (e.g., provision of endowment by the applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
- Management specifications including, but not limited to, regular biological surveys to compare with baseline; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports to CPUC, BLM, Wildlife Agencies, and USDA Forest Service (for mitigation parcels to be National Forest lands).

B-8a **Conduct pre-construction surveys and monitoring for breeding birds.** All vegetation clearing, except tree trimming or removal, shall take place between August 16 and January 14 (i.e., outside of the general avian breeding season of January 15 through August 15). Tree removal or trimming shall take place between September 16 and December 31 (i.e., outside the raptor breeding season of January 1 through September 15).

If project construction (not vegetation clearing or tree trimming/removal) cannot occur completely outside the general avian breeding season, then pre-construction surveys for non-listed bird species' nests shall be conducted by a qualified biologist within 100 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 15 and August 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

If project construction (not vegetation clearing or tree trimming/removal) including the use of helicopters cannot occur completely outside the raptor breeding season, then pre-construction surveys for active raptor nests shall be conducted by a qualified biologist within 500 feet of the construction zone within 10 calendar days prior to the initiation of construction that would occur between January 1 and September 15. The results of the survey shall be submitted to the Wildlife Agencies for review and approval prior to initiating any construction activities.

If no active nests are observed, construction may proceed. If active nests are found, work may proceed provided that construction activity is 1) located at least 500 feet from raptor nests (USFWS, 2007b), 2) located at least 160 to 250 feet from occupied burrowing owl burrows

(CDFG, 1995; see Mitigation Measure B-7d), 3) located at least 300 feet from listed bird species nests (see Mitigation Measure B-7e and B-7l), 4) located at least 100 feet from non-listed bird species nests, and 5) noise levels do not exceed 60 dB(A)hourly Leq at the edge of nesting territories (American Institute of Physics, 2005) as determined by a qualified biologist in coordination with a qualified acoustician. There may be a reduction of these buffer zones depending on site-specific conditions or the existing ambient level of activity. The applicant shall contact Wildlife Agencies to determine the appropriate buffer zone. In the case of raptors (except the burrowing owl), the noise level restriction stated above does not apply (USFWS, 2007b). Otherwise, if the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for construction in ABDSP), and USDA Forest Service (for alternatives with construction on National Forest lands).

B-9a **Survey for bat nursery colonies.** A CDFG-approved biologist shall conduct a habitat assessment for bat nursery colonies prior to any construction activity. Then, the approved biologist shall conduct a survey for bat nursery colonies or signs of such colonies prior to construction. Direct impacts to a nursery colony site shall not be allowed, and approach of, or entrance to, an active nursery colony site shall be prohibited. Before any blasting or drilling in the vicinity of a nursery colony site, the CDFG-approved biologist shall work with the construction crew to devise and implement methods to minimize potential indirect impacts to the nursery colony site from falling rock or substantial vibration (while a nursery colony is active). The methods shall include an option to halt any construction activity that would cause falling rock, substantial vibration impacts, or any other construction-related impact (including lighting used for night work) to a nursery colony as determined by the approved biologist, until the colony is inactive. Should falling rock block the entrance to a nursery colony site, the contractor shall work with the approved biologist to re-open an entrance to the site.

B-10a **Utilize collision-reducing techniques in installation of transmission lines**. The applicant shall install the transmission lines utilizing Avian Power Line Interaction Committee standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994" (APLIC, 1994) as follows. Placement of towers and lines shall not be located above existing towers and lines, topographic features, or tree lines to the maximum extent practicable. Power lines should be clustered in the vertical and horizontal planes, aligned with existing geographic features or tree lines, and located parallel (rather than perpendicular) to prevailing wind patterns to the maximum degree feasible.

Additionally, overhead lines that are located in highly utilized avian flight paths (from MP 50 through MP 88 for the SRPL Proposed Project) shall be marked utilizing fixed mount Firefly Flapper/Diverters, swan flight diverter coils, or other diversion devices, if proven more effective, as to be visible to birds and to reduce avian collision with power lines.

- Where such markers are installed, the applicant shall fund a study to determine the effectiveness of the markers as a collision prevention measure since there are few, if any, studies that show if such markers work, especially on transmission lines (CEC, 2007). The applicant shall develop a draft study protocol and submit it to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review. The applicant shall continue to work with these agencies until approval of a final study protocol is obtained. If the study shows the markers to be ineffective, the applicant shall coordinate with the Wildlife Agencies and State Parks (for markers in ABDSP) to develop alternate collision protection measures.
- The applicant shall implement an avian reporting system for documenting bird mortalities to help identify problem areas. The reporting system shall follow the format in Appendix C of "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006" (APLIC, 2006) or a similar format. The applicant shall submit a draft reporting protocol and reporting system to the Wildlife Agencies and State Parks, as well as to CPUC and BLM, for review and approval. The applicant shall continue to work with these agencies until approval of a final reporting protocol and reporting system is obtained. The applicant shall develop and implement methods to reduce mortalities in identified problem areas. The methods shall be approved by the Wildlife Agencies, State Parks (for problem areas in ABDSP), CPUC, and BLM prior to implementation. Bird mortality shall continue to be documented in the problem areas per the avian reporting system to determine the effectiveness of the mortality reduction methods and to determine if new methods need to be developed.

B-11a Prepare and implement a raven control plan. A Raven Control Plan shall be prepared and implemented for the I-8 Alternative where it occurs in FTHL MAs and FTHL habitat outside of MAs. The raven control plan shall include the use of raven perching/nesting deterrents (such as those manufactured by Prommel Enterprises, Inc. [www.ZENAdesign.com], Mission Environmental [www.missionenviro.co.za], or Kaddas Enterprises, Inc. [www.kaddas.com]) and/or shall describe the procedure for obtaining a permit from the USFWS Law Enforcement Division to legally remove ravens. The plan shall identify the purpose of conducting raven control; provide training in how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; and describe procedures for documenting the activities on an annual basis. SDG&E shall obtain approval of this plan from the USFWS prior to the start of construction. SDG&E shall work with the USFWS until approval of a plan is obtained.

B-12a Conduct maintenance activities outside the general avian breeding season. The applicant shall educate all maintenance workers about the sensitivity of biological resources associated with the project and the necessity to avoid unauthorized impacts to them.

In areas not cleared of vegetation in the prior two years, all vegetation clearing, except tree trimming or removal, shall take place between September 16 and February 14 (i.e., outside of the general avian breeding season of February 15 through September 15). Tree trimming or removal shall only take place between September 16 and December 31 (i.e., outside the raptor breeding season of January 1 through September 15).

Other maintenance activities shall occur outside the general avian breeding season where feasible. For other maintenance activities that cannot occur outside the above-listed breeding seasons, a qualified biologist shall work with a qualified acoustician to determine if a maintenance activity would meet or exceed the 60 dB(A) Leq hourly noise threshold where nesting territories of the coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing

owl occur. If the noise threshold would not be met or exceeded at the edge of their nesting territories, then maintenance may proceed. If the noise threshold would be met or exceeded at the edge of their nesting territories, pre-maintenance surveys for nests of these species shall be conducted by a qualified biologist (USFWS permitted biologist for gnatcatcher, vireo, and flycatcher) within 300 feet of the maintenance area no more than seven days prior to initiation of maintenance that would occur between February 15 and August 30 for the gnatcatcher, March 15 and September 15 for the vireo, April 15 and September 15 for the flycatcher, and February 1 and August 31 for the burrowing owl. If active nests are found, work may proceed provided that methods, determined by the qualified acoustician to be effective, are implemented to reduce noise below the threshold. These methods include, but are not limited to, turning off vehicle engines and other equipment whenever possible and/or installing a protective noise barrier between a nesting territory and maintenance activities. If the qualified acoustician determines that no methods would reduce noise to below the threshold, maintenance shall be deferred until the nestlings have fledged as determined the qualified biologist. Where noise-reducing methods are employed, active nests shall be monitored by the qualified biologist on a weekly basis until maintenance is complete or until the nestlings fledge, whichever comes first. The qualified biologist shall be responsible for documenting the results of the pre-maintenance nest surveys and the nest monitoring and for reporting these results to the CPUC, BLM, Wildlife Agencies, State Parks (for maintenance in ABDSP), and USDA Forest Service (for alternatives with maintenance on National Forest lands).

Animal Burrows/Dens. If any animal burrows or dens are identified during the pre-maintenance surveys for active bird nests, soil in a brush-clearing area shall be sufficiently dry before brush clearing to prevent damage to burrows or dens. At any time of year where maintenance would occur in occupied SKR habitat, all equipment and vehicles shall remain on existing access roads/staging areas (e.g., they shall not pull off the shoulder) to prevent the crushing of SKR burrows.

B-12b Conduct maintenance when arroyo toads are least active. To avoid impacts to arroyo toads during project maintenance (specifically the use and maintenance of access roads within 2 kilometers of occupied toad habitat), use and maintenance of these access roads shall only occur between two hours after sunrise until two hours before sunset.

B-12c Maintain access roads and clear vegetation in Quino checkerspot butterfly habitat. If access roads in QCB-occupied or potentially occupied habitat (see Impact B-7J and Mitigation Measure B-7i) are maintained (i.e., regraded) and vegetation around structures is cleared at least once every two years, then no additional mitigation shall be required for this ongoing maintenance. If more than two years pass without regrading or clearing, then the maintenance shall be considered a new impact to QCB habitat and shall be mitigated as prescribed in Mitigation Measure B-7i (i.e., protocol pre-maintenance survey, biological monitoring, and avoidance or mitigation).

Visual Resources

V-1a Reduce visibility of construction activities and equipment. Substation construction sites and all staging and material and equipment storage areas including storage sites for excavated materials, and helicopter fly yards shall be appropriately located away from areas of high public visibility. If visible from nearby roads, residences, public gathering areas, or recreational areas, facilities, or trails, construction sites and staging areas and fly yards shall be visually screened using temporary screening fencing. Fencing will be of an appropriate design and color for each specific location. Additionally, construction in areas visible from recreation facilities and areas during holidays and periods of heavy recreational use shall be avoided. SDG&E shall submit final

construction plans demonstrating compliance with this measure to the BLM and CPUC for review and approval at least 60 days prior to the start of construction. Where the project crosses lands administered by other public agencies (e.g., Forest Service, Anza-Borrego Desert State Park), construction plans shall also be submitted to those agencies for review and approval within the same 60-day timeframe.

V-1b **Reduce construction night lighting impacts.** SDG&E shall design and install all lighting at construction and storage yards and staging areas and fly yards such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized. SDG&E shall submit a Construction Lighting Mitigation Plan to the BLM (only if on BLM lands), Forest Service (only if on National Forest lands), Anza-Borrego Desert State Park (for Park lands) and CPUC (for all areas) for review and approval at least 90 days prior to the start of construction or the ordering of any exterior lighting fixtures or components, whichever comes first. SDG&E shall not order any exterior lighting fixtures or components until the Construction Lighting Mitigation Plan is approved by the reviewing agency. The Plan shall include but is not necessarily limited to the following:

- Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary
- All lighting shall be of minimum necessary brightness consistent with worker safety
- High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.

V-2a **Reduce in-line views of land scars.** Construct access or spur roads at appropriate angles from the originating, primary travel facilities to minimize extended, in-line views of newly graded terrain. Contour grading should be used where possible to better blend graded surfaces with existing terrain. All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following:

- Definition of access roads with sensitive viewing areas from which visibility of access roads is a concern.
- Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design.
- “Drive and crush” access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
- A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each access road (i.e., retain straight line

roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route).

SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC and BLM, as well as the Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.

V-2b **Reduce visual contrast from unnatural vegetation lines.** In those areas where views of land scars are unavoidable, the boundaries of disturbed areas shall be aggressively revegetated to create a less distinct and more natural-appearing line to reduce visual contrast. Furthermore, all graded roads and areas not required for on-going operation, maintenance, or access shall be returned to pre-construction conditions. In those cases where potential public access is opened by construction routes, SDG&E shall create barriers or fences to prevent public access and patrol construction routes to prevent vandalized access and litter clean-up until all vegetation removed returns to its pre-project state. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Forest Service and Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.

V-2c **Reduce color contrast of land scars on non-Forest lands.** For non-USFS-administered land areas where views of land scars from sensitive public viewing locations are unavoidable, disturbed soils shall be treated with Eonite or similar treatments to reduce the visual contrast created by the lighter-colored disturbed soils with the darker vegetated surroundings (Eonite and Permeon are commercially available chemical treatments that "age" or oxidize rock and are used specifically for coloring concrete or rock surfaces to tone down glare and contrast and simulate naturally occurring desert varnish). SDG&E will consult with the Authorized Officer (as determined by the CPUC and BLM as appropriate) on a site-by-site basis for the use of Eonite. SDG&E shall submit final construction and restoration plans demonstrating compliance with this measure to the BLM and CPUC, as well as Anza-Borrego Desert State Park (as appropriate), for review and approval at least 60 days prior to the start of construction.

V-2d **Construction by helicopter.** In those areas where long-term land-scarring and vegetation clearance impacts would be visible to sensitive public viewing locations, or where construction would occur on slopes over 15 percent, SDG&E will consult with the Authorized Officer and appropriate land management agency, on a site-by-site basis regarding the use of helicopter construction techniques and the prohibition of access and spur roads. Agency consultations must be conducted and approvals received at least 120 days prior to the start of construction.

V-2f **Reduce land scarring and vegetation clearance impacts on USFS-administered lands.** Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line **(**USFS Scenery Conservation Plan)

V-3a **Reduce visual contrast of towers and conductors.** The following design measures shall be applied to all new structure locations, conductors, and re-conductored spans, in order to reduce the degree of visual contrast caused by the new facilities:

- All new conductors and re-conductored spans are to be non-specular in design in order to reduce conductor visibility and visual contrast.
- All proposed new access roads shall be evaluated for their visibility from sensitive viewing locations prior to final design. Sensitive viewing locations have been defined by

Cleveland National Forest as campgrounds, trailheads, trails, wilderness areas, backcountry roads, heavily traveled roads, and overlooks. Access roads of concern are those that would be visible as they directly approach existing or proposed towers in a straight line from locations immediately downhill of the structures. Prior to final design, SDG&E shall consult with a visual resources specialist representing the CPUC and BLM and a qualified biologist to identify the following:

- Definition of towers with sensitive viewing areas from which visibility of access roads is a concern.
- Approximate location and length of alternative access road routes if straight line roads are not used. Define habitat affected and steepness of terrain for consideration of habitat and erosion impacts. The biologist and visual resources specialist shall confirm that the overall impacts of the alternate access road are less than that of the original access road design.
- "Drive and crush" access is a feasible measure for avoiding access road scars (i.e., no grading or vegetation removal is required). If this means of access is to be used, SDG&E shall define frequency of driving and vehicle types such that a biologist confirms that vegetation would be likely to recover.
- A table shall be submitted to the CPUC and BLM for review and approval at least 60 days before the start of construction to document towers for which this measure is applied, and the proposed resolution for each tower (i.e., retain straight line roads due to greater impacts from alternative routes, use "drive and crush" access, or develop alternate access road route).

V-7a **Reduce visual contrast associated with ancillary facilities.** SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The Surface Treatment Plan shall include:

- Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture
- A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation)
- Two sets of brochures and/or color chips for each proposed color
- A detailed schedule for completion of the treatment

A procedure to ensure proper treatment maintenance for the life of the project.

SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC.

Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.

V-7b **Screen ancillary facilities.** SDG&E shall provide a Screening Plan for screening vegetation, walls, and fences that reduces visibility of ancillary facilities (except Imperial Valley Substation) and helps the facility blend in with the landscape. The use of berms to facilitate project screening may also be incorporated into the Plan. SDG&E shall submit the Plan to the BLM and CPUC for review and approval at least 90 days prior to installing the landscape screening. If the BLM or CPUC notifies SDG&E that revisions to the Plan are needed before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan. The plan shall include but not necessarily be limited to:

- An 11" x 17" color simulation of the proposed landscaping at 5 years
- A plan view to scale depicting the project and the location of screening elements
- A detailed list of any plants to be used; their size and age at planting; the expected time to maturity, and the expected height at five years and at maturity.

SDG&E shall complete installation of the screening prior to the start of project operation. SDG&E shall notify the BLM and CPUC within seven days after completing installation of the screening, that the screening components are ready for inspection.

V-21a **Reduce night lighting impacts.** SDG&E shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized. SDG&E shall submit a Lighting Mitigation Plan to the CPUC for review and approval at least 90 days prior to ordering any permanent exterior lighting fixtures or components. SDG&E shall not order any exterior lighting fixtures or components until the Lighting Mitigation Plan is approved by the CPUC. The Plan shall include but is not necessarily limited to the following:

- Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary
- All lighting shall be of minimum necessary brightness consistent with worker safety
- High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.

V-45a **Prepare and implement Scenery Conservation Plan.** Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify specific actions that will minimize the project's visible disturbance to the naturally established scenery and to establish final direction to best achieve the spirit and intent of the Scenic Integrity Objectives of the Cleveland National Forest Land and Resource Management Plan. To achieve the greatest consistency with the Scenic Integrity Objectives, the project shall detail and integrate the following design recommendations into the Scenery Conservation Plan:

- **Power Line and Support Towers.** Transmission lines shall be non-specular (non-reflective) and neutral in coloration. Support towers shall be custom-colored with a flat, non-reflective finish, to visually blend with native vegetation colors to appear as visually

transparent as possible within the natural landscape pattern. Towers shall be designed to minimize their visual prominence and contrast to the natural landscape.

- **Distance Zones.** The Applicant shall consult with the Forest Service on tower design for any approved route on Forest lands and implement tower styles in accordance with agency direction. In general, the USFS requires that support towers within approximately one mile of sensitive primary viewpoints and without a backdrop, should be a monopole design with a simple, clean and less industrial appearance and support towers viewed beyond one mile from sensitive viewpoints or only at distance be lattice towers.
- **Vegetation Clearing.** Vegetation within the right of way and ground clearing at the foot of each tower and between towers will be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Mitigation will be incorporated to reduce the total visual impact of all vegetation clearing performed for the power line.
- **Roads.** No new access or spur roads, or improvements (reconstruction/expansion) to existing roads are to be constructed in the following areas: (1) where ground slopes exceed 15%, or (2) on Forest lands subject to a HIGH Scenic Integrity Objective (SIO) where the new access or spur road would be visible from primary travel (paved) roads or the Pacific Crest National Scenic Trail, regardless of ground slope. Existing roads needing reconstruction/expansion on other areas of the forest shall be configured to minimize the creation of cut/fill slopes. Where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species.
- **Structures.** All structures and structural elements, that may be constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast, blend, and complement the adjacent forest and community architectural character.
- **Evaluation of Effects.** The Licensee may be required to provide photorealistic visual simulations of proposed designs and mitigation measures to demonstrate their effectiveness in achieving Land and Resource Management Plan Scenic Integrity Objectives as viewed from sensitive viewsheds.
- **Offsite Mitigation.** Where project features create unavoidable and permanent negative scenery effects that are inconsistent with CNF Plan Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas in new viewsheds agreeable to the Forest shall be purchased and assigned to the Forest for its stewardship.

V-66a **Reduce structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures.** In order to reduce the structural prominence and visual contrast associated with the Interstate 8/Chocolate Canyon transition structures, SDG&E shall reconsider the location of the transition structures and attempt to lower their height by either relocating the next tower to shorten the span, or by moving the transition structures further downslope. This measure shall be implemented by SDG&E's submittal of a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the transition structures, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.

V-68a Eliminate skylining of ridgeline towers and conductors. In order to eliminate the skylining of ridgeline towers and conductors, the ridgeline towers shall be relocated to elevations sufficiently low on the ridge to eliminate structure skylining when viewed from Moreno Boulevard, SR67, and residences on the slopes west of SR67. SDG&E shall submit final construction plans demonstrating compliance with this measure to the CPUC for review and approval at least 120 days prior to the start of construction.

Land Use

L-1a Prepare Construction Notification Plan. Forty-five days prior to construction, SDG&E shall prepare and submit a Construction Notification Plan to the CPUC and the BLM for approval. The Plan shall identify the procedures SDG&E will use to inform property and business owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. The plan shall address at a minimum the following components:

- **Public notice mailer.** A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, remove parking, or require a detour to access existing residential properties, retail and commercial businesses, wilderness and recreation facilities, and public facilities (e.g., schools and memorial parks). The notice shall state the type of construction activities that will be conducted, and the location and duration of construction, including all helicopter activities. SDG&E shall mail the notice to all residents or property owners within 1,000 feet of the right-of-way, any property owners or tenants that could be impacted by construction activities and specific public agencies with facilities that could be impacted by construction. If construction delays of more than seven days occur, an additional notice shall be prepared and distributed.
- **Newspaper advertisements.** Fifteen days prior to construction, within a route segment, notices shall be placed in local newspapers and bulletins, including Spanish language newspapers and bulletins. The notice shall state when and where construction will occur and provide information on the public liaison person and hotline identified below. If construction is delayed for more than seven days, an additional round of newspaper notices shall be placed to discuss the status and schedule of construction.
- **Public venue notices.** Thirty days prior to construction, notice of construction shall be posted at public venues such as trail crossings, rest stops, desert centers, resource management offices (e.g., Bureau of Land Management field offices, Anza-Borrego Desert State Park offices and campgrounds, Cleveland National Forest Ranger Stations), and other public venues to inform residents and visitors to the purpose and schedule of construction activities. For public trail closures, SDG&E shall post information on the trail detour at applicable resource management offices and post the notice on the trail within two miles of the detour. For recreation facilities, the notice shall be posted along the access routes to known recreational destinations that would be restricted, blocked, or detoured and shall provide information on alternative recreation areas that may be used during the closure of these facilities.
- **Public liaison person and toll-free information hotline.** SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring property owners about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be

included in notices distributed to the public. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and shall develop procedures for responding to callers. Procedures for handling and responding to calls shall be addressed in the Construction Notification Plan.

L-1c **Coordinate with MCAS Miramar**. At least 90 days before construction, SDG&E shall provide all required project engineering details to MCAS Miramar for review and approval. Information provided shall include access roads to be used, expanded, or added. Information shall also include completed and authorized FAR Part 77 evaluations (Form 7460-1) for all objects exceeding the Outer Horizontal Surface (978 Ft AMSL) at MCAS Miramar. SDG&E shall provide the CPUC and BLM with evidence of its coordination with MCAS Miramar at least 60 days prior to the start of construction.

When any towers are to be removed on MCAS Miramar, all portions of the towers/poles shall be removed. Cutting poles and leaving buried portions is not acceptable on MCAS Miramar lands.

L-2b **Revise project elements to minimize land use conflicts.** At least 90 days prior to completing final transmission line design for the approved route, SDG&E shall notify landowners of parcels through which the alignment would pass regarding the specific location of the ROW, individual towers, staging areas, pull sites, access roads, or other facilities associated with the project that would occur on the subject property or within 1,000 feet of the property. The notified parties shall be provided at least 30 days in which to identify conflicts with any existing structures or planned development on the subject property and to work with SDG&E to identify potential reroutes of the alignment that would be mutually acceptable to SDG&E and the landowner. Property owners whose land may be divided into potentially uneconomic parcels shall be afforded this same opportunity, even if development plans have not been established. SDG&E shall endeavor to accommodate these reroutes only to the extent that they are reasonable and feasible, do not create a substantial increase in cost, and do not create adverse impacts to resources or to other properties that would be greater in magnitude than impacts that would occur from construction and operation of the alignment as originally planned.

At or before the time property owners are notified and based on SDG&E's own review of the alignment and facilities, SDG&E shall provide CPUC and BLM a written report identifying properties that are suspected of having a land use conflict as described above. This report shall identify and characterize existing buildings within the ROW and residences or occupied structures within or adjacent to the ROW, with which the alignment or other permanent facilities may conflict.

SDG&E shall provide a written report to the CPUC and BLM providing evidence of the notice provided to landowners and copies of any responses to the notice within 30 days of the notice closing date for responses. SDG&E shall also identify in the documentation submitted to CPUC and BLM whether reroutes recommended by the landowner or SDG&E can be accommodated. Where they cannot be accommodated, the reasons shall be provided. SDG&E shall provide information sufficient for the CPUC and BLM to determine that the reroute creates no more adverse impact than the originally planned alignment location. SDG&E shall include environmental information consistent with that required for a Variance (as defined in Section I, Mitigation Monitoring). Where a reroute is proposed, the CPUC and BLM will review and agree to accept or reject individual reroutes. CPUC and BLM also may recommend compromise reroutes for any of the parcels for which responses were provided to SDG&E in a timely fashion.

The following specific modifications shall be developed by SDG&E, following the procedures defined above:

- **Interstate 8 Alternative: MP I8-87 through I8-89.5, High Meadow Ranch**. The initial alignment shall be shifted approximately 200 feet to the west, downslope, in order to minimize visual effects of the towers on the development. See Figure Ap.11C-56 for map of this area.
- **Interstate 8 Alternative: MP I8-92 to I8-92.7, Private home.** The alignment shall be shifted to the east side of Highway 67, to a point just south of the Preserve parking lot, where the alignment would cross Highway 67 to join the Proposed Project route. See Figure Ap.11C-57 for map of this area.
- **Star Valley Option Revision**: SDG&E shall work with affected landowners to refine the route in order to minimize effects on private properties along Star Valley Road.

Wilderness and Recreation

WR-1a **Coordinate construction schedule and activities with the authorized officer for the recreation area.** No less than 60 days prior to construction, SDG&E shall coordinate construction activities and the project construction schedule with the authorized officer for the recreation areas listed below. SDG&E shall schedule construction activities to avoid heavy recreational use periods in coordination with and at the discretion of the authorized officer. SDG&E shall locate construction equipment to avoid temporary preclusion of recreation areas in accordance with the recommendation of the authorized officer. SDG&E shall document its coordination efforts with the authorized officer and provide this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction.

BLM Dunaway Camp
Juan Bautista de Anza National Historic Trail (County of San Diego Regional Trail)
Trans-County Trail (County of San Diego Regional Trail)
Pacific Crest National Scenic Trail (County of San Diego Regional Trail)
California Riding and Hiking Trail (County of San Diego Regional Trail)
Sycamore Canyon Open Space Preserve
Mission Trails Regional Park

WR-1b **Provide temporary detours for trail users.** No less than 60 days prior to construction, SDG&E shall coordinate with the authorized officer of the trails listed below to establish temporary detours of the trails to avoid construction area hazards, if the trail is deemed unsafe to use during construction. Should new trail segments be constructed as detours during construction, the temporary new trail segments would be sited to avoid sensitive resources, in coordination with the authorized officer of the trail or recreation area, and would be restored to pre-construction condition by SDG&E when SRPL construction is complete, if required by the authorized officer of the trail or recreation area. SDG&E shall post a public notice of the temporary trail closure and information on the trail detour. SDG&E shall document its coordination efforts with the authorized officer and submit this documentation to the CPUC, BLM, and affected park jurisdictions at least 30 days prior to construction.

- Juan Bautista de Anza National Historic Trail
- Trans-County Trail
- Pacific Crest National Scenic Trail
- California Riding and Hiking Trail
- Mission Trails Regional Park (Fortuna, Rim, and Quarry Loop Trails)

WR-1c Coordinate with local agencies to identify alternative recreation areas. SDG&E shall coordinate with the authorized officer for the applicable federal, State, or local parks and recreational facilities listed below at least 60 days before construction in order to identify alternative recreation facilities that may be used by the public during construction. SDG&E shall post a public notice at recreation facilities that are to be closed or where access would be limited during project construction. SDG&E shall document its coordination efforts with the parks and recreation departments and provide this documentation to the CPUC, BLM, and all affected park jurisdictions 30 days prior to construction.

- BLM Dunaway Camp
- Juan Bautista de Anza National Historic Trail
- Trans-County Trail
- Pacific Crest National Scenic Trail
- California Riding and Hiking Trail
- Sycamore Canyon Open Space Preserve
- Mission Trails Regional Park

WR-2a Develop a reroute for the BCD Alternative Revision to reduce effects on recreation. SDG&E shall relocate the overhead 500 kV transmission line along the southern boundary of JAM properties as shown in Figure E.2.1-b to shorten the route and minimize effects on BLM land, Forest land, and private property. This reroute and its ground-disturbing components shall avoid Back Country Non-Motorized land use zones of the Cleveland National Forest, while also minimizing towers and disturbance on private property. SDG&E shall submit a memo to the CPUC for review and approval that documents its attempts to fine-tune the location of the BCD Alternative Revision, as well as the submittal of final construction plans for review and approval at least 120 days prior to the start of construction.

WR-2b Evaluate and Implement PCT Route Revision. SDG&E shall consult and coordinate with the U.S. Forest Service, BLM, and the Pacific Crest Trail Association to develop route options for revising the PCT so it would cross the Modified Route D Alternative only once, rather than three times. SDG&E shall prepare and submit a report to the BLM and U.S. Forest Service prior to energizing the new transmission line. The report shall identify feasible PCT relocation options, and, under the direction of the federal agencies, shall evaluate whether its construction and restoration of the old trail segment would create overall greater impacts than those created by three crossings of the PCT that would occur with the Modified Route D Alternative. If directed by the BLM, SDG&E shall be responsible for constructing the new trail segment and restoring the old trail segment in manner acceptable to the BLM and U.S. Forest Service. Trail construction and restoration shall be completed within one year of energizing the transmission line.

WR-2c PCT Route Impact Mitigation. SDG&E shall consult and coordinate with the U.S. Forest Service, BLM, and the Pacific Crest Trail Association to develop mitigation options to compensate for the final impacts to the PCT identified by the route revision plan required by Mitigation Measure WR-2b. Compensation measures will include enhancements to other PCT trail segments to off-set the impacts at the Modified Route D Alternative transmission line crossing. SDG&E shall prepare and submit a report to the BLM and U.S. Forest Service for approval prior to energizing the new transmission line. The report shall identify feasible PCT compensation options, including improved or additional trailhead parking, trail improvements, and site improvement at the trail terminus. If directed by the BLM, SDG&E shall be responsible for implementing compensation projects in manner acceptable to the BLM and U.S. Forest Service. Projects shall be completed within one year of energizing the transmission line.

WR-3a Coordinate tower and road locations with the authorized officer for the recreation area. Where the Proposed Project crosses the recreation areas listed below, SDG&E shall coordinate with the authorized officer for the recreation area to determine specific tower site and spur road locations in order to minimize impacts to recreational resources. If it is not feasible to site structures outside of a park/preserve, compensation shall be required for permanent impacts (i.e., structure footings, access roads not dually used as trails) to park/preserve land at a 1:1 ratio. However, this mitigation measure is superseded by biological resource Mitigation Measure B-1a, which specifies restoration and compensation ratios for affected vegetation. In cases where the impacts to recreational resources occur on lands already in use as mitigation for other projects, the mitigation ratios shall be doubled, as is standard practice in San Diego County.

In consultation with the authorized officer of the trail or recreation area, access roads shall not be located on trails (e.g., PCT, Trans-County Trail) unless the authorized officer determines that the construction of new access roads would result in greater impacts than modifying the trail for use as an access road. If it is not feasible to site transmission structures off of a trail, SDG&E shall provide full funding for relocation of trail segments, including planning and trail construction, at location(s) identified by the authorized officer of the trail or recreation area. Trail segment relocation shall maintain the connectivity of regional and community trails.

This coordination shall occur no less than 60 days prior to the start of construction. SDG&E shall document its coordination with the authorized officer and shall submit this documentation to the CPUC, BLM, and ABDSP, at least 30 days prior to project construction.

- Juan Bautista de Anza National Historic Trail
- Cleveland National Forest
- Trans-County Trail
- Pacific Crest National Scenic Trail
- California Riding and Hiking Trail
- San Vicente Highlands Open Space Preserve

Agriculture

AG-1a Avoid interference with agricultural operations. The Applicant shall coordinate with property owners and tenants to ensure that project construction will be conducted so as to avoid or minimize interference with agricultural operations. Agricultural operations include, but are not limited to, the use of farm vehicles and equipment, access to property; water delivery, drainage, and irrigation.

AG-1b Restore compacted soil. The Applicant shall restore soils compacted or disturbed such as by excavation during construction by conferring with the property owner or tenant to identify and then implement a mutually agreed means to restore such soils. Restoration actions may include, but are not be limited to, disking, plowing, removal of excavated soil, or other suitable restoration methods.

AG-1c Coordinate with grazing operators. SDG&E shall coordinate with grazing operators to ensure that agricultural productivity and animal welfare are maintained both during and after construction to the maximum extent feasible. Coordination efforts will address issues including, but not necessarily limited to:

- Interference with access to water (e.g., provide alternate methods for livestock access to water)
- Impairment of cattle movements (e.g., provide alternate routes; reconfigure fencing/gates)

- Removal and replacement of fencing (e.g., during construction install temporary fencing/ barriers, as appropriate, and following construction restore equal or better fencing to that which was removed or damaged)
- Impacts to facilities such as corrals and watering structures, as well as related effects such as ingress/egress, and management activities (e.g., replacement of damaged/removed facilities in kind; provide alternate access)

AG-3b Consult with and inform aerial applicators. The Applicant shall consult with landowners and the County Farm Bureaus to determine which aerial applicators operate in the county. The Applicant shall provide written notification to all aerial applicators working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected. The Applicant shall also provide all aerial applicators, the County Farm Bureaus, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to agricultural lands.

Cultural Resources

C-1a Inventory and evaluate cultural resources in Final APE. Prior to construction and all other surface disturbing activities, the Applicant shall have conducted and submitted for approval by the BLM and CPUC an inventory of cultural resources within the project's final Areas of Potential Effect.[1] This survey will supplement inventories conducted for the EIS/EIR and shall satisfy Section 106 requirements for inventory of historic properties within all Areas of Potential Effect. The nature and extent of this inventory shall be determined by the BLM and CPUC in consultation with the appropriate State Historic Preservation Officer (SHPO) and other land-managing agencies (e.g., Anza-Borrego Desert State Park, U.S. Forest Service, Bureau of Indian Affairs, etc.) and shall be based upon project engineering specifications and in accordance with the Secretary of the Interior's Standards and Guidelines (Secretary's Standards) (36 CFR 61).

A report documenting results of this inventory shall be filed with appropriate State repositories and local governments. As part of the inventory report, the Applicant shall evaluate the significance of all potentially affected cultural resources on the basis of surface observations Evaluations shall be conducted by professionals meeting the Secretary's Standards and in accordance with those Standards, to provide recommendations with regard to their eligibility for the NRHP, CRHR, or local registers. Preliminary determinations of NRHP eligibility will be made by the BLM, in consultation with the CPUC and other appropriate agencies and local governments, and the SHPO.

As part of the inventory, the Applicant shall conduct field surveys of sufficient nature and extent to identify cultural resources that would be affected by tower pad construction, reconductoring activities, trenching for underground transmission lines, access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, new tower sites, and any other projected areas of potential ground disturbance outside of the previously surveyed potential impact areas. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded resource locations. The

[1] Area of Potential Effect is the horizontal and vertical extent of anticipated impacts that could affect historic properties. This includes direct impacts (physical disturbance from any project activity during or after construction) and indirect impacts, such as noise, vibration, visual intrusion, or erosion.

selected right-of-way and tower locations shall be staked prior to the cultural resource field surveys.

C-1b **Avoid and protect potentially significant resources.** Where feasible, potentially register-eligible resources and register-eligible resources shall be protected from direct project impacts by project redesign; complete avoidance of impacts to such resources shall be the preferred protection strategy. On the basis of preliminary National Register of Historic Places (NRHP) eligibility assessments (Mitigation Measure C-1a) or previous determinations of resource eligibility, the BLM and CPUC, in consultation with the SHPO, may request the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values.

Where the BLM and CPUC, in consultation with the Applicant, decide that potentially NRHP- and/or CRHR-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies to evaluate the resources' NRHP- and/or CRHR-eligibility and to recommend further mitigative treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the CPUC and the SHPO and shall be based upon final project engineering specifications. Evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).

All potentially NRHP- and/or CRHR-eligible resources (as determined by the BLM and CPUC, in consultation with the SHPO) that will not be affected by direct impacts, but are within 50 feet of direct impact areas, will be designated as Environmentally Sensitive Areas (ESAs) to ensure that construction activities do not encroach onsite peripheries. Protective fencing, or other markers (after approval by CPUC/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of a Historic Properties Treatment Plan and implemented by the Applicant to ensure the effectiveness of ESA protection (as detailed in Mitigation Measure C-1e).

C-1c **Develop and implement Historic Properties Treatment Plan.** Upon approval of the inventory report and the National Register of Historic Places (NRHP)-eligibility and CRHR-eligibility evaluations consistent with Mitigation Measures C-1a (Inventory and evaluate cultural resources in Final APE) and C-1b (Avoid and protect potentially significant resources), the Applicant shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) for register-eligible cultural resources to avoid or mitigate identified potential impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations, as explicated in Section D.7.8. Avoidance, recordation, and data recovery will be used as mitigation alternatives; avoidance and protection shall be the preferred strategy. The HPTP shall be submitted to the BLM and CPUC for review and approval.

As part of the HPTP, the Applicant shall prepare a research design and a scope of work for evaluation of cultural resources and for data recovery or additional treatment of NRHP- and/or CRHR-eligible sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible

exception would be a site where burials, cremations, or sacred features are discovered that cannot be avoided (see Mitigation Measure C-2).

The HPTP shall define and map all known NRHP- and/or CRHR-eligible properties in or within 50 feet of all project APEs and shall identify the cultural values that contribute to their NRHP- and/or CRHR-eligibility. The HPTP shall also detail how NRHP- and/or CRHR-eligible properties will be marked and protected as ESAs (in accordance with Mitigation Measure C-1b) during construction.

The HPTP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried register-eligible cultural resources, including burials, cremations, or sacred features. This sensitivity evaluation shall be conducted by an archaeologist who meets the Secretary's Standards and who takes into account geomorphic setting and surrounding distributions of archaeological deposits. The HPTP shall detail provisions for monitoring construction in these high-sensitivity areas for proper implementation of Mitigation Measures C-1e and C-3a. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing register-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the HPTP shall detail the methods, consultation procedures, and timelines for assessing register-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM and CPUC, other appropriate agencies and local governments, appropriate Native Americans, and the SHPO prior to implementation.

The HPTP shall also identify all historic built environment resources (structures, roads, dams, etc.) that would be affected indirectly by visual intrusion of the Proposed Project on qualities that contribute to their register eligibility. Although the current analysis has assessed the potential for indirect visual impacts to previously recorded historic built environment resources within 0.5 miles of the Proposed Project and Alternatives, the HPTP shall include an identification effort focused on identifying any such resources that may not have been previously recorded. The scope of this identification effort shall be in accordance with 36 CFR 800, which requires a reasonable effort to identify potentially NRHP-eligible resources that would be adversely affected by indirect project impacts. The HPTP shall also detail the treatment for each affected resource that will minimize those long-term visual impacts (as detailed in Mitigation Measure C-6a).

The HPTP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary's Standards (per 36 CFR 61).

C-1d **Conduct data recovery to reduce adverse effects.** If NRHP- and/or CRHR-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP- and/or CRHR-eligibility. For sites eligible under Criterion (d), significant data would be recovered through excavation and analysis. For properties eligible under Criteria (a), (b), or (c), data recovery may include historical documentation, photography, collection of oral histories, architectural or

engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations will follow standard statistical sampling methods, but sampling will be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC. Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories, local governments, and other appropriate agencies. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate, to ensure that impacts to known significant archaeological deposits are adequately mitigated.

C-1e **Monitor construction at known ESAs.** The Applicant shall implement full-time archaeological monitoring by a professional archaeologist during ground-disturbing activities at all cultural resource Environmentally Sensitive Areas (ESAs). These locations and their protection boundaries shall be defined and mapped in the HPTP.

Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM and CPUC.

A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. The monitoring plan in the HPTP shall indicate the locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The Applicant shall retain and schedule any required Native American monitors.

Compliance with and effectiveness of any cultural resources monitoring required by an HPTP shall be documented by the Applicant in a monthly report to be submitted to the BLM and CPUC for the duration of project construction. In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted to a buffer distance determined by the archaeological monitor until authorization to resume work has been granted by the BLM and CPUC.

The Applicant shall notify the BLM of any damage to cultural resource ESAs. If such damage occurs, the Applicant shall consult with the BLM and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the BLM and CPUC, such mitigation may include, but not be limited to, modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection within or outside the license area, at the discretion of the BLM.

C-1f **Train construction personnel.** All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or

ground-disturbing activities. The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.

The following issues shall be addressed in training or in preparation for construction:

- All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources.
- The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.

C-1g **Avoid and protect Old Highway 80 (P-37-024023).** A portion of the Interstate 8 Alternative would be constructed underground within Alpine Boulevard; from approximately MP 74.3 to MP 80 of this underground segment, Alpine Boulevard is also Old Highway 80. Construction impacts to contributing elements of this resource shall be minimized by avoidance of highway segments that retain integrity, as well as associated historic road signs and monuments located on the shoulder. If avoidance is not possible, affected segments shall be formally evaluated to assess their contribution to the NRHP eligibility of the resource as a whole. Additional protective measures are required to reduce adverse effects include formal documentation (i.e., HABS/HAER), and interpretive signage.

C-2a **Properly treat human remains.** All locations of known Native American human remains shall be avoided through project design and shall be protected by designation as ESAs. If the approved project route will affect sites known to contain human remains that cannot be avoided in their entirety during construction, the Applicant shall contact the California Native American Heritage Commission (NAHC). The NAHC will identify the Most Likely Descendant (MLD), within 48 hours, who will specify the preferred course of treatment in the event that additional human remains are discovered. The Applicant shall also contact the BLM (lead federal agency for the Proposed Project) and any additional land management agencies if the site is located on public lands administered by a State or federal agency other than the BLM. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains (see Section D.7.7). The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations.

If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.

Although subject to the recommendations of the MLD, it is likely that the human remains would be respectfully removed by the MLD and/or qualified archaeologists and reinterred in an area not subject to impacts from the Proposed Project. The re-interment location may be identified as a nearby locale within SDG&E ROW, or an offsite location may be selected. The Applicant shall assist and support the MLD in identifying, acquiring, and protecting the re-interment location.

C-3a **Monitor construction in areas of high sensitivity for buried resources.** The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the Historic Properties Treatment Plan (HPTP) as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains. These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CPUC. Monitoring shall be conducted in accordance with procedures detailed in Mitigation Measure C-1e

Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist will consult with the BLM or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.

C-4a **Complete consultation with Native American and other Traditional Groups.** The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the approved project on Traditional Cultural Properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).

C-5a **Protect and monitor NRHP- and/or CRHR-eligible properties.** The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP- and/or CRHR)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for NRHP-

and/or CRHR-eligible properties within the transmission line corridor that will experience operational and access impacts as a result of the Proposed Project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting NRHP- and/or CRHR-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to NRHP- and/or CRHR-eligible properties. The plan shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies for review and approval at least 30 days prior to project operation.

Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM, CPUC, and other appropriate land-managing agencies within one month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM, CPUC, or other land-managing agency, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.

If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP- and/or CRHR)-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM, CPUC, or other appropriate land-managing agency become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement additional protective measures, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such measures may include, but not be limited to, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.

C-6a **Reduce adverse visual intrusions to historic built environment properties.** All known historic built environment resources located within 0.5 miles of the Proposed Project shall be inventoried and subjected to a visual analysis to assess which resources would be subject to potential indirect visual intrusions resulting from the project. This inventory will supplement the analysis of built environment resources conducted for the EIS/EIR, and shall meet the requirements of Section 106 to inventory historic properties that could be adversely affected by the Proposed Project. The Applicant shall inventory potentially register-eligible built environment resources within an Area of Potential Indirect Effect established by the BLM and CPUC. A qualified (Secretary of the Interior Standards) professional shall assess the potential for visual intrusions on the qualities that qualify any historic properties within the APE for register eligibility. The results of this inventory shall be included in the HPTP. If any historic properties are identified that would be adversely affected by visual intrusions from the Proposed Project, the HPTP shall also specify mitigation measures that would be implemented to reduce adverse effects, such as screening the visual intrusion with vegetation, moving project towers to less conspicuous locations, if technically feasible, or altering towers to reduce any identified adverse effects. Selection of appropriate and effective treatments shall consider technical feasibility of the measures and potential impacts on other sensitive resources or land uses.

C-6e **Reduce adverse visual intrusions to portions of Old Highway 80.** Visual intrusion by the aboveground portion of this alternative, on portions of Old Highway 80 that retain integrity of setting shall be minimized by a combination of minimizing tower height and screening. In addition, since segments of Old Highway 80 would be crossed by the overhead portion of the alternative, compensatory mitigation including new signage shall be employed. If this alternative is constructed, as part of the Historic Properties Treatment Plan (Mitigation Measure C-1c) SDG&E shall develop a protection plan for Old Highway 80 that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options.

C-6f **Reduce adverse visual intrusions to the Desert View Tower viewshed.** Visual intrusion to the Desert View Tower viewshed, caused by the aboveground portion of this alternative shall be minimized by a combination of minimizing tower height, screening, and painting towers to match the surroundings. Specific measures to minimize visual effects to the Desert View Tower shall be developed in consultation with the owner of this resource. If this alternative is constructed, SDG&E shall develop a protection plan for the Desert View Tower viewshed that defines resources to be protected, includes input from visual resources specialists, and evaluates a menu of protection options. The report shall be provided to the CPUC and BLM for review and approval at least 60 days before the start of construction.

Paleontological Resources

PAL-1a **Inventory and evaluate paleontological resources in the Final APE.** Prior to construction, the Applicant shall conduct and submit to CPUC, BLM, and other involved land-managing agencies for approval an inventory of significant paleontological resources within the affected area based on field surveys of areas identified as marginal through high or undetermined paleontological sensitivity potential.

PAL-1b **Develop Paleontological Monitoring and Treatment Plan.** Following completion and approval of the paleontological resources inventory and prior to construction, the Applicant shall prepare and submit to CPUC, BLM, and other involved land-managing agencies for approval a Paleontological Monitoring Treatment Plan (Plan). The plan shall be designed by a Qualified Paleontologist and shall be based on Society of Vertebrate Paleontology (SVP) guidelines and meet all regulatory requirements. The qualified paleontologist shall have a Master's Degree or Ph.D. in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The Plan shall identify construction impact areas of moderate to high sensitivity for encountering significant resources and the depths at which those resources are likely to be encountered. The Plan shall outline a coordination strategy to ensure that a qualified paleontological monitor will conduct full-time monitoring of all ground disturbance in sediments determined to have a moderate to high sensitivity. Sediments of low, marginal, and undetermined sensitivity shall be monitored on a part-time basis (as determined by the Qualified Paleontologist) Sediments with zero sensitivity will not require paleontological monitoring. The Qualified Monitor shall have a B.A. in Geology or Paleontology, and a minimum of one year of monitoring experience in local sediments. The Plan shall detail the significance criteria to be used to determine which resources will be avoided or recovered for their data potential. The Plan shall also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting. The Plan shall specify that all paleontological work undertaken by the Applicant on public land shall be carried out by qualified paleontologists with the appropriate current permits, including, but not limited to a Paleontological Resources Use Permit (for work on public lands administered by

BLM) and a Paleontological Collecting Permit (for work on lands administered by California Department of Parks and Recreation). Notices to proceed will be issued by the BLM, CPUC, and other agencies with jurisdiction, following approval of the Paleontological Monitoring and Treatment Plan.

PAL-1c Monitor construction for paleontology. Based on the paleontological sensitivity assessment and Paleontological Monitoring and Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan), the Applicant shall conduct full-time construction monitoring by the qualified paleontological monitor in areas determined to have moderate to high paleontological sensitivity. Sediments of low, marginal undetermined sensitivity shall be monitored by a qualified paleontological monitor on a part-time basis (as determined by the Qualified Paleontologist). Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Qualified Paleontologist

PAL-1d Conduct paleontological data recovery. If avoidance of significant paleontological resources is not feasible or appropriate based on project design, treatment (including recovery, specimen preparation, data analysis, curation, and reporting) shall be carried out by the Applicant, in accordance to the approved Treatment Plan per Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).

PAL-1e Train construction personnel. Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained regarding the recognition of possible subsurface paleontological resources and protection of all paleontological resources during construction. The Applicant shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) ESAs include areas determined to be paleontologically sensitive as defined on the paleontological sensitivity maps for the project, and must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of protected fossils on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction:

- All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing subsurface paleontological resources, their responsibility to avoid and protect all such resources, and the penalties for collection, vandalism, or inadvertent destruction of paleontological resources.
- The Applicant shall provide a background briefing for supervisory personnel describing the potential for exposing paleontological resources, the location of any potential ESAs, and procedures and notifications required in the event of discoveries by project personnel or paleontological monitors. Supervisory personnel shall enforce restrictions on collection or disturbance of fossils.
- Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be diverted and the Applicant's paleontologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's paleontologist will notify the BLM, CPUC, and other appropriate

land managers and proceed with data recovery in accordance with the approved Treatment Plan consistent with Mitigation Measure PAL-1b (Develop Paleontological Monitoring and Treatment Plan).

Noise

N-1a **Implement Best Management Practices for construction noise.** SDG&E shall comply with local noise rules, standards, and/or ordinances by implementing the following noise-suppression techniques and variance standards set by local authorities. SDG&E shall apply for and obtain a variance for construction activities that must occur outside of the daytime hours allowed by local ordinances or within 200 feet of noise-sensitive receptors. At a minimum, SDG&E shall employ the following noise-suppression techniques to avoid possible violations of local rules, standards, and ordinances:

- Confine construction noise to daytime, weekday hours (e.g., 7:00 a.m. to 7:00 p.m.) or an alternative schedule established by the local jurisdiction or land use manager
- On construction equipment, use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer
- Install temporary sound walls or acoustic blankets to shield adjacent residences. These sound walls or acoustic blankets shall have a height of no less than 8 feet, a Sound Transmission Class (STC) of 27 or greater, and a surface with a solid face from top to bottom without any openings or cutouts
- Route construction traffic away from residences and schools, where feasible
- Minimize unnecessary construction vehicle use and idling time. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. A "common sense" approach to vehicle use shall be applied; if a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off. (Note: certain equipment, such as large diesel-powered vehicles, require extended idling for warm-up and repetitive construction tasks.)

N-2a **Avoid blasting where damage to structures could occur.** Blasting shall be managed with a plan for each site. The plan shall include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. Blasting shall not be allowed where damage to vulnerable structures could occur, and a rock anchoring or mini-pile system shall be used if adjacent structures could be damaged as a result of blasting or any construction method used as an alternative to blasting. If any structure is inadvertently adversely affected by construction vibration, the structure shall be restored to conditions equivalent to those prior to blasting. SDG&E shall then fairly compensate the owner of any damaged structure for lost use.

N-3a **Respond to complaints of corona noise.** SDG&E shall respond to third-party complaints of corona noise generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures (such as repair damaged conductors, insulators, or other hardware). As part of SDG&E's repair inspection and maintenance program, the transmission line shall be patrolled, and damaged insulators or other transmission line materials, which could cause excessive noise, shall be repaired or replaced.

Transportation and Traffic

T-1a **Restrict lane closures.** SDG&E shall restrict all necessary lane closures or obstructions on major roadways associated with overhead or underground construction activities to off-peak periods in congested areas to reduce traffic delays. Lane closures must not occur between 6:00 and 9:30 a.m. and between 3:30 and 6:30 p.m., unless otherwise directed in writing by the responsible public agency issuing an encroachment permit.

T-4a **Ensure pedestrian and bicycle circulation and safety**. Where construction will result in temporary closures of sidewalks and other pedestrian facilities, SDG&E shall provide temporary pedestrian access, through detours or safe areas along the construction zone. Where construction activity will result in bike route or bike path closures, appropriate detours and signs shall be provided.

T-5a **Repair damaged roads.** If damage to roads occurs as a result of project construction or construction vehicle traffic, SDG&E shall restore damaged roadways at their own expense under the direction of the affected public agencies to ensure that any impacts are adequately repaired. Roads disturbed by construction activities or construction vehicles shall be properly restored to ensure long-term protection of road surfaces. Said measures shall be incorporated into an access agreement/easement with the applicable governing agency prior to construction. Prior to construction, SDG&E will determine with the governing agency the appropriate method for documenting pre- and post-construction conditions.

T-7a **Notify public of potential short-term elimination of parking spaces.** As required in Mitigation Measures L-1a, prior to any construction activity on major roadways, SDG&E shall notify the public of the potential for parking spaces to be temporarily eliminated and where temporary parking spaces will be relocated through multiple media such as local newspapers and onsite postings. The elimination and relocation of parking spaces must be in conformance with the requirements of agencies responsible for parking management.

T-9a **Prepare Construction Transportation Management Plan.** SDG&E shall prepare a Construction Transportation Management Plan (CTMP) to address traffic and transportation issues related to project construction. The CTMP shall describe alternate traffic routes, timing of worker commutes and material deliveries, the need for lane and road closures, the use of helicopters, plans for construction worker parking and transportation to work sites, methods for keeping roadways clean, and other methods for reducing adverse construction-related traffic impacts on regional and local roadways. The plan must comply with the requirements of the respective county and must be submitted to the respective counties and Caltrans for approval prior to commencing construction activities.

T-11b **Consult with and inform U.S. Customs and Border Protection.** The Applicant shall consult with U.S. Customs and Border Patrol to determine where border patrol aircraft operate in the county. Prior to construction, the Applicant shall provide written notification to all border patrol aircraft working in the county and to the CPUC stating when and where the new transmission lines and towers will be erected and shall install markers as requested by the Border Patrol. The Applicant shall also provide all border patrol aircraft, the U.S. Customs and Border Patrol, and the CPUC with aerial photos or topographic maps clearly showing the new lines and towers in relation to the U.S./Mexico border within the San Diego and Imperial Counties.

Public Health and Safety – Environmental Contamination

P-1a **Implement Environmental Monitoring Program.** An environmental monitoring program will be implemented by SDG&E or its contractors to ensure that the plans defined in HS-APM-1 (personnel trained in proper use and safety procedures for the chemicals used), HS-APM-2 (personnel trained in refueling of vehicles), HS-APM-3 (preparation of environmental safety plans including spill prevention and response plan), HS-APM-8 (SDG&E's and/or General Contractor environmental/health and safety personnel), and HS-APM-10 (storage and disposal of hazardous and solid waste) are followed throughout the period of construction. SDG&E will designate an Environmental Field Representative, who will be onsite to observe, enforce, and document adherence to the plans for all construction activities.

P-1b **Maintain emergency spill supplies and equipment.** Hazardous material spill kits will be maintained onsite by SDG&E or its contractors for response to small spills. This shall include oil-absorbent material, tarps, and storage drums to be used to contain and control any minor releases. Emergency spill supplies and equipment will be kept adjacent to all areas of work and in staging areas, and will be clearly marked. Detailed information for responding to accidental spills and for handling any resulting hazardous materials will be provided in the project's Spill Response Plan defined in HS-APM-3.

P-2a **Test for residual pesticides/herbicides on currently or historically farmed land.** In areas where the land has been or is currently being farmed, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any contamination. The sampling and testing plan shall be prepared in consultation with the County Agricultural Commission, and conducted by an appropriate California licensed professional and sent to a California Certified laboratory. Samples shall be tested at a California Certified Laboratory. A report documenting the areas proposed for sampling, and the process used for sampling, testing shall be submitted to the CPUC and BLM for review and approval at least 60 days before construction. Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPUC and BLM (if on BLM land) 30 days prior to construction.

Excavated materials containing elevated levels of pesticide or herbicide will require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures will be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California (DTSC or RWQCB) and the appropriate County (San Diego or Imperial) shall be contacted by SDG&E or its contractor to plan handling, treatment, and/or disposal options.

P-3a **Appoint individuals with correct training for sampling, data review, and regulatory coordination.** In the event that potential contaminated soil or groundwater is encountered, samples shall be collected by an OSHA-trained individual with a minimum of 40-hours hazardous material site worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer and/or SDG&E's Field Environmental Representative and they shall coordinate with the appropriate regulatory agency (RWQCB or local CUPA agency) if contamination is confirmed to determine the suitable level of worker protection and the necessary handling and/or disposal requirements.

P-3b **Documentation of compliance with measures for encountering unknown contamination.** If during grading or excavation work, the contractor observes visual or olfactory evidence of contamination in the exposed soil a report of the location and the potential contamination, results

of laboratory testing, recommended mitigation (if contamination is verified), and actions taken shall be submitted to the CPUC and BLM (if on BLM lands) for each event. This report shall be submitted within 30 days of receipt of laboratory data.

P-7a **Evaluate contaminated sites**. SDG&E shall implement the following steps, at locations where excavation or significant ground disturbance will occur; all steps be completed at least 60 days prior to project construction, to prevent mobilization of contaminants and exposure of workers and the public:

- **Step 1.** Investigate the site to determine whether it has a record of hazardous material contamination which would affect construction activities. This investigation should be performed as a Phase I – Environmental Site Assessment (ESA). If contamination is found that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2.
- **Step 2.** Perform a characterization study of the site to determine the nature and extent of the contamination present at the location before construction activities proceed within the project ROW near the suspect site.
- **Step 3.** Determine the need for further investigation and/or remediation of the soil or groundwater conditions at or near the contaminated site, i.e., within areas of ground disturbance for the Proposed Project. (For example, if there would be little or no contact with contaminated materials, industrial cleanup levels would likely be applicable. If site activities would involve human contact with the contaminated materials, such as would be the case with excavation of contaminated materials during project construction, then Step 4 shall be completed. If no human contact is anticipated, then no further mitigation would be required for the location.)
- **Step 4.** If it is determined that disturbance or excavation of soils or groundwater with contamination would accompany construction at the site, undertake a Phase II Environmental Site Investigation (Phase II ESI) involving sampling and further characterization of potentially contaminated areas with the project ROW or reroute the line away from the contamination area. Should further investigation reveal high levels of hazardous materials, mitigate health and safety risk according San Diego County CUPA or RWQCB regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Public Health and Safety – Electric and Magnetic Fields and Other Field-Related Concerns

PS-1a **Limit the conductor surface electric gradient.** As part of the design and construction process for the Proposed Project, the Applicant shall limit the conductor surface electric gradient in accordance with the IEEE Radio Noise Design Guide.

PS-1b **Document and resolve electronic interference complaints.** After energizing the transmission line, SDG&E shall respond to and document all radio/television/equipment interference complaints received and the responsive action taken. These records shall be made available to the CPUC for review upon request. All unresolved disputes shall be referred by SDG&E to the CPUC for resolution.

PS-2a **Implement grounding measures.** As part of the siting and construction process for the Proposed Project, SDG&E shall identify objects (such as fences, metal buildings, and pipelines) within and near the right-of-way that have the potential for induced voltages and shall implement electrical

grounding of metallic objects in accordance with SDG&E's standards. The identification of objects shall document the threshold electric field strength and metallic object size at which grounding becomes necessary.

Air Quality

AQ-1a Suppress dust at all work or staging areas and on public roads. SDG&E shall: (a) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; (b) pre-water sites for 48 hours in advance of clearing; (c) reduce the amount of disturbed area where possible; (d) all dirt stock-pole areas should be sprayed daily as needed; (e) cover loads in haul trucks or maintain at least six inches of free-board when traveling on public roads; (f) pre-moisten, prior to transport, import and export dirt, sand, or loose materials; (g) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets; (h) plant vegetative ground cover in disturbed areas as soon as possible following construction; (i) apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for four consecutive days); and (j) prepare and file 30 days in advance of construction with the ICAPCD, SDAPCD, BLM, and CPUC a Dust Control Plan that describes how these measures would be implemented and monitored at all locations of the project. The Dust Control Plan shall identify nearby sensitive receptors, such as land uses that include children, the elderly, the acutely ill and the chronically ill, and specify the means of minimizing impacts to these populations (for example, by locating equipment and staging areas away from sensitive receptors).

AQ-1b Use low-emission construction equipment. SDG&E shall maintain construction equipment per manufacturing specifications and use low-emission equipment described here. All off-road and portable construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, Sec. 2423(b)(1) unless that engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. If any engine larger than 100 hp does not meet Tier 1 standards, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless the engine manufacturer indicates that the use of such devices is not practical for that particular engine type. SDG&E shall substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible.

AQ-1h Obtain NOx and particulate matter emission offsets. SDG&E shall obtain and hold for the duration of construction NOx emission reduction credits or fund incentive programs approved by ICAPCD and SDAPCD at sufficient levels to offset the construction emissions of NOx that exceed the ozone nonattainment area federal General Conformity Rule applicability threshold. SDG&E shall secure 99 tons per year of NOx reductions and 276 tons per year of particulate matter reductions in Imperial County, and SDG&E shall secure 212 tons per year of NOx reductions in San Diego County to satisfy this requirement. The emission reduction credits or incentive program shall comply with ICAPCD and SDAPCD rules and regulations, and the credits or reductions shall be obtained by SDG&E prior to commencing construction.

AQ-4a Offset construction-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the duration of project construction

sufficient carbon credits to fully offset construction-phase greenhouse gas emissions. During construction SDG&E shall report to the CPUC quarterly the status of efforts to create reductions or obtain banked credits and the quantity of construction-phase greenhouse gas emissions offset by credits. At a minimum, SDG&E shall create or obtain and hold carbon credits to offset 55,000 tons of carbon dioxide emissions for each of the two years of construction. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.

AQ-4b Offset operation-phase greenhouse gas emissions with carbon credits. SDG&E shall create greenhouse gas emission reductions or obtain and hold for the life of the project sufficient carbon credits to fully offset greenhouse gas emissions caused by activity to support transmission line operation, maintenance, and inspection activities. To determine the quantity of carbon credits that must be created or obtained and held each year, SDG&E must develop a complete GHG inventory annually for project-related operational emissions. SDG&E shall follow established methodologies to report and inventory indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project. SDG&E shall report to the CPUC annually the status of efforts to obtain banked credits and the quantity of greenhouse gas emissions offset by credits. Established methodologies for determining project-related emissions include the current California Climate Action Registry (CCAR) General Reporting Protocol, and the Power/Utility Reporting Protocol appendix to the General Reporting Protocol. Carbon Reduction Tons (CRTs) verified according to the rules of the California Climate Action Registry may be retired by SDG&E to satisfy this requirement.

AQ-4c Avoid sulfur hexafluoride emissions. SDG&E shall identify sulfur hexafluoride (SF_6) leaks and establish a strategy for replacing leaking equipment to reduce SF_6 leaks. To accomplish this, SDG&E shall develop and maintain a record of SF_6 purchases, an SF_6 leak detection and repair program using laser imaging leak detection and monitoring no less frequently than quarterly, an SF_6 recycling program, and an employee education and training program for avoiding or eliminating SF_6 emissions caused by the Proposed Project. The SF_6 leak detection and repair program shall be provided to the CPUC and BLM 90 days prior to project construction. Prior to construction, SDG&E shall also become a Partner in the U.S. EPA's SF_6 Emissions Reduction Partnership for Electric Power Systems. SDG&E shall also report SF_6 emissions from the Proposed Project to the California Climate Action Registry according to CCAR methodologies or alternate methodology approved by the California Air Resources Board. To develop a complete GHG inventory, SDG&E shall follow established methodologies to report indirect GHG emissions from energy imported and consumed to support operation of the Proposed Project and indirect GHG emissions from transmission and distribution losses associated with the Proposed Project.

Water Resources

H-1a Prepare Substation Grading and Drainage Plan; construct during the dry season. Prior to construction of new substations, a grading and drainage plan, with SWPPP for construction and post-construction BMPs (as defined by the RWQCB), shall be prepared and submitted to the CPUC and RWQCB for review and approval. All grading for the substation shall occur either during the dry season months, or a settling pond shall be installed on the construction site with sufficient capacity to contain expected runoff during a rainfall event. In addition, for construction during a rainfall event, construction shall cease when rutting occurs in greater than 10% of the road or when rills more than 10 feet in length develop and lead off the road surface in the work

area. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains.

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Construct during the dry season. All construction of the Chocolate Canyon Option shall occur during the dry season months. Approved drainage control and erosion control BMPs shall be in place prior to the normal onset of winter rains. Implement the City of San Diego Source Water Protection Guidelines for New Development (2004) that describes procedures for minimizing the adverse water quality effect of new development near water supply reservoirs such as El Capitan. These guidelines specify best management practice procedures to be used by the development, which would include the Chocolate Canyon Option.

H-1b Construction in Los Peñasquitos Canyon Preserve to be in the dry season; SWPPP to be reviewed and approved by San Diego County and City of San Diego. Construction within the Los Peñasquitos Canyon Preserve (the Preserve) shall occur during the summer (dry season) months. Project construction plans and the SWPPP for project construction shall be submitted to the CPUC, the City of San Diego and the County of San Diego for review and approval prior to construction. The SWPPP shall address erosion and sedimentation control, groundwater dewatering procedures, hazardous materials identification, handling, disposal and emergency spill procedures, and any other best management procedures necessary to prevent contaminants from entering the waters of the preserve, including consideration of using directional drilling. Construction activities within the Preserve shall be open to City and County monitors who shall have the authority to ensure compliance with the approved SWPPP.

H-1k Comply with Forest Service conditions. Where the power line crosses Forest Service property, the following conditions, or others defined by the Forest Service, based on consultation, shall be complied with:

- The Forest Service reserves the right, after notice and opportunity for comment, to modify project conditions, if necessary, to respond to any Final Biological Opinion issued for this project by the United States Fish and Wildlife Service, NOAA Fisheries, or any Certification or permit issued for this Project by the State Water Resources Control Board or Army Corps of Engineers.
- Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the California Public Utilities Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill cleanup for project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup is needed.
- At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts.

- The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, and approved construction and staging areas, as identified in a Road and Traffic Management Plan developed by the Licensee. The Forest Service reserves the right to close any and all such routes where damage (impacts beyond the expected and approved disturbance) is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by the Licensee to the extent needed to accommodate the Licensee's use. The Forest Service agrees to provide notice to the Licensee and the Public Utilities Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.
- During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Public Utilities Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include:

1. A description of the actual site conditions
2. Detailed descriptions, design drawings, and specific topographic locations of all control measures
3. Measures to divert runoff away from disturbed land surfaces
4. Measures to collect and filter runoff over disturbed land surfaces
5. Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources
6. Measures to dissipate energy and prevent erosion
7. A monitoring and maintenance schedule.

Upon Commission approval, the Licensee shall implement the plan.

- Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Public Utilities Commission not previously addressed in the Commission’s NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a cost recovery agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.
- The Licensee shall within 6 months after license issuance file with the Public Utilities Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee’s activities.

The purpose of the plan is to protect groundwater related surface water and other groundwater-dependent resources.

- Within one year of license issuance the Licensee shall file with the Public Utilities Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources.

H-1l **Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment Control Plan.** A site-specific sediment control plan and SWPPP shall be prepared for construction within the National Forest. These plans shall identify and characterize potentially affected water resources and provide site-specific remedies to minimize project-related sedimentation, as well as provide post-construction remediation and monitoring details. The sediment control plan shall include construction in the dry period, as well as construction by helicopter in areas where terrain is steep and the potential consequences of sedimentation severe. These plans shall be submitted to the Forest Service and CPUC for review and approval prior to construction.

H-2d **Maintain vehicles and equipment.** All vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground. A vehicle and equipment maintenance log shall be updated and provided to CPUC and BLM once monthly during project construction.

H-4b **Avoid blasting where damage to groundwater wells or springs could occur.** Blasting shall be managed with a Blasting Plan for each site. The Plan shall include the blasting methods, distance calculations to estimate the area of effect of the blasting, and surveys for wells and springs within the blast influence area (no less than ½ mile from the blasting location). Blasting shall not be allowed where damage to wells or springs could occur according to the Applicant's Blasting Plan, and a rock anchoring or mini-pile system shall be used if these resources could be damaged as a result of blasting or any earthworking method used as an alternative to blasting. Where inadvertent damage to wells within an EPA-designated Sole Source Aquifer occur as a result of earthwork, the Applicant shall compensate the landowner in the form of well repair or replacement, and shall provide the landowner with a water storage tank and sufficient potable water within 48 hours and throughout the interim between damage and repair or replacement. Where inadvertent damage to other wells or springs occurs as a result of earthwork, the Applicant shall compensate the landowner in the form of remedial cash payment, repair, or replacement, as appropriate. The burden of proof of no impact shall rest with the Applicant.

H-5a **Install substation runoff control.** The pad for new substations shall be constructed with a pervious and/or high-roughness (for example, gravel) surface where possible to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimics the natural condition as much as possible. A drainage design hydrologic and hydraulic analysis shall be provided to the CPUC for review and approval prior to the initiation of construction.

H-6a **Scour protection to include avoidance of bank erosion and effects to adjacent property.** A determination of towers requiring scour protection under WQ-APM-10 shall be made during the design phase by a registered professional engineer with expertise in river mechanics. All towers within the project shall be reviewed by the river mechanics engineer and the foundations of those

towers determined to be subject to scour or lateral movement of a stream channel shall be protected by burial beneath the 100-year scour depth, setbacks from the channel bank, or bank protection as determined by the river mechanics engineer. An evaluation shall also be made regarding the potential for the tower and associated structures to induce erosion onto adjacent property. Should the potential for such erosion occur, the tower location shall be moved to avoid this erosion, or erosion protection (such as rip rap) provided for the adjacent property. This evaluation, and associated scour/erosion protection design plans, shall be submitted to the CPUC for review and approval 60 days prior to the initiation of construction of the towers.

H-7a **Develop Hazardous Substance Control and Emergency Response Plan for project operation.** SDG&E shall prepare and implement a Hazardous Substance Control and Emergency Response Plan for project operation, and a copy shall be kept onsite at substations. This plan shall include definition of an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling to reduce the potential for a spill during construction. The plan will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials, if any, will be permitted. These directions and requirements will also be reiterated in the project SWPPP. SDG&E shall submit this Response Plan to the CPUC and BLM for review and approval at least 60 days before construction.

H-8a **Bury power line below 100-year scour depth.** At locations where the buried power line is to be at or adjacent to a stream bed capable of scour, the power line shall be located below the expected depth of scour from a 100-year flood, or otherwise protected from exposure by scour which, for purposes of this mitigations measure, also includes lateral (streambank) erosion and potential scour associated with flows overtopping or bypassing a culvert or bridge crossing. During final design, a registered civil engineer with expertise in hydrology, hydraulics, and river mechanics shall make a determination of where the underground line could be at risk of exposure through scour or erosion from a 100-year event. Plans for burying the line below the 100-year scour depth, or otherwise protecting the line from erosion, shall be submitted to CPUC for review and approval prior to construction.

Geology, Mineral Resources, and Soils

G-2a **Protect desert pavement.** Grading for new access roads or work areas in areas covered by desert pavement shall be avoided or minimized. If avoidance of these areas is not possible, the desert pavement surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats placed on the ground surface. A plan for identification and avoidance or protection of sensitive desert pavement shall be prepared and submitted to the CPUC and BLM for review and approval at least 60 days prior to start of construction. The plan shall define how protective measures will prevent destruction of desert pavement.

G-3a **Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.** The design-level geotechnical studies to be performed by the Applicant shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes,

and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and ASTM standards for field and laboratory testing. Study results and proposed solutions shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.

G-4a **Reduce effects of groundshaking.** The design-level geotechnical investigations performed by the Applicant shall include site-specific seismic analyses to evaluate the peak ground accelerations for design of project components. Based on these findings, project structure designs shall be modified/strengthened, as deemed appropriate by the project engineer, if the anticipated seismic forces (high calculated peak vertical and horizontal ground accelerations due to severe groundshaking) are found to be greater than anticipated wind load stresses on project structures. Study results and proposed design modifications shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.

G-4b **Conduct geotechnical investigations for liquefaction.** Because seismically induced liquefaction-related ground failure has the potential to damage or destroy project components, the design-level geotechnical investigations to be performed by the Applicant shall include investigations designed to assess the potential for liquefaction to affect the approved project and all associated facilities, specifically at tower locations in areas with potential liquefaction-related impacts. Where these hazards are found to exist, appropriate engineering design and construction measures shall be incorporated into the project designs as deemed appropriate by the project engineer. Design measures that would mitigate liquefaction-related impacts could include construction of pile foundations, ground improvement of liquefiable zones, installation of flexible bus connections, and incorporation of slack in cables to allow ground deformations without damage to structures. Study results and proposed solutions to mitigate liquefaction shall be provided to the CPUC and BLM for review and approval at least 60 days before final project design.

G-5a **Minimize project structures within active fault zones.** Prior to final project design SDG&E shall perform a geologic/geotechnical study to confirm the location of mapped traces of active and potentially active faults crossed by the project route. For crossings of active faults, the project design shall be planned so as not to locate towers or other project structures on the traces of active faults and in addition project components shall be placed as far as feasible outside the areas of mapped fault traces. Compliance with this measure shall be documented to the CPUC and BLM in a report submitted for review and approval at least 60 days prior to the start of construction.

G-6a **Conduct geotechnical surveys for landslides and protect against slope instability.** The design-level geotechnical surveys conducted by the Applicant shall perform slope stability analyses in areas in areas of planned grading and excavation that cross and are immediately adjacent to hills and mountains. These surveys will acquire data that will allow identification of specific areas with the potential for unstable slopes, landslides, earth flows, and debris flows along the approved transmission line route and in other areas of ground disturbance, such as grading for access and spur roads. The investigations shall include an evaluation of subsurface conditions, identification of potential landslide hazards, and provide information for development of excavation plans and procedures. If the results of the geotechnical survey indicate the presence of unstable slopes at or adjacent to Proposed Project structures, appropriate support and protection measures shall be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction, and to minimize potential for damage to project facilities. These design measures shall include, but are not limited to, retaining walls, visquene, removal of unstable materials, and avoidance of highly unstable areas. SDG&E shall document compliance with this measure prior to the final project design by submitting a report to the CPUC for review and

approval at least 60 days before construction. The report shall document the investigations and detail the specific support and protection measures that will be implemented.

G-9a **Coordinate with quarry operations.** SDG&E shall coordinate with operations and management personnel, and with BLM, to determine status of and plans for active quarries adjacent to or crossed by project alignments. SDG&E shall develop a plan to avoid or minimize interference with mining operations in conjunction with mine/quarry operators prior to construction, and submit it for review and approval to the BLM and CPUC. If mine operators are out of compliance with BLM lease requirements, SDG&E shall coordinate with all parties to resolve the situation and shall demonstrate compliance with this measure prior to the start of construction by submitting the plan to the CPUC and BLM for review at least 60 days prior to the start of construction. If active mining areas require a reroute of the existing SWPL or the Interstate 8 Alternative route, SDG&E shall provide a detailed map documenting proposed new tower and access road location(s), as well as a summary of environmental impacts that would occur (biological and cultural resources surveys must be completed).

Socioeconomics, Services, and Utilities

S-2a **Notify public of utility service interruption.** Prior to construction in which a utility service interruption is known to be unavoidable, SDG&E shall notify members of the public affected by the planned outage by mail of the impending interruption, and shall post flyers informing the public of the service interruption in neighborhoods affected by the planned outage. Copies of notices and dates of public notification shall be provided to the CPUC and BLM.

S-2b **Protect underground utilities.** Prior to construction of the underground transmission line, SDG&E shall submit to the CPUC and BLM written documentation, including evidence of review by the appropriate jurisdictions, including the following:

- Construction plans designed to protect existing utilities and showing the dimensions and location of the finalized alignment
- Records that the Applicant provided the plans to affected jurisdiction for review, revision and final approval
- Evidence that the project meets all necessary local requirements
- Evidence of compliance with design standards
- Copies of any necessary permits, agreements, or conditions of approval
- Records of any discretionary decisions made by the appropriate agencies.

S-3a **Recycle construction waste**. To comply with the Integrated Waste Management Act of 1989, during project construction SDG&E and/or its construction contractor shall recycle a minimum of 50 percent of the waste generated during construction activities. In unincorporated San Diego County, to comply with the construction and demolition debris ordinance, SDG&E and/or its construction contractor shall recycle a minimum of 90 percent of inerts and 70 percent of all other materials, and submit all applicable plans and documentation. Following the completion of construction activities, SDG&E shall provide the CPUC and BLM with documentation from the recycling and landfill facilities used to show that the amount of waste recycled was 50 percent or more in Imperial Valley and incorporated San Diego County, and 90 percent of inerts and 70 percent of all other materials in unincorporated San Diego County.

S-3b **Use reclaimed water.** To the extent feasible, SDG&E shall coordinate with local water districts in advance in order to efficiently obtain reclaimed or potable water for delivery to the

construction sites and to meet any restrictions imposed by them. The Applicant shall provide a letter describing the availability of reclaimed water and efforts made to obtain it for use during construction to the CPUC and BLM a minimum of 60 days prior to the start of construction.

Fire and Fuels Management

F-1a **Develop and implement a Construction Fire Prevention Plan**. SDG&E shall develop a multi-agency Construction Fire Prevention Plan for the SRPL and monitor construction activities to ensure implementation and effectiveness of the plan. Plan reviewers shall include: CPUC, CAL FIRE, San Diego and Imperial Counties, BLM, CNF, and City fire agencies. SDG&E shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of any construction activities. Comments on the Plan shall be provided by SDG&E to all other participants, and SDG&E shall resolve each comment in consultation with CAL FIRE. The final Plan shall be approved by CAL FIRE at least 30 days prior to the initiation of construction activities. SDG&E shall fully implement the Plan during all construction and maintenance activities

All construction work on the SRPL shall follow the Construction Fire Prevention Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the SRPL. Primary Plan implementation responsibility shall remain with SDG&E.

At a minimum, Plan contents shall include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" (Refer to Section D.15.3), all components of the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) in Appendix 3D, and the elements listed below:

- During the construction phase of the project, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, State, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods.
- Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), SDG&E shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CPUC, BLM, and to State and federal fire agencies.
- During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), and when the USFS Project Activity Level (PAL) is Very High on CNF (as appropriate), all construction and maintenance activities shall cease. Exception for transmission line testing: A transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel shall be informed of changes to the Red Flag event status and PAL as stipulated by CAL FIRE and CNF.
- All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. All fires shall be reported to the fire agencies with jurisdiction in the project area immediately upon ignition.
- Each crew member shall be trained in fire prevention, initial attack firefighting, and fire reporting. Each member shall carry at all times a laminated card listing pertinent

telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect.

- Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. Each crew member shall at all times be within 100 yards of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Plan.

F-1b Amend and implement Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007). The draft SDG&E Plan and final Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007) are presented in Appendix 3D. The Amended Plan shall, at a minimum, include all of the provisions of the Final Plan and the Construction Fire Plan (per Mitigation Measure F-1a). The plan shall be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. SDG&E shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the Proposed Project: CPUC, BLM, U.S. Forest Service, and ABDSP, and shall submit the Plan (with agency comments incorporated) for review and approval by Cal Fire at least 90 days prior to energizing the Proposed Project.

F-1c Ensure coordination for emergency fire suppression. SDG&E shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with fire agencies.

Onsite SDG&E and contracted personnel shall coordinate fire suppression activities through the active Fire Incident Commander, and emergency ingress and egress to construction-related access roads shall remain unobstructed at all times.

Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. SDG&E shall contact CAL FIRE and CNF dispatch two days prior to helicopter use and shall provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA and CNF lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from the CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by SDG&E shall immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.

F-1d Remove hazards from the work area. The Applicant shall clear dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission right-of-way (ROW), construction laydown areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

F-1e Contribute to defensible space grants fund. SDG&E shall contribute an annual sum to a fund that shall be distributed as homeowner grants for the creation of defensible space around homes, to promote compliance with PRC 4291, and to facilitate firefighting efforts and reduce structure damage from wildfires potentially ignited by the transmission line. The dollar value of the

contribution is set forth in Table D.15-25. Grants from the fund shall be distributed to those homeowners at highest risk of sustaining structure damage from an ignition related to the transmission line, as demonstrated by the Fire Behavior Trend Model results. Grants may alternatively be used toward retrofitting rooftops with fire-proof materials, fire shutters, double pane windows, cave boxing, removal of attic vents and/or installation of alternatives, automatic or remotely-operated water sprinklers and automatic or remotely-operated generator-supported water systems, and removal or replacement of wood fencing and decks with fire-resistant materials, at the discretion of the homeowner and under advisement by the agencies. The mechanism for grants distribution shall be determined through agency negotiations and detailed in the Memorandum of Understanding (Mitigation Measure F-3b).

Table D.15-25. Mitigation Measure F-1e Compliance Contributions

Segment Identification	Homes at Risk	Annual Contribution Per Home	Total Annual Contribution for 2008 (USD)
Final Environmentally Superior Southern Route Alternative	1,300	$2,000	$2,600,000

a To be determined through Fire Behavior Trend Modeling Analyses that shall be performed by SDG&E should any of these future routes be constructed.

b No additional homes would be placed at risk should this alternative be selected in addition to the primary route to which this alternative would connect.

F-2a **Establish and maintain adequate line clearances.** The Applicant shall establish adequate conductor clearances prior to energizing the project by removing all vegetation from within 15 radial feet of new and relocated overhead 69 kV, 230 kV, and 500 kV conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW, except where the transmission line spans a canyon. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than six (6) inches.

During the life of the project, the Applicant shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times.

Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.

F-2b **Install existing conductors on steel poles.** Where construction of the Proposed Project or an alternative would result in the relocation of existing 69 kV transmission lines, these lines shall be relocated onto non-specular steel poles using vertical conductor construction. Also, all existing 69 kV or distribution lines with poles located within 100 feet of the Proposed Project or alternative shall be reconstructed so the existing conductors are on non-specular steel poles using vertical conductor construction to eliminate pole combustion hazard potential, increase wind loading capacity, and reduce mid-line slap ignition potential. Steel poles shall be finished to give the appearance of wood poles. This measure shall not apply to conductors that would be underbuilt on steel poles or lattice towers or installed underground. The vertical conductor construction

requirement shall not apply to isolated towers that would be adjacent to existing structures with horizontal conductor construction, and shall apply to sets of four or more sequential towers.

F-2c **Perform climbing inspections.** The Applicant shall perform climbing inspections on 10 percent of project structures annually, such that every project structure has been climbed and inspected at the end of a 10-year period, for the life of the project. In addition, the applicant shall keep a detailed inspection log of climbing inspections, and any potential structural weaknesses or imminent component failures shall be acted upon immediately. The inspection log shall be submitted to CPUC for review on an annual basis.

F-3a **Contribute to Powerline Firefighting Mitigation Fund.** The Applicant shall contribute an annual sum to local, State, and federal fire protection districts in the project vicinity through the mechanism of a new Powerline Firefighting Mitigation Fund, which shall be organized and carried out by SDG&E, and shall be subject to the oversight of the CPUC for the life of the Fund. Funding shall be used toward fire prevention measures and protection equipment and services, as appropriate to each jurisdiction. An increase in funding for fire prevention and suppression services and equipment will increase the probability of a fire being successfully contained, especially during normal weather conditions, and will therefore partially mitigate the significant barrier the transmission line poses to firefighting operations. The annual sum shall be based on an equivalent fuelbreak mitigation (presented as Mitigation Measure F-3a in the Draft EIR/EIS), which is an alternative means of partially mitigating the significant effect that the presence of the transmission line on firefighting operations, but which would be jurisdictionally infeasible. This shall be $1,000 per acre for the first year plus $250 per acre for each subsequent year for the life of the project, based on the number of miles of Wildfire Containment Conflict listed in Table D.15-26. Should CAL FIRE wish to take over administrative authority for the Powerline Firefighting Mitigation Fund, an administrative transfer shall not be in violation of Mitigation Measure F-3a.

Table D.15-26. Mitigation Measure F-3a Compliance Locations

Segment Identification	Location of Significant Conflict	Length of Significant Conflict (miles)	Area of Significant Conflict (acres)
Final Environmentally Superior Southern Route Alternative	MRD 11-13, MRD 23-26.5, and MP just before 131-133	6.5	236

F-3b **Prepare and implement a Multi-agency Fire Prevention MOU**. A Memorandum of Understanding (MOU) for the SRPL shall be created and implemented between SDG&E and the CAL FIRE San Diego Unit, Cleveland National Forest, and other agencies as appropriate using the existing Southwest Powerlink MOU as a template. The MOU shall be adopted prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU shall integrate the following components of the utility fire plan with existing agency fire plans: fire prevention, firefighter safety, emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate. Financial commitments of each participating organization to pre-fire planning, preparedness, and prevention programs shall be stipulated in the MOU. The MOU shall stipulate the mechanism for defensible space grants distribution (Mitigation Measure F-1e). This MOU shall be periodically reviewed and updated at a minimum of once every five years to accommodate changes in regulations and environmental conditions. A

community education and outreach program on the fire prevention plans and practices implemented by the MOU shall be adopted.

A key element of the MOU shall be ensuring immediate transmission line de-energizing during fire emergencies and ensuring adequate and immediate communication to fire agencies of line de-energizing. SDG&E shall provide all appropriate local, State, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1,000 feet of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification of all fire agencies.

APPENDIX A: Mitigation Measures

Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) were identified by SDG&E in its Proponent's Environmental Assessment submitted to the CPUC. The impact analysis assumes that all APMs would be implemented as defined in the table.

APPENDIX A: Mitigation Measures

Applicant Proposed Measures

APM No.	Description
	AIR QUALITY
AQ-APM-1	For activities in Imperial County, the project will comply with ICAPCD Rule 800 (Fugitive Dust Requirement for Control of Fine Particulate Matter [PM10]). A Dust Control Plan for construction activities would be filed with the ICAPCD.
AQ-APM-2	1. Prohibit construction grading on days when the wind gusts exceed 25 mph to the extent feasible to control fugitive dust. 2. All trucks hauling soil and other loose material will be covered or maintain at least two feet of freeboard. 3. Snow fence-type windbreaks will be erected in areas identified as needed by SDG&E. 4. Vehicle speeds will be limited to 15 mph on unpaved (no gravel or similar surfacing material) roads. 5. Unpaved roads will be treated by watering as necessary. 6. Soil stabilizers will be applied to inactive construction areas on an as-needed basis. 7. Exposed stockpiles of soil and other excavated materials will be contained within perimeter silt fencing, watered or treated with soil binders, as necessary.
AQ-APM-3	To minimize mud and dust from being transported onto paved roadway surfaces, pave, gravel, use rattle plates or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface. SDG&E will implement this measure where applicable and not conflicting with other requirements.
AQ-APM-4	If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the project's construction schedule.
AQ-APM-5	To the extent feasible, unnecessary construction vehicle and idling time will be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as a part of pre-construction conferences. Those briefings will include discussion of a "common sense" to vehicle use.
	BIOLOGICAL RESOURCES
BIO-APM-1	SDG&E would perform any detailed on-the-ground protocol surveys, with regard to specific sensitive plant or wildlife species whose habitat would be impacted by the project based on final design, in accordance with state or federal regulations or statutes. SDG&E would submit results of these surveys to the USFWS and CDFG and consult on reasonable and feasible mitigation measures for potential impacts, prior to any ground disturbing activities in a particular area. Mitigation would prioritize avoidance as the primary means to address impacts. If avoidance is not feasible, then relocation/restoration would be implemented. Where relocation/restoration is not feasible or deemed not to fully address impacts, then mitigation through SDG&E's NCCP mitigation credits or if necessary compensation via another on- or off-site purchase or dedication of habitat at a ratio of 2:1 for impacts inside preserves and 1:1 for impacts outside of preserves would be identified and implemented.
BIO-APM-2	Prior to construction, all SDG&E's contractors, subcontractors and project personnel would receive training regarding the appropriate work practices necessary to effectively implement the biological APMs and to comply with the applicable environmental laws and regulations including appropriate wildlife avoidance, and impact minimization procedures, the importance of these resources and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources.

Applicant Proposed Measures

APM No.	Description
BIO-APM-3	Except when not feasible due to physical or safety constraints, all project vehicle movement would be restricted to existing access roads and access roads constructed as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads. New access road construction for the project would be allowed year-round. However, when feasible, every effort would be made to avoid constructing roads during the nesting season. When it is not feasible to keep vehicles on existing access roads or to avoid constructing new access roads during the nesting, breeding, or flight season, SDG&E would perform a site survey, or more as appropriate, in the area where the work is to occur. This survey would be performed to determine presence or absence of endangered nesting birds, or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable mitigation measures to avoid or minimize for potential impacts, prior to vehicle use off existing access roads or the construction of new access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys otherwise required by BIO-APM-1. Parking or driving underneath oak trees is not allowed in order to protect root structures. In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation, and other construction activities which could interfere with plant photosynthesis, a 15 miles per hour speed limit shall be observed on dirt access roads to reduce dust and allow reptiles and small mammals to disperse.
BIO-APM-4	The area limits of project construction and survey activities would be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings, with activity restricted to and confined within those limits. Survey personnel shall keep survey vehicles on existing roads. During project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat would require prior approval from the project biological resource monitor in conformance with the APMs. Hiking off roads or paths for survey data collection is allowed year-round as long as other APMs are met. Stringing of new wire and reconductoring for the project would be allowed year round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on project access roads. Where stringing requires that conductor drop within brush of drag on or through the brush or ground or vehicles leave project access roads, SDG&E would perform a site survey, or more as appropriate, to determine presence or absence of endangered nesting birds or other endangered species in the work area. SDG&E would submit results of this survey to the USFWS and CDFG and consult on reasonable and feasible mitigation measures for potential impacts, prior to dropping wire in brush, dragging wire on the ground or through brush, or taking vehicles off project access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive biological resources or wildlife habitats are encountered in the field.
BIO-APM-5	To the extent feasible, access roads would be built at right angles to the streambeds and washes. Where it is not feasible for access roads to cross at right angles, SDG&E would limit roads constructed parallel to streambeds or washes to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on “waters of the U.S.” or waters of the state. Streambed crossings and roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB. Culverts would be installed where needed for right angle crossings, but rock crossings would be utilized across most right angle drainage crossings. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels and stream banks (e.g., structures would not be located within a stream channel, construction activities would avoid sensitive features). Prior to construction in streambeds and washes, SDG&E would perform a pre-activity survey, or more as appropriate, to determine the presence or absence of endangered riparian species. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by the BIO-APM-1.
BIO-APM-6	In the construction, operation, and maintenance of the project, SDG&E would comply with all applicable environmental laws and regulations, including, without limitation, those regulating and protecting wildlife and its habitat.
BIO-APM-7	Littering is not allowed. project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris would remain in the right-of-way following completion of construction.

APPENDIX A: Mitigation Measures

Applicant Proposed Measures

APM No.	Description
BIO-APM-8	Prior to construction, the boundaries of plant populations designated as sensitive by USFWS or CDFG and other resources designated sensitive by SDG&E and the resource agencies would be clearly delineated with clearly visible flagging or fencing. The flagging and fencing shall remain in place for the duration of construction. Flagged areas would be avoided to the extent practicable during construction activities in that area. Where these areas cannot be avoided, focused surveys for covered plant species shall be performed in conformance with BIO-APM-1, and the responsible resource agency(s) would be consulted for appropriate mitigation and/or re-vegetation measures prior to disturbance. Notification of the presence of any covered plant species to be removed in the work area would occur within ten (10) working days prior to the project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS nor CDFG has removed such plant(s) within the ten (10) working days following the written notice, SDG&E may proceed with the work and cause a take of such plant(s), if minimization measures are not implemented.
BIO-APM-9	Brush clearing around any project facilities (e.g., structures, substations) for fire protection, visual inspection or project surveying, in areas which have been previously cleared or maintained within a two-year or shorter period shall not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing shall not be conducted during the breeding season (March through August) without a pre-activity survey for vegetation containing active nests, burrows, or dens. The pre-activity survey performed by the on-site biological resource monitor would make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work would be avoided until after the nesting season, or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance-level survey, soil in the brush clearing area would be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.
BIO-APM-10	No wildlife, including rattlesnakes, may be harmed except to protect life and limb. Firearms shall be prohibited in all project areas except for those used by security personnel.
BIO-APM-11	Feeding of wildlife is not allowed.
BIO-APM-12	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations.
BIO-APM-13	Plant or wildlife species may not be collected for pets or any other reason.
BIO-APM-14	All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife is located in the trench or excavation, the on-site biological resource monitor shall be called immediately to remove them if they cannot escape unimpeded. The on-site biological resource monitor would make the required contacts with the USFWS and CDFG resource personnel and obtain verbal approval prior to removing any entrapped wildlife. If the biological resource monitor is not qualified to remove the entrapped wildlife, a recognized wildlife rescue agency (such as Project Wildlife) may be employed to remove the wildlife and transport them safely to other suitable habitats.
BIO-APM-15	Emergency repairs may be required during the construction and maintenance of the project to address situations (e.g., downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs the APMs shall be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage would be reported to the project biological construction monitor, who would promptly submit a written report of such impacts to the USFWS and CDFG and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological construction monitor would develop a reasonable and feasible mitigation plan consistent with the APMs and any permits previously issued for the project by the governmental agencies.

Applicant Proposed Measures

APM No.	Description
BIO-APM-16	Environmentally sensitive tree trimming locations for the project would be identified in SDG&E's existing vegetation management tree trim database utilized by tree trim contractors. The biological field construction monitor shall be contacted prior to trimming in environmentally sensitive areas. Whenever feasible, trees in environmentally sensitive areas, such as areas of riparian or native scrub vegetation, would be scheduled for trimming during non-sensitive (i.e., outside breeding or nesting) times. Where trees cannot be trimmed during non-sensitive times, SDG&E would perform a site survey, or more as appropriate, to determine presence or absence of endangered nesting bird species in riparian or native scrub vegetation. SDG&E would submit results of this survey to the USFWS and CDFG and consult on mitigation measures for potential impacts, prior to tree trimming in environmentally sensitive areas. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. Where riparian areas with over-story vegetation are crossed, tree removal (i.e., clear-cut) widths would be varied where feasible to minimize visual landscape contrast and to maintain habitat diversity at established wildlife corridor edges. Where tree removal widths cannot be varied, SDG&E would consult with the USFWS and CDFG to develop alternative tree removal options that could reasonably maintain edge diversity.
BIO-APM-17	All new access roads or spur roads constructed as part of the project that are not required as permanent access for future project maintenance and operation would be permanently closed. Where required, roads would be permanently closed using the most effective feasible and least environmentally damaging methods appropriate to that area with the concurrence of the underlying landowner and the governmental agency having jurisdiction (e.g., stockpiling and replacing topsoil or rock replacement). This would limit new or improved accessibility into the area. Mowing of vegetation can be an effective method for protecting the vegetative understory while at the same time creating access to the work area. Mowing should be used when permanent access is not required since, with time, total re-vegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing would be necessary to maintain permanent access. The project biological construction monitor shall conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 14-foot-wide area on straight portions of the road and a 16- to 20-foot-wide area at turns, and that the mowing height is no less than 4 inches from finished grade.
BIO-APM-18	In areas designated as sensitive by SDG&E or the resource agencies, to the extent feasible structures and access roads would be designed to minimize impacts to sensitive features. These areas of sensitive features include but are not limited to high-value wildlife habitats, sensitive vegetation communities, and high value plant habitats, and/or to allow conductors to clearly span the features, within limits of standard structure design. If the sensitive features cannot be completely avoided, structures and access roads would be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in high value wildlife habitats, SDG&E would perform a site survey to determine presence or absence of endangered species in sensitive habitats. SDG&E would submit results of this survey to the USFWS and consult on mitigation measures for potential impacts, prior to constructing structures or access roads. However, this survey would not replace the need for SDG&E to perform detailed on-the-ground surveys as otherwise required by BIO-APM-1. Where it is not feasible for access roads to avoid sensitive water resource features, such as streambed crossings, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, roads constructed parallel to streambeds would be limited to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and RWQCB.
BIO-APM-19	Restoration and habitat enhancement and mitigation measures developed during the consultation period with the BLM under Section 7 of the Endangered Species Act (ESA) would be implemented and complied with as specified in the Biological Opinion (BO) of the USFWS. The Section 7 process would be used to obtain an incidental take authorization through a compensation-based mitigation program for permanent impacts to occupied sensitive plant and animal habitat at a ratio of 1:1 or 2:1 based on site-specific studies, as outlined in BIO-APM-1. The Section 7 process may include consideration of SDG&E's existing NCCP mitigation credits as compensation for project impacts.
BIO-APM-20	In construction areas where re-contouring is not required, vegetation shall be left in place wherever possible to avoid excessive root damage and allow for re-sprouting.
BIO-APM-21	Structures shall be constructed to conform to "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, Inc. 1981), to minimize impacts to raptors.

Applicant Proposed Measures

APM No.	Description
BIO-APM-22	Species identified as sensitive by the land managing agency shall be salvaged where avoidance is not feasible in accordance with state law. Generally, salvage may include: • removal and stockpiling for replanting on site, • removal and transplanting out of surface disturbance area, • removal and salvage by private individuals, • removal and salvage by commercial dealers, or • any combination of the above.
BIO-APM-23	Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil located in areas containing sensitive habitat shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation. Topsoil located in developed or disturbed areas is excluded from this APM.
BIO-APM-24	Construction holes left open over night shall be covered. Covers shall be secured in place nightly, prior to workers leaving the site, and shall be strong enough to prevent livestock or wildlife from falling through and into a hole. Holes and/or trenches shall be inspected prior to filling to ensure absence of mammals and reptiles.
BIO-APM-25	Disturbed soils shall be re-vegetated with an appropriate seed mix that does not contain invasive, non-native plant species.
BIO-APM-26	Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles.
BIO-APM-27	1. Prior to construction, SDG&E shall remove all existing raptor nests from structures that would be affected by project construction. 2. Removal of nests shall occur outside the raptor breeding season (January to July). 3. If it is necessary to remove an existing raptor nest during the breeding season, a qualified biologist shall survey the nest prior to removal to determine if the nest is active. A nest would be considered active if it contains eggs or fledglings. If the nest does not contain eggs or nestlings and is inactive, it shall be removed promptly. If a nest is determined to be active, the nest shall not be removed and the biologist shall monitor the nest to ensure nesting activities/breeding activities are not disrupted. If the biological monitor determines that project activities are disturbing or disrupting nesting activities, the monitor shall make feasible recommendations to reduce the noise and/or disturbance in the vicinity of the nest.
BIO-APM-28	Potential roost trees that must be removed will be surveyed and identified in the field for application of the following procedures: *Before felling the tree:* 1. Trees should be removed under the warmest possible conditions. 2. Peel any sections of the exfoliating bark off the tree gently and search for any roosting bats underneath. 3. Create noise and vibrations on the tree itself. Noise and vibrations include: a. Running chain saw and making shallow cuts in the trunk (where bark has been peeled off). b. Striking the tree base with fallen limbs or tools such as hammers. *Felling the tree:* 4. Disturbance should be near-continuous for ten minutes, and then another ten minutes should pass, before the tree is felled. 5. When cutting sections of the bole, if any hollows or cavities (such as woodpecker holes) are discovered, be especially careful to check for the presence of bats in those areas. Cut slowly and carefully at all times. If possible, section bole near cavities to focus noise and vibrations, and open hollows by sectioning off a side.
BIO-APM-29	Reduce construction night lighting on sensitive habitats. Exterior lighting within the project area adjacent to preserved habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable. Vehicle traffic associated with project activities would be kept to a minimum volume and speed to prevent mortality of nocturnal wildlife species that may be moving about.
	CULTURAL RESOURCES
CR-APM-1	Prior to construction, construction personnel shall be instructed on the protection and avoidance of cultural resources. To assist in this effort, the construction contract will address state and federal laws regarding antiquities, fossils, and plants and wildlife, including the collection and removal, as well as the importance of these resources and the purpose and necessity of protecting them.

APPENDIX A: Mitigation Measures

Applicant Proposed Measures

APM No.	Description
CR-APM-2	Archeological sites that are eligible or potentially eligible for the National Register will be flagged in the field and spanned or otherwise avoided through routing during construction activities to the extent feasible. Impact avoidance and APMs for cultural resources developed in consultation with appropriate land managing and regulatory (e.g., park personnel and State Historic Preservation Office) and other interested parties will be implemented prior to and during construction.
CR-APM-3	Any previously unidentified cultural resource (historic or prehistoric site or object) discovered by SDG&E or any person working on its behalf during construction on public or park land shall be immediately reported to the appropriate land manager or authorized park officer within 24 hours of discovery. Operations in the immediate area of the discovery shall be suspended until authorization to proceed is issued by the appropriate land manager or authorized park officer. An evaluation of the discovery will be made by the appropriate land manager, authorized park officer or SDG&E in consultation with the former to determine appropriate actions to prevent the loss of significant cultural or scientific values. SDG&E shall be responsible for the cost of evaluation. SDG&E will develop a treatment plan to mitigate the impacts.
CR-APM-4	SDG&E will conduct maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, and reconstruction of a historical resource in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995 – Weeks and Grimmer).
CR-APM-5	SDG&E will use the following as guidance in the implementation of the project: 1. Preservation in-place is the preferred manner of mitigating impacts to archaeological sites. Preservation in-place maintains the relationship between the artifacts and the archaeological context to the extent feasible. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. 2. Preservation in-place may be accomplished by, but is not limited to, the following: a. planning construction to avoid archaeological sites; or b. incorporation of sites within parks, green space, or other open space; or c. deeding the site into a permanent conservation easement. 3. When data recovery through excavation is the only feasible mitigation, a data recovery plan which makes provisions for adequately recovering the scientifically consequential information from and about the historical resources shall be prepared and adopted prior to any excavation being undertaken. Such study shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5, Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be appropriate. 4. Data recovery shall not be required for an historical resource if the lead agency through discussion and consultation with Indian Tribes, professional archaeologists and SHPO determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.
CR-APM-6	1. Historic property will be avoided and fenced or barricaded for protection. 2. Contributing portions and sensitive features of the historic property will be avoided and fenced or barricaded for protection. 3. If historic property cannot be avoided, an approved plan for recordation, relocation, or data recovery will be implemented. Recordation of buildings or structures may include Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) documentation.

Applicant Proposed Measures

APM No.	Description
CR-APM-7	1. Erosion, sedimentation, or indirect displacement that could indirectly deteriorate historic property will be controlled by limitation of activities near property, stabilization of sediments or structures, and erosion control. 2. Protective measures will be implemented to minimize erosion and prevent invasion by aggressive weeds near historic property. 3. Control measures will be implemented to minimize vibration, dust, or fumes affecting property. 4. Protective barriers or materials will be used to minimize the effects of vibration, dust, fumes, or changes in vegetation. 5. Buildings or structures will be stabilized or rehabilitated to minimize deterioration that might be accelerated by construction or operations. 6. If deterioration cannot be avoided, SDG&E will implement an approved plan for recordation, relocation, or data recovery.
CR-APM-8	1. In addition to the historic property itself, those elements of the landscape that are essential to the historic setting of the property will be avoided and protected to the extent feasible. 2. The location, appearance, or operational procedures of the undertaking will be modified to minimize intrusion on the historic setting (e.g., qualifications on height, color, emissions, or operational noise levels).
CR-APM-9	1. Permanent fencing or barriers will be installed, or access to the historic property will be controlled as deemed appropriate by the relevant agencies. 2. Use of access for construction or operation will be restricted. 3. Construction and maintenance personnel will be instructed in protection of sensitive properties.
CR-APM-10	1. Project structures will be located so that conductors span linear historic property to the extent feasible. 2. Pipelines or conductors, placed underground, will bore under linear property to avoid disturbance or intrusion.
CR-APM-11	SDG&E would implement its standard practices for cultural and paleontological resources on private lands (see Appendix D).
CR-APM-12	SDG&E will conduct cultural surveys for staging areas that have not yet been identified.
	GEOLOGY, SOILS, AND PALEONTOLOGY
GEO-APM-1	No widening or upgrading of existing access roads will be undertaken where soils are very sensitive to disturbance, except repairs, widening or upgrades necessary to make roads passable.
GEO-APM-2	1. Vehicle and construction equipment use will be restricted to access roads and areas in the immediate vicinity of construction work sites to help reduce soil disturbance. 2. In agricultural areas, topsoil would be left in roughened condition. 3. When practical, construction activities will be avoided on wet soil to reduce the potential for soil compaction, rutting, and loss of soil productivity. 4. Disturbed areas will be returned to their pre-construction contours. Revegetation and monitoring for vegetative success will follow the guidelines outlined in Mitigation Measure B-1a (Provide restoration/ compensation for affected sensitive vegetation communities). 5. Affected landowners having property directly impacted by the project will be compensated to disc or till soil upon construction completion. 6. Construction of access roads in inaccessible terrain will be reduced by using helicopters to place structures in select locations.
GEO-APM-3	Structure placement in areas of high shrink/swell potential will be avoided where possible.
GEO-APM-4	Structures will be placed in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock, etc.
GEO-APM-5	Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Maintenance of cut and fill slopes created by project construction activities would consist primarily of erosion repair. Where re-vegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix would be done on slopes.

Applicant Proposed Measures

APM No.	Description
GEO-APM-6	In areas where ground disturbance is substantial or where re-contouring is required (e.g., marshaling yards, tower sites, spur roads from existing access roads), surface restoration will occur as necessary for erosion control and re-vegetation. The method of restoration will normally consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Potential for erosion will be minimized on access roads and other locations primarily with water bars. The water bars will be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or re-contouring shall be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. Cleared vegetation can be hauled off-site to a permitted disposal location, or may be chipped or shredded to an appropriate size and spread in disturbed areas of the ROW with the approval of the biological monitor. To limit impact to existing vegetation, appropriately sized equipment (e.g., bulldozers, scrapers, backhoes, bucket-loaders, etc.) will be used during all ground disturbance and re-contouring activities.
GEO-APM-8	During construction, SDG&E would remove or stabilize boulders uphill of structures that pose potentially high risk of landslide damage to those structures and would position structures to span over potential landslide areas to the greatest extent feasible.
GEO-APM-9	If paleontological resources are encountered, appropriate field mitigation efforts would be implemented to protect the resources. For example, if significant resources are discovered, such as vertebrate fossils, construction would be stopped in the immediate area of the find while SDG&E and its designated paleontologist determine the appropriate method and schedule to recover or protect the resource. However, work may continue in areas outside the immediate area of the find with the approval of the paleontologist. When it is not feasible to avoid paleontological sites, SDG&E would consult with the appropriate federal, state, and resource agencies and specialists to either develop alternative construction techniques to avoid paleontological resources or develop appropriate APMs. Appropriate mitigation field measures may include actions such as protection-in-place by covering with earthen fill, removal and cataloguing, and/or removal and relocation.
	LAND USE AND AGRICULTURAL RESOURCES
LU-APM-1	SDG&E will provide advance notice to residents, property owners, and tenants within 300 feet of construction activities and will appoint a public affairs officer to address public concerns or questions.
LU-APM-2	Place new transmission structures more than 330 feet from an existing residence to the extent feasible.
LU-APM-3	1. Farmers will be compensated for losses of crops along ROW based upon a professional appraisal. 2. Construction activities in croplands will be scheduled to minimize or avoid planting, growing, and harvesting seasons to the extent feasible.
LU-APM-4	To facilitate access to properties obstructed by construction activities, SDG&E will notify property owners and tenants in advance of construction activities. Provide alternative access if feasible.
LU-APM-5	To remedy encroachment and safety conflicts with irrigation canals and flood management structures during construction, SDG&E will coordinate construction activities with appropriate water management representatives.
LU-APM-6	The limits of construction activities within and outside the ROW will typically be predetermined, with activity restricted to and confined within those limits. The ROW boundary and limits of construction activity inside and outside the ROW will be flagged in environmentally sensitive areas to alert construction personnel that those areas should be minimize or avoided.
LU-APM-7	To the extent feasible, project facilities would be installed along the edges or borders of private property, open space parks, and recreation areas. When it is not feasible to locate project facilities along property borders, SDG&E would consult with affected property owners to identify facility locations that create the least potential impact to property and are mutually acceptable to property owners to the extent feasible. SDG&E would pay just compensation to affected property owners based upon the impact to the property caused by the facility locations identified by SDG&E.
LU-APM-8	SDG&E will continue its current coordination efforts with the Counties of Imperial and San Diego General Plan Updates and the City of San Diego General Plan Updates to include the Proposed Project in their respective General Plans.
LU-APM-9	SDG&E would obtain all necessary and/or appropriate ministerial land use permits.
LU-APM-10	SDG&E will match structure locations with existing transmission facilities where feasible and appropriate.
	NOISE AND VIBRATION

Applicant Proposed Measures

APM No.	Description
NOI-APM-1	Provide notice prior to construction by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. SDG&E would identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents, about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person would be included in the above notices. SDG&E would also establish a toll free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers.
NOI-APM-2	SDG&E will coordinate with ABDSP to minimize potential construction noise impacts at Tamarisk Grove campground during peak times of use.
	PUBLIC HEALTH AND SAFETY / HAZARDOUS MATERIALS
HS-APM-1	All personnel involved in using hazardous materials shall be trained in the proper use and safety procedures for the chemical and provided with the necessary Personal Protection Equipment (PPE). A Hazardous Communication (HAZCOM) Plan with Material Safety Data Sheets on all hazardous materials used for the project shall be developed.
HS-APM-2	Only personnel trained in refueling vehicles would be allowed to perform this operation. All refueling operation shall be in designated areas or preformed by assigned vehicles.
HS-APM-3	All applicable environmental safety plans associated with hazardous materials shall be developed for the project. These plans include but are not necessary limited to Hazardous Material Business (HMB) Plan; HAZCOM Plan; Spill Response Plan; 90-days temporary storage and disposal (TSD) facility permit; and Spill Prevention Control and Countermeasure (SPCC) Plan (only if storage is over 1,350 gallons at one location).
HS-APM-4	SDG&E will develop a site specific blasting plan blasting of tower footing is required. A California licensed Blasting Contractor shall be used for all blasting operation.
HS-APM-5	All Government Code §65962.5 sites or other known contamination sites along the transmission line ROW or such sites that would affect construction work shall be investigated to determine potential impacts to the project.
HS-APM-6	An Unexploded Ordinance (UXO) investigation of known and potential areas used by the military along the ROW shall be undertaken by a trained contractor. If UXO are found, they shall be removed by trained personnel.
HS-APM-7	All personnel involved in excavation and grading or for ROW clearing shall be trained to recognized UXO and/or potential soil, surface water, and groundwater potential contamination sites.
HS-APM-8	SDG&E will assign Environmental Field Representative and/or General Contractor assigned Health & Safety Office to the project.
HS-APM-9	SDG&E will contact airport representative and/or Federal Aviation Administration Authorities regarding work within all existing and proposed transmission line corridors within 2 miles of an airport.
HS-APM-10	All hazardous waste and solid waste shall be stored and disposed of in accordance with federal, State, and local regulations. Whenever feasible, hazardous material minimization methods shall be employed and all hazardous materials recycled.
HS-APM-11	SDG&E will develop project-specific Fire Prevention and Response Plan (FPRP), which will be developed and reviewed by pertinent regulatory authorities. A project Fire Marshal shall be assigned to enforce all provisions of the FPRP as well as performing all other duties related to fire prevention activities for the Proposed Project.
HS-APM-12	A Traffic Control Plan (TCP) shall be developed that addresses all roadway crossings that would be used by the project and could interfere with emergency vehicles.
HS-APM-14	All construction workers shall undergo environmental training regarding potential exposure in accordance with federal, State, or local regulations.
HS-APM-15	If during excavation soil or groundwater contamination is suspected (e.g., unusual soil discoloration or strong odor), the contractor or subcontractor shall immediately stop work and notify the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative.

Applicant Proposed Measures

APM No.	Description
HS-APM-16	If soil or groundwater contamination is suspected, work near the immediate excavation site shall be terminated, the work area cordoned off, and appropriate health and safety procedures implemented for the location by the General Contractor's assigned Health & Safety Officer and/or SDG&E's Field Environmental Representative. Preliminary samples of the soil, groundwater, or material shall be taken by an OSHA trained individual. These samples shall be sent to a California Certified Laboratory for characterization. Work outside the immediate excavation site may continue as determined by the General Contractor's assigned Health and Safety Officer and/or SDG&E's Field Environmental Representative.
HS-APM-17	If the sample testing determines that contamination is not present, work would be allowed to proceed at the immediate excavation site. However, if contamination is found above regulatory limits, the regulatory agency (e.g., RWQCB or CUPA) responsible for responding to and for providing environmental oversight of the region shall be notified in accordance with State or local regulations.
	PUBLIC SERVICES AND UTILITIES
PSU-APM-1	SDG&E has and will continue to coordinate with all utility providers with facilities located within or adjacent to the Proposed Project to ensure that design does not conflict with other facilities. In the event of a conflict, the project will be aligned vertically and/or horizontally as appropriate to avoid other utilities and provide adequate operational and safety buffering. Alternately, the other existing facilities may be relocated. Long-term operations and maintenance of the project will be negotiated through easement, purchased right-of-way, franchise agreement, or joint use agreement.
PSU-APM-2	Underground Service Alert would be notified a minimum of 48 hours in advance of earth-disturbing activities in order to identify any buried utility lines.
PSU-APM-3	SDG&E will coordinate construction schedules, lane closures, and other activities with installation of the project with emergency and police services to ensure that disruption to response times and access is minimized.
	RECREATION RESOURCES
R-APM-2a	Advance notice of restriction of conflicts with access routes to recreational use areas will be provided.
R-APM-2b	No construction that affects trail use will be conducted in that area on federal holidays.
R-APM-2c	SDG&E will coordinate all construction activities, including temporary trail closures, affecting the parklands and trail systems of San Diego and Imperial Counties with the counties' Parks and Recreation Department and the California State Parks Department (for ABDSP), respectively, before construction begins in these areas.
R-APM-2d	Signs directing vehicles to alternative park access and parking will be posted in the event construction temporarily obstructs parking areas near trailheads.
R-APM-2e	Signs advising recreation users of construction activities and directing them to alternative trails or bikeways will be posted on both sides of all trail intersections or as determined through SDG&E's coordination with the respective jurisdictional agencies.
R-APM-2f	Where helicopters are used for construction, signage advising equestrians of construction timeframes with helicopter use will be posted at all equestrian trail-access points within the vicinity of the flight paths. These signs will be checked and maintained regularly.
R-APM-3a	Construction-related traffic shall be restricted to routes approved by the authorized agencies. New access roads or cross-county vehicle travel will not be permitted on ABDSP or state lands unless prior written approval is given by the authorized ABDSP officer. Authorized roads used by the project shall be rehabilitated when construction activities are complete as coordinated with California State Parks.
	TRANSPORTATION AND TRAFFIC
T-APM-2a	Required permits for temporary lane closures will be obtained from the County of Imperial, County of San Diego, CALTRANS, and California State Parks (if applicable).
T-APM-2b	Detour plans will be submitted to the counties, CALTRANS, and/or California State Parks as part of the permit requirements. Within the ABDSP, a Right-of-Entry permit is required for any construction and maintenance activities that would occur outside of existing easements, including access roads (would not need ROE for access road maintenance if practical rights of ingress and egress are granted in easements). SDG&E will provide California State Parks a request in writing for maintenance or other earth-disturbing activities.

APPENDIX A: Mitigation Measures

Applicant Proposed Measures

APM No.	Description
T-APM-4a	SDG&E shall coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles. The counties and cities will then notify respective police, fire, ambulance and paramedic services. SDG&E shall notify counties and cities of the proposed locations, nature, timing, and duration of any construction activities and advised of any access restrictions that could impact their effectiveness.
T-APM-5a	SDG&E will consult with the Imperial County Office of Education, Borrego Springs Unified School District, Warner Unified School District, Julian Union School District, and the Julian Union High School District at least one month prior to construction to coordinate construction activities adjacent to school bus stops. If necessary, school bus stops will be temporarily relocated or buses will be rerouted until construction in the vicinity is complete. SDG&E will also consult with Imperial Valley Transit and the Metropolitan Transit System at least one month prior to construction to reduce potential interruption of transit services.
T-APM-6a	Parking is permissible on Imperial County-maintained roadways when vehicles are within 18 inches of the curb; or if no curb is present, vehicles must not be more than 18 inches away from the right-hand edge of the roadway's boundary. Vehicles must also be parallel to the roadway when parked, unless otherwise indicated. Parking is prohibited where signage indicates no parking. Parking shall comply within the County of Imperial ordinances whenever possible or as indicated in an approved traffic control plan.
T-APM-6b	Parking on San Diego County-maintained roads and highways is not permissible by law unless otherwise noted at specific locations. Parking is prohibited where signage and painted curbs indicates no parking. Where the project crosses major roadways, parking shall be prohibited in the project work area. Parking shall comply within the County of San Diego Department of Public Works Traffic Guidelines, 2001 whenever possible or as indicated in an approved traffic control plan.
T-APM-8a	Required permits for entering railroad right-of-way will be obtained from Union Pacific Railroad, San Diego & Arizona Eastern Railroad and the U.S. Gypsum Mine.
T-APM-9a	Eligible and Officially Designated Scenic Highways are located within Imperial and San Diego Counties. The California Public Utilities Code Section 320 requires that all new or relocated utility facilities within 1,000 feet of an Officially Designated Scenic Highway be undergrounded where feasible. SDG&E will bury all new or relocated utilities where feasible to avoid possible revocation of SR78 as an Officially Designated Scenic Highway within the ABDSP.
T-APM-10a	SDG&E or its construction contractor shall provide at all times the ability to quickly lay a temporary steel plate trench bridge upon request in order to ensure driveway access to businesses and residences, and shall provide continuous access to properties when not actively constructing the underground cable alignment.
	HYDROLOGY AND WATER QUALITY
WQ-APM-1	All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to riparian/wetland vegetation, drainage channels, and intermittent and perennial stream banks to the extent feasible.
WQ-APM-2	To the extent feasible, structures shall be placed so as to avoid sensitive features such as watercourses, or to allow conductors to clearly span the features, within limits of safety and standard structure design.
WQ-APM-3	Specific sites as identified by authorized agencies (e.g., fragile watersheds) where construction equipment and vehicles are not allowed shall be clearly marked on-site before any construction or surface disturbing activities begin. Construction personnel shall be trained to recognize these markers and understand the equipment movement restrictions involved.

Applicant Proposed Measures

APM No.	Description
WQ-APM-4	1. Adequate distance from stream banks and beds will be maintained during construction activities. 2. Construction activities will use existing bridges to cross major streams and culverts in most dry intermittent streams. 3. Surface water, riparian areas and floodplains will be spanned where feasible. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented. 5. Storm Water Best Management Practices (BMPs) for construction will be implemented per the requirements of the project's SWPPP. 6. Silt fencing, straw mulch, straw bale check dams would be installed as appropriate to contain sediment within construction work areas and staging areas. Where soils and slopes exhibit high erosion potential, erosion control blankets, matting, and other fabrics and/or other erosion control measures. 7. The potential for increased sediment loading will be minimized by limiting road improvements to those necessary for project construction, operation and maintenance. 8. Upland pull sites will be selected to minimize impacts to surface waters, riparian areas, wetlands and floodplains. 9. Structures will not be placed in streambeds or drainage channels to the extent feasible.
WQ-APM-5	Any stream crossings will be constructed at low flow periods and, if necessary, a site-specific mitigation and restoration plan would be developed.
WQ-APM-6	1. Designated surface water protection areas (source water) will be avoided. 2. There will be no diversions, detention, retention or consumption of surface waters for the project. 3. Prior to construction, interviews would take place with affected landowners regarding location of water supply wells located on their property. 4. SDG&E will negotiate with affected landowner to provide alternative water supplies in the event a supply well or springs dry up directly caused by project activities. Negotiation shall be by either a remedial cash payment to the landowner or by SDG&E contracting for the drilling of a replacement well.
WQ-APM-8	1. In no case will groundwater removed during construction be discharged to surface waters or storm drains without first obtaining any required permits. 2. If dewatering is necessary, the water will be contained and sampled to determine if contaminants requiring special disposal procedures are present. 3. If the water tests sufficiently clean and land application is determined feasible per applicable SWRCB and RWQCB requirements, the water would be directed to relatively flat upland areas for evaporation and infiltration back to the water table, used for dust control, or used as makeup for a construction process (e.g., concrete production). 4. Water determined to be unsuitable for land application or construction use would be disposed of in another appropriate manner, such as treatment and discharge to a sanitary sewer system in accordance with applicable permit requirements or hauled offsite to an approved disposal facility.
WQ-APM-9	Storage of fuels and hazardous materials will be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells.
WQ-APM-10	At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth shall be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project.
WQ-APM-11	Groundwater levels along the underground portion of the project will be tested by drilling pilot borings. The location, distribution, or frequency of such tests shall be determined to give adequate representation of the conditions. Locations where groundwater depth is less than eight feet below ground surface shall be identified prior to excavation activities and avoided, where possible. Avoidance is especially recommended where shallow groundwater flow direction is not parallel to the orientation of the alignment. Where avoidance is not possible, SDG&E shall consider constructing underground facilities in a shallower excavation, depending upon requirements of the underground method or existing underground facilities and other practical concerns. SDG&E shall document results of test drilling in a letter report to the CPUC construction starts and shall propose specific measures to minimize the impact on groundwater.

Applicant Proposed Measures

APM No.	Description
WQ-APM-13	Hazardous materials will not be disposed of onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment will be provided for trash. Petroleum products and other potentially hazardous materials would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. In the event of a release of hazardous materials to the ground, it will be promptly cleaned up in accordance with applicable regulations.
WQ-APM-14	Secure any required General Permit for Storm Water Discharges Associated with Construction Activity (NPDES permit) authorization from the State Water Resources Control Board and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP during construction to minimize hydrologic impacts.
WQ-APM-15	To the extent feasible, where the construction of access roads would disturb sensitive features such as streambeds, the route of the access road would be adjusted to avoid such impacts. Whenever practicable, construction and maintenance traffic would use existing roads or cross-country access routes (including the ROW) which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes will be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the appropriate agency or landowner before use. Where it is not feasible for access roads to avoid streambed crossings, such crossings would be built at right angles to the streambeds whenever feasible. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in such a manner that minimizes potential adverse impacts on waters of the U.S. or waters of the state. Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the ACOE, CDFG, and SWRCB/RWQCB.
WQ-APM-16	If sensitive water resource features contain riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands which cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with ACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., through creation or restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from the CDFG and/or consultation/approval with the ACOE and SWRCB/RWQCB. Where filling is required for new access, the installation of properly sized culverts and the use of geo-textile matting should be considered in the CDFG/ACOE consultation process.
	VISUAL RESOURCES
VR-APM-1	At highway, canyon, and trail crossings, structures shall be placed at the maximum feasible distance from the crossing to reduce visual impacts as long as other significant resources are not negatively affected.
VR-APM-2	SDG&E will use dulled metal finish transmission structures and non-specular conductors in visually sensitive areas including the ABDSP, new ROW in the Central Link and Peñasquitos Junction to Peñasquitos Substation in the Coastal Link.
VR-APM-3	Where the line parallels existing transmission lines, the spacing of structures shall match the existing transmission structures, where feasible, to minimize visual effects.
VR-APM-4	No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits.
VR-APM-5	Transmission line structures will not be installed directly in front of residences or in direct line-of-sight from a residence where possible. SDG&E will consult with affected property owners on structure siting to reduce land use and visual impacts.
VR-APM-6	In scenic view areas as designated by land management agencies, structures would be placed to avoid sensitive features and/or allow conductor to clearly span the features, within limits of standard design where possible.

Source: SDG&E PEA, 8/2006.

Attachment P

U.S. Forest Service Record of Decision

Sunrise Powerlink Transmission Project

Mitigation Monitoring, Compliance, and Reporting Program

California Public Utilities Commission
and
Bureau of Land Management
U.S. Department of Interior

November 2009

[TO BE ADDED WHEN PUBLISHED]