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RIVERSIDE TRANSMISSION RELIABILITY PROJECT

Biological Resources Technical Report

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Biological Resources Technical Report

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TABLE OF CONTENTS

APPENDICES

TABLES

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

In 2004, pursuant to Southern California Edison's (SCE) Federal Energy Regulatory Commission (FERC)-approved Transmission Owner (TO) Tariff, Riverside Public Utilities (RPU) submitted a request for SCE to provide additional transmission capacity to meet projected load growth and to provide for system reliability. SCE determined that in order to meet RPU's request, SCE should expand its regional electrical system to provide RPU a second source of transmission capacity to import bulk electric power. This would be accomplished by creation of a new SCE 230 kilovolts (kV) transmission interconnection, the construction of a new SCE substation, the construction of a new RPU substation, and the expansion of the RPU 69 kV subtransmission system. The proposed Project, called the Riverside Transmission Reliability Project (RTRP), would provide RPU with long-term system capacity for load growth, and needed system reliability and flexibility.

The additional transmission capacity to RPU would be available through the proposed SCE Wildlife Substation at 230 kV and then transformed to 69 kV for integration into the RPU electrical system serving the City of Riverside (City). The transformation or "stepping down" of power from 230 kV to 69 kV would take place at the proposed RPU Wilderness Substation. Wilderness and Wildlife Substations would be located adjacent to each other on property that is presently owned by and within the City.

In order to integrate the additional transmission capacity into RPU's electric system, RPU's 69 kV system would be expanded and divided into eastern and western systems. The existing source of energy from Vista Substation would continue to supply the eastern system, while the western system would be supplied through the proposed Wilderness Substation. Creating two separate 69 kV subsystems is necessary for prudent electric utility operation and would also help provide the required level of emergency back-up service, particularly in the event of an interruption to either 230/69 kV substation source.

Several new double-circuit 69 kV subtransmission lines would need to be constructed between 69 kV substations within the City. To accommodate these new subtransmission lines, upgrades would be required at four existing RPU 69 kV substations. The upgrades would take place within the existing boundaries of each substation.

New fiber optic communications would also be required for system control of Wilderness and Wildlife Substations and associated 69 kV and 230 kV transmission lines. The 69 kV communication facilities would be incorporated into the existing RPU fiber optic network. The 230 kV communications would meet SCE's reliability standards.

1.2 BIOLOGICAL RESOURCES OVERVIEW

This technical report was developed as a supporting document to the Draft Environmental Impact Report (DEIR) required under the California Environmental Quality Act (CEQA) for the Proposed Project. It includes analysis of environmental impacts associated with both the Proposed Project (sometimes referred to as the I-15 Route or Build Option B) and the 230 kV Van Buren Offset Route alternative (sometimes referred to as Build Option A). The report was completed prior to refinement of the Proposed Project and may contain outdated component identification information (e.g., segment, line, link identifiers) that may differ in description in the DEIR.

Based on the Initial Study (POWER Engineers, Inc., 2006) and a data review, it is determined that the RTRP may affect biological resources, including sensitive plant and animal species, during the

construction and operation phases. This report describes the existing biological environment, sensitive plant and wildlife species, and vegetation communities supported within and adjacent to the Project limits. This report also identifies expected biological resource impacts of the evaluated links and proposed mitigation to reduce potential impacts to less than significant.

The Project area supports and has the potential to support federal or State endangered, threatened, or proposed-for-listing plant and animal species and additional species considered sensitive. These species are referred to collectively as "sensitive species." In compliance with the California Environmental Quality Act (CEQA) and the U.S. Endangered Species Act (ESA), the Project proponents and lead agency, as well as State, federal, and local agencies, are evaluating the potential of the Project to affect special-status species and critical habitat.

The Project area supports least Bell's vireo, a State and Federal protected bird, and several State sensitive plant species, within the limits of the Santa Ana River. Based on Project construction information, no direct impact to the river limits or the supported vegetation is expected. In several upland areas, the Project area supports western burrowing owl, a State sensitive species. Based on Project construction information, no direct impact to this species is expected to occur. The Project is expected to be permitted for potential to affect sensitive species through the Western Riverside Multi-Species Habitat Conservation Plan (MSHCP).

1.3 PROJECT LOCATION

The project is located on the northwest side of the City of Riverside and adjacent portions of Riverside County. Several of the Project Alternatives include portions of unincorporated Riverside County. The Project area is generally described as bordered on the north by Interstate 10 and several existing high voltage electrical transmission lines, on the west by Interstate 15, to the east by Interstate 215, and on the south by the southern City limits of Riverside. The Santa Ana River bisects the central portion of the Project area.

The natural topography of the Project area is valley lowland intersected by rolling hills bound to the north and east by mountain ranges. Elevations range from 680 to 1,900 feet above mean sea level (MSL). The Project area is characterized by urban and suburban development intermixed with agriculture and undeveloped lands. Most of the Project area is urban. The only remaining large areas of native habitats occur along the Santa Ana River and in the Jurupa Mountains.

Continuous and periodically rapid population growth in the Project area has resulted in increased development with accompanying changes in land use. The Project area during most of the 20th Century was primarily rural with agricultural land use. Since the latter part of last century to the present, the area has been urbanized with extensive residential, commercial, and light industrial land conversion. The Project area supports minimal undisturbed native habitat.

1.4 PROJECT COMPONENTS

The RTRP project components would be located within Riverside County. Overall, the proposed RTRP would require approximately one year (with workers working 10-hour days, five days a week) to construct. The proposed RTRP includes the following:

1. Construction of approximately 10 miles of new double-circuit 230 kV transmission line from the existing Mira Loma – Vista #1 Transmission Line to the proposed Wildlife Substation;
2. Construction of approximately 11 miles of new 69 kV subtransmission lines between 69 kV substations and other existing subtransmission lines within the City of Riverside:

- Wilderness – Jurupa double-circuit subtransmission lines
- RERC – Harvey Lynn/Freeman single- and double-circuit subtransmission lines
- Wilderness – Mountain View double-circuit subtransmission line

3. Construction of two new substations (Wilderness and Wildlife);
4. Upgrade of two 230 kV substations to replace line protection relays (within existing control houses): Mira Loma and Vista;
5. Upgrade of four substations to conduct minor pole re-alignments: Harvey Lynn, Mountain View, Freeman, and RERC; and
6. New fiber optic communications for system control of Wildlife and Wilderness substations and associated 230 kV transmission and 69 kV subtransmission lines.

The Proposed Project adds a new source of transmission capacity to the City by construction of a new double-circuit 230 kV transmission line that would extend from the existing Mira Loma – Vista #1 230 kV Transmission Line to the proposed Wildlife Substation. This new double-circuit 230 kV transmission line would provide additional capacity to the City by interconnecting at the proposed Wildlife Substation, which would be constructed, owned and operated by SCE. To transfer increased capacity to the City, the proposed RPU-owned Wilderness Substation would be constructed immediately adjacent to Wildlife Substation and would transform or "step down" power from 230 kV to 69 kV.

With SCE providing a second point of delivery for bulk power to the City of Riverside's electrical system, RPU would split its 69 kV subtransmission system into an eastern system served from the existing Vista Substation and a western system served from Wilderness Substation. To facilitate this, several 69 kV subtransmission lines would be constructed within the City by adding circuits to existing routes or by constructing new lines. Upgrades would be made at various existing RPU substations, as well.

1.4.1. Construction of New 69 kV Subtransmission Lines

The proposed Project would include construction of approximately 11 miles of 69 kV sub-transmission lines located in three discrete sections of RPU's subtransmission system. Within two of these system sections, new lines would consist of multiple subtransmission lines in some segments or would be installed on shared subtransmission poles in others. The proposed new lines include Wilderness – Jurupa Avenue (Segments A and B); RERC – Harvey Lynn/Freeman (Segments A, B, and C); and Wilderness – Mountain View. Construction of the 69 kV subtransmission line component of the Project would require the following tasks:

- Surveying;
- Setting up Marshalling Yards;
- Construction Inspection;
- Foundations;
- Steel (Hauling, Assembly, and Erection);
- Wreck-Out (Conductors and Structures);
- Guard Poles;
- Conductor Installation;
- Transfer Existing Facilities;
- Possible Underground Activities (RERC – Harvey Lynn/Freeman segment only);
- Transmission Pole Installation Activities;
- Conductor Installation; and
- Clean-Up

Most sections of the new 69kV subtransmission lines would be installed on existing ROW and would not require new access road construction, although many of the existing structures would be replaced as part of construction. Subtransmission line steel poles would be a mix of direct-embedded poles and poles requiring foundation construction.

Wilderness – Jurupa Avenue

Segments A and B

Segments A and B are proposed to consist of a double-circuit 69 kV subtransmission line constructed from the proposed Wilderness Substation to the existing double-circuit 69 kV subtransmission line located along Jurupa Ave. and originating from RERC Substation. The double-circuit lines would exit Wilderness Substation to the south and would be constructed along both sides of Wilderness Ave. within public rights-of-way. Segment A would be located on the west side of Wilderness Ave. to Jurupa Ave. and Segment B would be located on the east side of Wilderness Ave. to Jurupa Ave. Both lines would then interconnect to the existing 69 kV double-circuit line. Total length of Segment A would be 1,647 feet, and Segment B 1,588 feet.

RERC – Harvey Lynn/Freeman

Subtransmission lines would be needed as part of the Project to connect the RERC Substation to both Harvey Lynn and Freeman Substations. The subtransmission lines would be single-circuit connections between the substations but would be constructed utilizing both double-circuit and single-circuit poles. The descriptions of these subtransmission lines are described below within Segments A, B, and C.

Segment A

Segment A would be constructed with double-circuit 69 kV poles that would carry both the RERC – Harvey Lynn and RERC – Freeman 69 kV subtransmission lines. From RERC Substation, Segment A would cross over the southern perimeter of the Riverside Water Quality Control Plant and then proceed south on Acorn Ave and west on Jurupa Ave. At the intersection of Jurupa Ave. and Van Buren Blvd., Segment A would continue south along Doolittle Ave. and then Van Buren Blvd. to Arlington Ave, where it would head west for approximately one mile. At the intersection of Arlington Ave. and Rutland Ave., Segment A would turn south and then west on Cypress Ave. to Crest Ave. continuing south along Crest Ave. At the intersection of Crest and Wells Avenues, the line would follow Wells to the intersection of Wells Ave. and Tomlinson Ave., following Tomlinson for a short distance before turning southwest onto Mull Ave. and continuing to the intersection with Tyler St. At this intersection, Segment A ends by "splitting" the circuits into two separate single-circuit subtransmission lines (Segments B and C as described below). The total length of the RERC-Harvey Lynn/Freeman Segment A would be 4.4 miles.

Segment B

Segment B consists of a single-circuit 69 kV subtransmission line beginning from the intersection of Mull Ave. and Tyler St. Segment B would continue southwest along Mull Ave., continue southwest along Mull Ave., then northwest on Mobley Ave., and then south along Jones Ave. At the intersection of Jones Ave. and Cook Ave., Segment B would join an existing single-circuit 69 kV subtransmission line and would be placed on double-circuit poles continuing to Hiers Ave., where it would leave the existing 69 kV line, and then rejoin it along Minnier Ave., continuing to Harvey Lynn Substation. This segment would have a length of 1.5 miles.

Segment C

Segment C would begin at the same intersection as Segment B (Mull Ave. and Tyler St.). The single-circuit subtransmission line would continue south along Tyler St. on single-circuit poles to the

intersection of Tyler St. and Magnolia Ave. From this location, Segment C would join with an existing 69 kV subtransmission line onto new double-circuit poles. Segment C would then continue south along Tyler St. and then east along Indiana Ave. into Freeman Substation. To extend from the end of Segment A to Freeman Substation, Segment C would have a length of 3.2 miles.

Wilderness – Mountain View

One double-circuit 69 kV subtransmission line would be constructed from the proposed Wilderness Substation to an existing 69 kV line adjacent to Mountain View Substation. The new double-circuit line would exit Wilderness Substation and parallel the Santa Ana River eastward for approximately 1,000 feet, and then travel along Industrial Avenue to the west side of the Union Pacific railroad corridor and near Martha McLean Anza Narrows Park. The line would then head southeast, parallel to but outside of the railroad right-of-way, and then east parallel to Jurupa Ave., to the connection point with the existing 69 kV subtransmission line near Mountain View Substation. This new 69 kV subtransmission line would have a length of 1.4 miles.

1.4.2. Construction of New 230 kV Double-Circuit Transmission Line

The proposed Project would include construction of approximately 10 miles of 230 kV transmission line. The 230 kV transmission line component of the Project would require the following construction tasks:

- Surveying;
- Setting up Marshalling Yards;
- Right-of-Way Clearing;
- Road and Landing Work;
- Guard Structure Installation;
- Install Tubular Steel Pole (TSPs) Foundations;
- TSP - Hauling, Assembly, and Erection;
- Install Lattice Steel Towers (LSTs);
- LST - Hauling, Assembly, and Erection;
- Conductor Installation;
- Guard Structure Removal; and
- Restoration

Under the Proposed Project, new double-circuit 230 kV transmission line would be constructed that would "loop" the existing Mira Loma – Vista #1 230 kV Transmission Line into the proposed Wildlife Substation. The "loop" would be created by connecting each of the new circuits into the existing single-circuit line between Mira Loma and Vista Substations. The interconnection would occur at approximately the point where the Mira Loma – Vista #1 Transmission Line crosses Wineville Avenue, east of Interstate 15. From here, the new double-circuit line would run south and then west to roughly follow I-15 south, cutting east at 68th Street to a Santa Ana River crossing point within Goose Creek Golf Course. It would then continue east, mostly within the City of Riverside and parallel to the Santa Ana River. In some locations, the line would cross into the Hidden Valley Wildlife Area. Eventually the line crosses over Van Buren Boulevard, and then through the City of Riverside Water Quality Control Plant, before reaching the proposed Wildlife Substation on the south side of the Santa Ana River, east of Wilderness Avenue.

Temporary marshalling yards would be needed along or near the proposed transmission lines for construction crews to store materials and vehicles. Access to structure sites for construction and maintenance would be required at several locations along the corridors. Access work, which would take place primarily within the ROW, would consist of making improvements to existing roads, constructing new roads, and constructing spurs to individual structure sites.

Most new permanent access roads are proposed for construction on previously disturbed areas. Any temporary roads constructed would be removed, and the ground would be restored to its original contour when the line is completed. Land rights, usually easements, for access roads would be acquired from property owners as necessary. After the line is built, access roads would also be used for line maintenance. Subtransmission lines are located along or within existing public road ROWs and would not require new access road construction.

The ROW would not be de-vegetated; however, limited cutting of trees and tall brush in the ROW may occur if they interfere with the construction, operation, and maintenance of the transmission line. Trees would be cut outside the ROW only if, due to their height and condition, they may pose a threat to the transmission line. All potential tree cutting within the City of Riverside would require approval by the City's Public Works Department.

Steel structures for the 230 kV transmission lines would be anchored to the ground with concrete footings. Typically, the footing site is excavated, a steel cage and anchor plates or bolts are positioned, and the excavated site is filled with formed concrete. Structures are assembled at the site and lifted into place by a large crane. Drilling mud will be used for wet holes. The structures are bolted to the footings after they are set in place. After transmission structures are in place, conductors are strung from structure to structure through pulleys. Subtransmission line wood poles would be direct-embedded and would not require foundation construction. Subtransmission line steel poles would be a mix of direct-embedded poles and poles requiring foundation construction.

TABLE 1A. ELECTRICAL DESIGN CHARACTERISTICS TRANSMISSION LINES

Feature	230 kV Transmission Line		69 kV Subtransmission Lines
Line Length	**10 miles**		**11 miles**
Type of Structure	57 Tubular Steel Poles 24 Lattice Steel Towers		Single Wood or Steel Pole
Structure Height	90-170 feet (TSPs) 113-180 feet (LSTs)		65-90 feet
Structure Footprint	6-10 ft diameter (TSPs) 34 feet x 34 feet (LSTs)		1.5-6 ft diameter
Span Length	600-800 feet typical Up to 2,200 feet		150-300 feet
Number of Structures per Mile	7-8		20-30
Transmission Line ROW	100 feet		Up to 40 feet
Pulling/Tension Sites	100 x 400 feet		100 x 25 feet
Circuit Configuration	Double-circuit		Double-circuit & Single-circuit
Conductor Size	Double Bundle 1590 kcmil ACSR[1] 45/7 "Lapwing"		954 kcmil ACSR

1: Aluminum conductor, steel-reinforced
Note: All estimates above are preliminary and are subject to change upon final engineering.

1.4.3. Construction of New Substations

The proposed Project would also include construction of one 230/69 kV substation (Wilderness Substation) and one 230 kV switching station (Wildlife Substation). The proposed substations would require the following construction tasks:

- Surveying;
- Setting up Marshalling Yards;
- Grading;
- Civil Engineering Activities;
- Electrical Engineering Activities;
- Transformer Activities (69 kV only);
- Paving Activities;
- Fencing Activities; and
- Testing Activities

Wilderness Substation

The new RPU 230/69 kV Wilderness Substation would be located on 6.4 acres adjacent to the southern end of SCE's Wildlife Substation. Wilderness Substation would be connected to the SCE Wildlife Substation via two short 230 kV transmission line spans over a separating fence between the two substations. The voltage would be transformed to 69 kV through two transformers located within the Wilderness Substation. Electricity would be delivered to the RPU electrical system and ultimately City customers via 69 kV subtransmission lines exiting the substation. As described above, Wilderness Substation would be separated from the Wildlife Substation by a chain link fence. The outside perimeter of the substation would be built with a 10-foot block wall. The anticipated construction duration for the 230/69 kV Wilderness Substation is approximately 125 working days (6.3 months).

Wildlife Substation

The SCE Wildlife Substation would be constructed on three acres of land currently owned by RPU and located near the northeast corner of Wilderness Avenue and Ed Perkic Street. This area is within the City limits. If the Project is approved, SCE would purchase property from RPU to accommodate the new Wildlife Substation. The proposed substation would connect to the SCE system via the proposed double-circuit 230 kV transmission line described above, and would also connect into RPU's proposed adjacent Wilderness Substation. The proposed substation would be enclosed on three sides by a ten-foot high perimeter wall typically constructed of light-colored decorative blocks, with the fourth side being the shared chain-link fence separating Wildlife Substation from Wilderness Substation.

1.4.4. 69 kV Substation Upgrades

To accommodate the new subtransmission lines to be added to the RPU 69 kV system, upgrades would be required at four existing RPU 69 kV substations. Upgrades would include minor structure (pole) re-alignments outside of substations to accommodate modifications of substation layout. All other upgrades would take place within the existing boundaries of each substation.

The four existing 69 kV substations within the City that would require upgrades are Harvey Lynn, Mountain View, Freeman, and RERC. The upgrades consist of the addition of new 69 kV power circuit breakers and associated disconnect switches and busing at RERC and Harvey Lynn Substations, as well as protective relay and control modifications to all four substations. All substation upgrades and equipment installations would occur within the existing footprint.

- **Harvey Lynn Substation.** The substation would be upgraded to include a new 69 kV circuit breaker and associated equipment to form a new line position for relocation of the existing Freeman line. The existing Freeman line position would be reconfigured to terminate a new line to RERC Substation. New line protection would be installed for both the new and reconfigured lines. A new Substation Automation System (SAS) and digital fault recorder would be integrated into the new and existing equipment.

- **Mountain View Substation**. The substation would be reconfigured to add two new lines to Wilderness Substation. One line would terminate in the existing Riverside line position and the other in the existing Freeman line position. New line protective relaying would be included for the two new Wilderness lines.

- **Freeman Substation.** The substation modifications would include changing the existing Mountain View line into the new Wilderness line and adding a new line to the RERC switchyard. A line bypass switch would be installed to directly connect the Orangecrest and Riverside lines and bypass the Freeman Substation. The Orangecrest line termination would be disconnected and the new RERC line would be terminated in its place. New line protection would be added for the relocated line and the one new line. A new SAS and digital fault recorder would be integrated into the new and existing equipment.

- **RERC Substation.** Two new lines would be installed and connected to Harvey Lynn Substation and Freeman Substation. The two existing lines connected to Mountain View and Riverside Substations would be reconnected to Wilderness Substation.

1.4.5. 230 kV Substation Upgrades

Line protection relays would be replaced at both Mira Loma and Vista Substations as part of the Proposed Project. The relay replacements would be placed within existing control houses within each substation.

1.4.6. New Telecommunication Facilities

New fiber optic communications would be required for system control of Wildlife and Wilderness Substations and associated 230 kV transmission and 69 kV subtransmission lines. Communication facilities supporting RTRP 69 kV subtransmission components would be incorporated into the existing RPU fiber optic network. The communications facilities that would support the 230 kV transmission line would meet SCE's reliability standards and connect to the existing SCE network at multiple locations. The 230 kV communication facilities would require construction of diverse communication paths for operation and monitoring of the substation and transmission line equipment. The diverse paths would connect Wildlife Substation to Mira Loma Substation, and Wildlife Substation to Vista Substation. New telecommunication infrastructure would be installed to provide protective relay circuit, Supervisory Control and Data Acquisition (SCADA) circuit, data, and telephone services to Wildlife Substation. For the 69 kV portion of the Proposed Project, telecommunications lines would be installed on new or existing 69 kV subtransmission poles.

SCE Fiber Optic Lines

The Proposed Project would include connecting three diverse fiber optic telecommunication lines to the existing SCE fiber optic network. These three lines would be required for the protective relay circuit between the proposed Wildlife Substation and Mira Loma Substation, for the protective relay circuit between the proposed Wildlife Substation and Vista Substation, and the fiber optic telecommunication line that would provide the SCADA circuit, data, and telephone services to the proposed Wildlife

Substation. Approximately seven miles of new fiber optic cable would be constructed as part of the Proposed Project, of which approximately six miles would be placed on existing overhead distribution poles and approximately 3,900 feet would be installed in underground conduit.

Path 1: The first fiber optic telecommunication line is OPGW (Optical Ground Wire) that is proposed for installation on the new 230 kV transmission line structures for the Proposed Project and described above in Section 2.3.1. This OPGW line would intercept and connect to the existing fiber wrap cable on OHGW (Over Head Ground Wire) on the Mira Loma – Vista #1 transmission line tower.

Path 2: A new ADSS (All Dielectric Self Supporting) fiber optic telecommunication line is proposed for installation on the existing SCE distribution structures between the existing Pedley Substation and the new Wildlife Substation, with a path length of approximately six miles. This new line would tie into the existing Mira Loma to Corona fiber optic telecommunication line. A preliminary engineering survey conducted in 2010 of the approximate 100 distribution poles in the existing ADSS fiber optic telecommunication route between Pedley substation and the Wildlife Substation site determined that no new poles would need to be added, and that no existing poles would need to be replaced. However, a final determination of the need for pole replacement will not be made until final engineering is completed. The fiber optic telecommunication line would enter into Pedley and Wildlife Substations in an underground conduit that would be installed to the fence line of the substations for fiber optic telecommunication line entry. This construction method allows ADSS cables on the distribution line poles to be brought into the substations. The approximate length of the underground conduit outside the substations' property lines would be 200 feet at Pedley Substation and 500 feet at Wildlife Substation. In addition, because of the proximity of the proposed new 230 kV transmission line to the existing SCE distribution line, five fiber optic telecommunication line intersection locations would need to be placed underground for cable path reliability. The required underground paths for the proposed fiber optic telecommunication line are as follows:

- The first proposed fiber optic telecommunication line crossing location would be located approximately 0.25 miles west of the Harrell Street and Etiwanda Avenue intersection under the existing Mira Loma – Vista 230 kV transmission line. The two cables at the crossing location would be: 1) the existing ADSS cable on the distribution line poles, and 2) the existing fiber wrap cable on Mira Loma – Vista 230 kV transmission line OHGW. An approximately 900-foot section of the existing ADSS fiber cable would need to be placed underground. For this diverse path, both (crossed) fiber cables would carry protection circuits to protect against the event that the circuit would fail as a result of the crossed fiber cables failing concurrently.

- The second proposed fiber optic telecommunication line crossing location would be located in an area south of the Santa Ana Regional Park, adjacent to residential areas along the proposed 230 kV transmission line route. The two intersecting fiber cables would be: 1) the proposed new Path 2 ADSS fiber optic telecommunication route between Pedley Substation and new Wildlife substation, and 2) the Path 1 OPGW on the proposed 230 kV transmission line. An approximately 1,000-foot section of the proposed ADSS fiber optic telecommunication line would need to be placed underground in order to prevent single-point failure for the circuit as a result of the crossing fiber optic telecommunication lines.

- The third proposed fiber optic telecommunication line crossing location would be located in an area approximately 1,000 feet west of the proposed Wildlife Substation between Wilderness Avenue and Payton Avenue, along the existing distribution line north of Jurupa Avenue around the northwest perimeter of the existing building and parking area. The two intersecting fiber optic telecommunication lines would be: 1) the proposed new Path 2 ADSS route between Pedley Substation and the new Wildlife substation, and 2) the Path 1 OPGW on the proposed 230 kV

transmission line. An approximately 600-foot section of the proposed ADSS fiber optic telecommunication line would need to be placed underground in order to prevent single point failure for the circuit as a result of the crossing fiber optic telecommunications lines.

- The fourth proposed fiber optic telecommunications line crossing location would be located approximately 500 feet southwest of Pedley Substation, close to Pedley Substation Rd. The two cables at the crossing location would be: 1) the existing ADSS cable on the 12 kV pole line, and 2) the Path 1 OPGW on the proposed 230 kV transmission line. An approximately 400-foot section of the proposed ADSS fiber optic telecommunication line would need to be placed underground in order to prevent single point failure.

- The fifth proposed fiber optic telecommunications line crossing location would be located approximately 1,000 feet west of Pedley Substation on the Lab 12 kV distribution pole line. The two cables at the crossing location would be: 1) the existing ADSS cable on the 12 kV pole line, and 2) the Path 1 OPGW on the proposed 230 kV transmission line. An approximately 300-foot section of the proposed ADSS fiber optic telecommunication line would need to be placed underground in order to prevent single point failure.

Path 3: The third proposed SCE fiber optic telecommunications line associated with the 230 kV portion of the Proposed Project would connect the new Wildlife Substation and a fiber optic demarcation point to the Vista Substation to meet the telecommunication diverse path requirements. SCE would lease fiber optic strands within the RPU fiber optic network to create this third telecommunication path. Existing and available fiber optic cable is in place for most of this pathway between Wildlife and Vista Substations. The new portion of this path would utilize planned RPU telecommunication fiber optic cable to be installed along the proposed 69 kV subtransmission lines as described below.

RPU Fiber Optic Telecommunication Lines

As part of the Proposed Project, the existing RPU fiber optic network would be extended approximately 2,000 feet from the intersection of Jurupa Avenue and Wilderness Avenue to the proposed Wilderness Substation. The new fiber optic telecommunication line would be installed on the new 69 kV subtransmission line poles that would be constructed along both sides of Wilderness Avenue (Wilderness – Jurupa Ave., Segments A and B). This new fiber optic telecommunication line would connect the proposed Wilderness Substation to RPU's existing communication system. Additionally, a new fiber optic telecommunication line would be included as part of the new Wilderness – Mountain View subtransmission line construction.

1.4.7. Construction Work Force and Schedule

Construction of the 230 kV components of the Project is scheduled to begin after the issuance to SCE of a Certificate of Public Convenience and Necessity (CPCN) by the California Public Utilities Commission (CPUC). The CPUC review of SCE's CPCN application, which would include the Final EIR, is expected to be completed within 12 months following the City of Riverside's CEQA Lead Agency determination for the Project. Construction activities associated with the Proposed Project consist of new 230 kV transmission line and 69 kV subtransmission line construction, building two new substations (Wildlife and Wilderness), and upgrading four existing 69 kV substations.

Project components would likely be constructed using a variety of construction crews. These would consist of successful competitively bid contractor(s) and subcontractors, SCE crews (230 kV transmission line, telecommunications, and Wildlife Substation only) or RPU crews (69 kV subtransmission lines, telecommunications, Wilderness Substation, 69 kV substation upgrades). RPU and SCE would be

responsible to provide quality assurance, environmental protection oversight, and final design approval. All construction work would be performed with conventional construction techniques in accordance with SCE and RPU construction specifications and other industry-specific standards. Construction crews would be required to work within the stipulations of documents governing compliance with regional environmental, storm water pollution prevention, and fire prevention criteria, as well as owner/operator best management practices, standardized environmental protection elements, and those additional mitigation measures identified within the DEIR.

The workforce necessary for construction of the proposed Project is anticipated to range from approximately 10 to 100 persons, with an estimated average daily workforce of 50 persons. Summaries of the labor force requirements and primary equipment associated with the various Project construction activities can be found in Chapter 2, Proposed Project, of the DEIR.

1.5 CONSTRUCTION SCHEDULE

In general, construction efforts would occur in accordance with accepted construction industry and RPU and SCE standards. Construction activities would generally be scheduled during daylight hours, more specifically 6:00 a.m. to 6:00 p.m. (June to September) and 7:00 a.m. to 6:00 p.m. (October to May), Monday through Friday. In the event construction activities need to occur outside the local noise ordinance, SCE would obtain any variance as necessary from appropriate jurisdictions. All materials associated with construction efforts would be delivered by truck to established marshalling yards. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours.

1.5.1. 230 kV Components (SCE)

SCE anticipates that construction of the proposed 230 kV portion of the Proposed Project (which includes the transmission line, Wildlife Substation, and associated telecommunications work) would take approximately 370 working days. Construction would commence following CPUC and regulatory agency approval, final engineering, and procurement activities.

1.5.2. 69 kV Components (RPU)

RPU anticipates that construction of components of the proposed 69 kV portion of the Proposed Project (which includes the subtransmission lines, Wilderness Substation, substation upgrades, and associated telecommunications work) could begin following publication of the Notice of Determination on the Final EIR by the RPU Board and Riverside City Council, including any conditions of approval and statements of overriding considerations (anticipated early 2012). Completion would be timed to synchronize completion date with the 230 kV portion of the Proposed Project, anticipated to be May 2015.

2.0 REGULATORY FRAMEWORK

The following federal, State, and local environmental regulations are applicable to the protection and conservation of the biological resources within the Project area.

2.1 FEDERAL

Endangered Species Act (16 United States Code [U.S.C.] 1531, 1994) - Under the Endangered Species Act (ESA), no person may "take" a species listed as threatened or endangered without a permit. The act is administered by the United States Fish and Wildlife Service (USFWS) under the United States Department of the Interior (USDI). "Take," as defined by the Act, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the species, including significant habitat modification." Destruction or disruption of habitat of a listed species can, under certain circumstances, result in the take of such species. The Act includes a provision for permitting incidental take of listed species on private lands when a Habitat Conservation Plan (HCP), identifying the anticipated impacts of specific projects and implementing appropriate conservation measures, is prepared and approved.

Section 7 of this Act requires federal departments and agencies to consult with the USFWS to ensure that actions they authorize, fund, or carry out will not jeopardize species listed under the ESA. Regulations governing interagency cooperation under Section 7 are found in Title 50 of the Code of Federal Regulations (CFR) Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing a take that may occur incidental to an otherwise legal activity.

Section 9 lists those acts that are prohibited under the act. The act prohibits harassment, harm, pursuit, hunting, wounding, and killing of listed fish and wildlife species. The section also prohibits removing, digging up, cutting, maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or shelter.

Section 10 provides a means whereby a non-federal action with a potential to result in the take of a listed species could be allowed under an incidental take permit. Application procedures are found in Title 50 CFR Parts 13 and 17 for species under the jurisdiction of USFWS.

The Migratory Bird Treaty Act (16 U.S.C. 703-711) - The Migratory Bird Treaty Act (MBTA) is an international treaty for the conservation and management of bird species which may migrate through more than one country. The treaty makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture or kill migratory birds except for those species specifically excluded by the MBTA.

Bald and Golden Eagle Protection Act of 1940 - The act states that it is unlawful to take, pursue, or disturb American bald and golden eagles. This act also protects individual eagles and their nests and eggs from willful damage or injury. Violation of this act results in civil penalties. The bald eagle was removed from the ESA in 2007, but is still protected and considered to be a sensitive species through this Eagle Protection Act.

Fish and Wildlife Coordination Act - The Fish and Wildlife Coordination Act (16 U.S.C. 661-666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Federal Agencies and projects funded by federal money or

affecting federal lands or jurisdiction are required to consult with USFWS and the appropriate State wildlife agency. These agencies prepare reports and recommendations that document project effects on plants and wildlife and identify measures that may be adopted to prevent loss or damage to biological resources. The Project is located in northwestern Riverside County in private and quasi-public lands. The Project will not affect federal lands or jurisdiction, or receive federal funding. In lieu of a voluntary Section 10 consultation with the USFWS, the Project is expected to mitigate the potential to affect protected species through the Western Riverside Multi-Species Habitat Conservation Plan (MSHCP) and the Biological Opinion issued for it by USFWS (USFWS 2003). A discussion of the plan is provided, and the Project is expected to receive a Certificate of Inclusion to the plan.

Clean Water Act of 1972 (33 U.S.C. 1251, 1994) - The Clean Water Act (CWA) is the principal federal statute protecting navigable waters and adjoining shorelines from pollution. The Clean Water Act is administered by the Environmental Protection Agency (EPA) and the US Army Corps of Engineers (USACE). USACE is responsible for regulating the discharge of fill material into waters of the United States. Waters of the United States include lakes, rivers, streams and their tributaries, as well as wetlands. Since its enactment, the CWA prohibits the discharge of pollutants into waters of the United States without a permit. Section 404 of the CWA provides that whenever any person dredges or places any fill material from or into waters of the U.S. including, without limitation, wetlands, streams, and bays (e.g., while undertaking road construction, bridge construction, or streambed alteration), a permit is required from USACE.

2.2 STATE

California Environmental Quality Act (Public Resources Code 21000 et seq.) - The California Environmental Quality Act (CEQA) requires State and local agencies to identify and disclose environmental impacts that may cause a physical change in the environment. CEQA further requires agencies to avoid or minimize damages, when feasible. When avoiding and minimizing environmental damage is not feasible, agencies are required to provide a written document of overriding considerations when they decide to approve a project that will cause one or more significant effects to the environment.

California Endangered Species Act (CA Fish and Game Code 2050-2126) - The California Department of Fish and Game (CDFG) administers the California Endangered Species Act (CESA), which protects wildlife and plants listed as threatened and endangered by the California Fish and Game Commission. Parallel to the federal Endangered Species Act (ESA), the CESA provides additional protection to threatened and endangered species in California. As with the ESA, CESA prohibits the take of listed and candidate species without a permit. Many species are listed as threatened or endangered under both the State and federal Endangered Species Acts.

CESA requires State agencies to conserve threatened and endangered species (Section 2055), and thus restricts all persons from taking listed species except under certain circumstances. The requirements for an application for an incidental take permit under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081.

The California Native Plant Protection Act of 1977 - The California Native Plant Protection Act prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the California Native Plant Protection Act, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but rather under CEQA.

Lake and Streambed Alteration Agreement (CA Fish and Game Code, Section 1600) - Under this agreement, entities which propose to divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in which there is at any time an existing fish or wildlife resource, must first notify the CDFG prior to the activity (California Fish and Game Code §1603). When an existing fish or wildlife resource may be "substantially adversely affected by the project or activity," the CDFG must respond to the notice by providing a description of the resource which would be affected and submitting a proposal for measures necessary to protect the identified plants and wildlife. The agreement outlines specific requirements related to construction techniques and compensatory measures to mitigate adverse impacts. Long-term monitoring may be required as part of the mitigation process.

2.3 REGIONAL

Western Riverside County Multiple Species Habitat Conservation Plan – The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) (2003) is a comprehensive, multi-jurisdictional program focusing on conservation of species and their associated habitats in Western Riverside County. The MSHCP is designed to provide protection and conservation efforts to threatened and endangered species through a multi-species habitat-based long-term approach that covers approximately 1.26 million acres in western Riverside County. The ultimate goal is to protect multiple species by preserving a variety of habitat and providing linkages between different habitat areas. In 2003, USFWS issued a biological opinion authorizing take for identified species and conservation of lands for mitigation through the MSHCP.

The MSHCP serves as a Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973 (FESA), as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. MSHCP promotes the biological viability and recovery of Western Riverside County's ecosystems, habitats, and species within the area, with the ultimate goal of reducing the need to list additional species in the future. Though the USFWS and the CDFG have authority to regulate the take of threatened and endangered species, consistent with the terms and conditions of approval of the MSHCP, the USFWS and CDFG have granted "Take Authorization" to participating jurisdictions in exchange for the assembly and management of coordinated MSHCP Conservation Areas for 146 "covered species." Of the 146 "covered species," 118 species are considered "adequately conserved" within the MSHCP.

The Habitat Evaluation and Acquisition Negotiations Strategy (HANS) process is used by Riverside County to implement portions of the MSHCP by identifying and delineating conservation areas on specific properties. Should this Project affect an identified cell, it will be reviewed, as applicable, by the same process. The HANS process applies to property that may be needed for inclusion in the MSHCP Conservation Area or subject to other MSHCP criteria and shall be implemented by the County and those cities that have agreed to implement the HANS process. The City of Riverside is a member agency and is determined to be the lead agency for MSHCP coordination on the proposed Project.

3.0 ENVIRONMENTAL SETTING

3.1 INTRODUCTION

A biological resources evaluation consisting of a literature review, database search, and focused surveys was conducted for RTRP. The purpose of the assessment was to determine existing biological resources (with special emphasis on sensitive plant species, sensitive wildlife species, wildlife corridors, and sensitive habitats) that occur within the vicinity of the proposed Project and to analyze the affects of the proposed Project on the identified resources.

The Project area is located within a historically biologically diverse region and is comprised of qualitatively and quantitatively declining native habitats that support several sensitive species, several federal and State special-status species, and federal proposed and designated critical habitat. The study area contains a variety of vegetation and habitat types including urban, agriculture, riparian woodlands, freshwater marsh, and non-native grasslands. These vegetation areas and habitats (described below) host a range of endemic and migratory wildlife and plant species that reflect a portion of the biodiversity of Riverside County and the region.

3.2 METHODS

The study area currently supports both native and non-native plant communities, wildlife, and habitats, and several sensitive species. Sensitive species with potential to occur within the Project area were identified through a search of the California Natural Diversity Data Base (CNDDB), and MSHCP. Resource data were then mapped utilizing a geographic information system (GIS) and results of reconnaissance, specific wildlife focused, and focused rare and endemic plant surveys. Surveys identified biological resources within the study corridors including natural vegetation, water resources, and special-status species and communities. The data record search was conducted on a five-mile radius of the Project alignments.

Field surveys were conducted and analysis provided by POWER Engineers, Inc. (POWER) in 2006, 2007, and 2008, TRC/Essex (2006, 2007), Bloom Biological, Inc. (2008), and Harmsworth Associates (2008). Field survey activities included documenting observed plant and animal species or their sign, mapping vegetation communities, and photo-documenting existing biological conditions for identified Project links. Study corridors were surveyed along a 150-meter (500-foot) wide area (250 feet on each side of Project link centerline) for MSHCP sensitive species and a 30-meter (100-foot) wide study corridor (50 feet on each side of assumed centerline) for vegetation communities. Portions of the study corridors were surveyed using binoculars: specifically, areas that consisted of dense or inaccessible riparian areas along the Santa Ana River, extend through human encampments, or extend onto property not authorized for entry. Focused surveys as specified for MSHCP compliance requirements were conducted for species that have potential to occur within the Project area.

3.2.1. Vegetation Communities and Cover Types

The vegetation mapping was conducted in the field using aerial photographs and topographic maps. Focused surveys were conducted during Summer and Autumn 2006 and Spring 2008 to delineate vegetative communities and identify sensitive plant habitats and species. Based on these field surveys, revisions to the GIS vegetation community layer were made. These revisions included additional vegetation community types that were delineated and mapped to adequately describe and depict the communities observed in the study corridors. Habitat definitions generally follow those defined in the MSHCP, but also include other references as noted.

3.2.2. Sensitive Species

Sensitive species, as defined for this report, include those plant and animal species listed as threatened, endangered, candidate, or proposed under the Federal ESA, under CESA, and those included in the MSHCP. Special-status species may also include species designated as a California Special Plant, plants listed as Rare, Threatened, or Endangered by the California Native Plant Society, and animals listed as California Species of Special Concern, or California Special Animal.

The CNDDB records for the Corona, Fontana, Guasti, Riverside East, Riverside West, and San Bernardino U.S. Geological Survey (USGS) 7.5 minute quadrangles (State Plane) were reviewed for information on sensitive animal and plant species occurrences that have been documented in the vicinity of the study area. Special-status species with known or historic ranges that overlap the study corridors were determined to have a low, moderate, or high potential to occur, or known presence. Additionally, USFWS and previous survey records were reviewed for certain special-status species that may not be currently reflected by the data available on the CNDDB.

Site-specific protocol surveys for listed wildlife species and focused surveys for special-status plant species were conducted during appropriate periods as determined by USFWS and MSHCP.

3.3 RESULTS

3.3.1. Vegetation Communities and Cover Types

The 2006 and 2008 botanical surveys identified and mapped vegetation communities or cover types within the Project area study corridors. Plant community nomenclature of habitat observed within the Survey area follows that of *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986) and *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995). This information was cross-referenced with other sources, including USGS 7.5 minute quadrangle maps, GIS data, California Gap-Analysis Program, and review of reports of prior surveys conducted in the general area. Vegetation communities and cover types observed in the study corridors are described in general for the study corridor.

In addition to urban covered areas, 13 vegetation communities were identified in the study area. Seven are considered sensitive or are potential habitat for sensitive plant species: Alluvial Fan Sage Scrub, Disturbed Alluvial Fan Sage Scrub, Mixed Open Woodland/Disturbed, Riparian Forest, Riparian Scrub, Riversidian Sage Scrub, and Southern Cottonwood - Willow Riparian Forest. These communities are contiguous in sections of some corridors; in others, the communities are highly fragmented, disturbed, or degraded. The identified vegetation communities and cover types include:

Agriculture - Dairy

Agricultural-Dairy land is generally defined as land used primarily for production of dairy products. These areas tend to be bare of all vegetation and constantly disturbed from the activity of cattle. Agriculture-dairy areas are found along the northwestern portions of the study area.

Alluvial Fan Sage Scrub

Alluvial Fan Sage Scrub vegetation communities occur on alluvial outwash fans. Alluvial Fan Sage Scrub communities are generally associated with infrequently scoured areas on floodplains and outwash fans. It is considered to be a rare plant community that is highly fragmented due to urbanization and the extensive alteration of natural stream hydrology in Southern California (Smith, 1980). These plant communities are composed of a variety of evergreen woody and drought-deciduous shrubs with a significant component of

larger evergreen shrubs, typically found in chaparral (Smith, 1980) and are adapted to survival in the presence of intense periodic flooding.

Scalebroom (*Lepidospartum squamatum*) is considered to be an indicator species of alluvial scrubs, and is usually described as a dominant or subdominant shrub in alluvial community descriptions, including the Scalebroom Series of Sawyer and Keeler-Wolf (1995) and the Lepidospartum-Eriodictyon-Yucca association described by Kirkpatrick and Hutchinson (1977). Alluvial scrub occurs on alluvial deposits along the Santa Ana River in the eastern portion of the study area. This community is dominated by scalebroom (*Lepidospartum squamatum*), white sage (*Salvia apiana*), California buckwheat (*Eriogonum* sp.), California croton (*Croton californicus*), tarragon (*Artemisia dracunculus*), yerba santa (*Eriodictyon* spp.), and mule fat (*Baccharis salicifolia*).

Developed (Urbanized)

Developed land includes roadways, parking lots, vacant lots, residences, commercial buildings and other private and public infrastructure. No native habitat exists within these developed areas, although there may ornamental landscaping in some of these areas within the study area, and ornamental landscaping may also include native plant species.

Disturbed

Disturbed areas, also described as Bare Ground/Disturbed, are usually comprised of ruderal vegetation typical of areas where the native vegetation has been substantially altered by residential development, grazing, public infrastructure, or other land-clearing activities, such as grading. Disturbed habitat is present in portions of the study area, mostly adjacent to developed areas, and varies from areas dominated by non-native grasses and weeds to bare/mowed ground. Typical non-native plant species observed within this community included castor bean (*Ricinus communis*), cheeseweed (*Malva parvifolia*), fiddleneck (*Amsinkia menziesii*), filaree (*Erodium* sp.), mustard (*Brassica* sp.), sowthistle (*Sonchus oleraceus*), wild radish (*Raphanus sativus*), and non-native, annual grasses, including foxtail barley (*Hordeum murinum*), ripgut grass (*Bromus diandrus*), and wild oats (*Avena* spp.). Shrub and tree species include eucalyptus (*Eucalyptus* sp.) and Peruvian pepper tree (*Schinus molle*). Scattered native species were occasionally observed within disturbed areas that are generally subjected to less frequent disturbance than areas dominated by ruderal species. The majority of disturbed areas on undeveloped properties within the study area are seasonally mowed or disked.

Disturbed Alluvial Fan Sage Scrub

Disturbed alluvial fan sage scrub habitat occurs along the entire length of the Santa Ana River within the study area, and represents areas that have been disturbed by flooding events and changes in the river channel. These habitats are currently dominated by weedy species such as giant reed, horehound (*Marrubium vulgare*), mustards (*Brassica nigra, Hirschfeldia incana, Sisymbrium* spp.), tree tobacco (*Nicotina glauca*), and wild radish. Disturbed alluvial fan sage scrub communities within the study area are intergraded with riparian scrub and southern cottonwood/willow riparian forest.

Field Cropland

Field cropland is generally defined as land used primarily for production of food and fiber. Croplands within the study area appear to be unirrigated and primarily used to grow wheat. Croplands within the study area occur mainly in the western portions.

Landscaping

Landscaping consists of introduced trees, shrubs, flowers, and turf grass, and occurs primarily in greenbelts, parks, and horticultural plantings throughout the study area. Ornamental landscaping vegetation is associated with developed residential and public areas and generally consists of non-native species, including pine (*Pinus* spp.), Brazilian pepper tree (*Schinus terebinthifolius*), eucalyptus (*Eucalyptus* spp.), myoporum (*Myoporum laetum*), melaleuca (*Melaleuca* spp.), flowering pear (*Pyrus* spp.), Chinese elm (*Ulmus parvifolia*), and weeping willow (*Salix babylonica*). Native species are sometimes included and maintained as ornamentals. Landscaping occurs primarily in residential or developed areas.

Non-native Grasslands

Non-native annual grassland is an upland habitat that consists of a dense-to-sparse cover of introduced Mediterranean annual grasses. Non-native grasslands in California are characterized by the dominance of naturalized non-native annual grasses from Mediterranean regions outside of California. The most common plant species observed within non-native grasslands in the project area included ripgut grass, barley (*Hordeum* sp.), and wild oats (*Avena* spp). Associated forbs include filaree (*Erodium* spp.), mustard, sowthistle (*Sonchus* spp.), and wild radish. Most of these species grow to less than 1 meter in height. This type of grassland can include native perennial grasses and a diverse assemblage of native forbs. Annual grassland within the survey area is dominated almost completely by nonnative grasses and forbs. This community matches the description of California annual grassland series (Sawyer and Keeler-Wolf, 1995) and non-native grassland (Holland, 1986). Non-native annual grasslands are found throughout the survey area.

Riparian Scrub

Patches of riparian scrub occur along the central portion of the Santa Ana River. This community is dominated by shrubs such as mule fat (*Baccharis salicifolia*), arrowweed (*Pluchea sericea*), Mexican elderberry,, Fremont's cottonwood,, narrow-leaved willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), and tamarisk (*Tamarix* sp.). Other present shrub species include tarragon, Emory's baccharis (*Baccharis emoryi*), and California rose (*Rosa californica*). The Santa Ana River riparian corridor riparian scrub is most likely a stage of succession in the development of riparian forest or southern cottonwood/willow riparian forest. Riparian scrub within the study area varies from open with an herbaceous understory or bare ground to dense with sparse understory. Understory species observed include mugwort (*Artemisia douglasiana*), willow herb (*Epilobium ciliatum*), broad-leaved peppergrass (*Lepidium latifolium*), California loosestrife (*Lythrum californicum*), white sweetclover (*Melilotus alba*), scarlet monkeyflower (*Mimulus cardinalis*), seep monkeyflower (*Mimulus guttatus*), California blackberry (*Rubus ursinus*), stinging nettle (*Urtica dioica*), and cocklebur (*Xanthium strumarium*). In some areas desert wild grape (*Vitis girdiana*) forms thick tangles and has overgrown the shrub and tree species.

Riversidian Sage Scrub

The dominant sage scrub community type in the study corridor is Riversidian sage scrub. This is a very xeric expression of coastal sage scrub, and is typically open and dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and brome grasses (*Bromus* spp.), with each of these three main groups attaining approximately 20% cover. Other species observed in this community included brittle-bush (*Encelia farinosa*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), California encelia (*Encelia californica*), Mexican elderberry, boxthorn (*Lycium* sp.), and prickly pear (*Opuntia littoralis*). This community occurs on lower slopes throughout the area, including the Jurupa Mountains, Pedley Hills, Mount Rubidoux, and the extreme northeast corner of the study area.

Southern Cottonwood - Willow Riparian Forest

Southern cottonwood-willow riparian forest is open, broadleaved, winter deciduous riparian forest dominated by Fremont's cottonwood and several species of willow trees. The canopy consists of Fremont's cottonwood, black willow (*Salix gooddingii*), and California sycamore (*Platanus racemosa*). The understory is usually dominated by shrubby species such as sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), tamarisk (*Tamarix* sp.), and mule fat (*Baccharis salicifolia*), along perennially wet stream reaches of the Transverse and Peninsular ranges (Holland, 1986). The vegetation in this community matches the description, and included giant reed. Southern cottonwood - willow riparian forest occurs along the entire length of the Santa Ana river riparian corridor within the study area.

3.3.2. Critical Habitat

The RTRP area does not support Critical Habitat as defined and determined by the U.S. Fish and Wildlife Service in compliance with the Federal Endangered Species Act.

3.3.3. Regional Wildlife Movement Corridors

The Santa Ana River transects the Project area. Links Bx, K (miles 0.0 – 2.0), Ax, T, D, Ja, Jb, and Jc cross or are adjacent to this wildlife corridor. The Santa Ana River is identified in the MSHCP as Core Area A, a critical wildlife movement corridor. Urbanization in the upland areas constrains wildlife movement along the riverbed and relative associated open space. Wildlife movement corridors are considered to be specific biological resources meant to facilitate wildlife movement between forage or refuge areas, prevent genetic isolation of a population, and promote species recruitment to maintain a healthy population and gene pool. Additionally, Link K (miles 2.0 – 4.3) parallels a flood control channel that provides additional use as a secondary corridor to open lands to the north of the Project area. This channel, however, is not identified in the MSHCP as a critical wildlife movement corridor.

Special-status wildlife species associated with the Santa Ana River corridor include least Bell's vireo, southwestern willow flycatcher, and the yellow-billed cuckoo. There are numerous resident wildlife and migratory bird species also associated with this corridor. The defined low-flow river limits, however, are not part of the study area because the Project will span the river channel and is not expected to affect this resource. Therefore, supported aquatic species were not evaluated as part of the study, as no Project action will affect these jurisdictional limits (low flow bank to bank).

3.3.4. 230 kV Transmission Corridors—Sensitive Species

Sensitive species include those listed as threatened, endangered, candidate, or proposed under the Federal ESA and under CESA, and those included in the MSHCP. Sensitive plant species include those that occur on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California.

The native vegetation communities that occur within the study area provide suitable habitat for a number of special-status plant and wildlife species. For this evaluation, a sensitive species was considered a potential inhabitant of the study area if its known geographical distribution encompasses part of the RTRP site, or if its distribution was located near the site and general habitat requirements of the species was present (e.g., foraging habitat, nesting or roosting, specific soil type, or a permanent water source). Habitat associations for sensitive plant species are summarized in Table 3 and animal species are summarized in Table 4.

The Santa Ana River bisects the Project area. This habitat is suitable for various sensitive species, including State and federal protected species. The Project design includes a span of the river channel with no effect to the bed or banks and supported vegetation or aquatic resources. The following discussion

recognizes sensitive species that may occur within this resource, but these species are expected to be avoided and therefore will be identified as "no effect," even when there is a potential to occur.

Sensitive Plant Species

Brand's phacelia (*Phacelia stellaris*): Brand's phacelia is a small (6 cm to 25 cm) annual herb in the Waterleaf Family (*Hydrophyllaceae*) that is known to occur in coastal dunes, open areas, and coastal sage scrub. The blooming period for Brand's phacelia is March through June. This species has been documented by the University of California, Riverside (UCR) in the vicinity of the study corridor near the Santa Ana River. Brand's phacelia is a candidate for federal listing, a CNPS list 1B.1 species, and covered under the MSHCP. The study corridors only support limited disturbed habitat for this species. This species is determined to have a low potential to occur in the study corridor. Based on Project design, the species is not expected to be directly or indirectly affected.

Bristly sedge (*Carex comosa*): Bristly sedge is an herbaceous perennial in the sedge family (*Cyperaceae*). This plant typically grows 50 cm to 100 cm tall, and is found in coastal prairies, marshes, swamps, lake margins, and valley and foothill grasslands. Blooming period for this species is May through September. Bristly sedge is a CNPS list 2.1 species. The study corridors only support limited disturbed habitat for this species. This species is determined to have a low potential to occur in the study corridor. Based on Project design, the species is not expected to be directly or indirectly affected.

California bedstraw (*Galium californicum* ssp. *primum*): California bedstraw is a perennial and is a woody, low-statured or climbing member of the *Rubiaceae* family, 5 cm to 90 cm tall, with leaves in whorls of four. Blooming period for this species is March to July. This species is known to occur in chaparral, lower montane coniferous forest, and the lower edge of pine belt, associated with granitic, sandy soils. The study corridors only support limited disturbed habitat for this species. This species is determined to have a low potential to occur in the study corridor. Based on Project design, the species is not expected to be directly or indirectly affected.

Chaparral sand verbena (*Abronia villosa* var. *aurita*): Chaparral sand verbena is an herbaceous annual in the four o'clock family (*Nyctaginaceae*). This species has a prostrate to ascending habit, grows to less than 80 cm tall, and is found in chaparral, coastal sage scrub, desert dunes, and sandy soils. Blooming period for chaparral sand verbena is January through August. Chaparral sand verbena is a CNPS list 1B.1 species. The study corridor supports suitable habitat in the eastern limits and recent records for the species are present in the vicinity. This species is determined to have a moderate potential to occur within the study corridors.

Gambel's water cress (*Rorippa gambelii*): Gambel's water cress is a large (up to two meters) perennial plant member of the mustard family (*Brassicaceae*), known to occupy marshes, streambanks, and lake margins. Blooming period for Gambel's water cress is April through September. Gambel's water cress is a federal Endangered and State Threatened species, and is a CNPS list 1B.1 species. Suitable habitat occurs along the Santa Ana River within the study corridors. This species is determined to have a moderate potential to occur in the study corridors. Based on Project design, the species is not expected to be directly or indirectly affected.

Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*): Los Angeles sunflower is a perennial herb of the *Asteraceae* family, and occurs in coastal salt and freshwater marshes and swamps. Blooming period for Los Angeles sunflower is from August to October. Los Angeles sunflower is a CNPS list 1A species, and is presumed extinct. Although it is not expected to occur, it is determined that this species has a low potential to occur within the study corridors. Based on Project design, the species is not expected to be directly or indirectly affected.

Marsh sandwort (*Arenaria paludicola*): Marsh sandwort is a perennial plant species in the pink family (*Caryophyllaceae*) which occupies boggy meadows, freshwater marshes, and swamps. Its habit is erect (25 cm to 90 cm tall), and is often supported by surrounding vegetation. Blooming period for marsh sandwort is May to August. The study corridors do not support suitable native undisturbed habitat so it is determined that this species has a low potential to occur within the study corridors. Based on Project design, the species will is not expected to be directly or indirectly affected.

Mesa horkelia (*Horkelia cuneata* ssp. *puberula*): Mesa horkelia is a perennial herb in the rose family (*Rosaceae*), and is known to occur in chaparral, cismontane woodland, closed-cone coniferous forests, maritime chaparral, coastal scrub, and sandy or gravelly soils. Blooming period for mesa horkelia is February through September. Mesa horkelia is a CNPS list 1B.1 species. The study corridors support marginally suitable habitat for this species. It is determined that this species has a low potential to occur within the study corridors. Based on Project design, the species is not expected to be directly or indirectly affected.

Parish's desert-thorn (*Lycium parishii*): Parish's desert-thorn is listed by the CNPS as a California Special Plant (CNPS list 2.3). This species is a perennial shrub in the nightshade family (*Solanaceae*), and occurs in coastal scrub, Sonoran desert scrub, sandy to rocky slopes, and canyons. Blooming period for this species is March through April. The study corridors support marginal habitat for this species, and it is determined that this species has a low potential to occur within the study corridors.

Parish's gooseberry (*Ribes divaricatum* var. *parishii*): Parish's gooseberry is a perennial shrub in the gooseberry family (*Grossulariaceae*), known to occupy riparian and wet woodlands. This species grows to less than 3.5 meters high, and blooms from February through April. Parish's gooseberry is a CNPS list 1B.1 species. Limited suitable habitat occurs in the study corridors, and it is determined that this species has a low potential to occur within the study corridors. Based on Project, design the species is not expected to be directly or indirectly affected.

Parry's spineflower (*Chorizanthe parryi* var. *parryi*): Parry's spineflower is an annual herb in the buckwheat family (*Polygonaceae*), known to occur in chaparral, coastal scrub, and openings in sandy or rocky soils. Blooming period for this herb is January through April. Parry's spineflower is a CNPS list 3.2 species and is covered under the MSHCP. Based on the surveyed study corridor, it is determined that this species has a low potential for occurrence within the study corridors.

Plummer's mariposa lily (*Calocortus plummerae*): Plummer's mariposa lily is a perennial bulbiferous herb in the lily family (*Liliaceae*), and occurs in chaparral, coastal scrub, woodland, lower montane coniferous forest, valley and foothill grassland, granitic rocky soils, and dry conditions. Blooming period for this species is May through July. Plummer's mariposa lily is a CNPS list 1B.2 species, and is covered under the MSHCP. It is determined that this species has a moderate potential for occurrence within the study corridors.

Pringle's monardella (*Monardella pringlei*): Pringle's monardella is an annual herb in the mint family *(Lamiaceae*), and occurs in coastal scrub in areas of sandy soil. Blooming period for this species is May through June. Plummer's mariposa lily is a CNPS list 1A species; it is presumed extinct. Although it is unlikely to occur based on historical data and level of disturbance within the study corridors, it is determined that this species has a low potential for occurrence within the study corridors.

Rayless ragwort (*Senecio aphanactis*): Rayless ragwort is an annual herb in the sunflower family (*Asteraceae*), and occurs in chaparral, cismontane woodland, coastal scrub, alkaline flats, and alkaline soils. Blooming period for this species is January through April. Rayless ragwort is a CNPS list 2.2

species. It is determined that this species has a moderate potential for occurrence within the study corridors.

Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*): Robinson's peppergrass is an annual herb in the mustard family (*Brassicaceae*), and occurs in chaparral, coastal scrub, and dry soils. Blooming period for this species is January through July. Robinson's peppergrass is a CNPS list 1B.2 species. It is determined that this species has a moderate potential for occurrence within the study corridors.

Salt spring checkerbloom (*Sidalcea neomexicana*): Salt spring checkerbloom is a perennial plant in the mallow family (*Malvaceae*) known to occur in alkaline springs and marshes, coastal scrub, chaparral, and playas. This species grows from clustered, fleshy roots and is approximately 0.75 meter in height. Blooming period for salt spring checkerbloom is March to June. It is determined that this species has a low potential to occur in the study corridors. Based on Project design, the species is not expected to be directly or indirectly affected.

San Bernardino aster (*Symphyotrichum defoliatum*): San Bernardino aster is a perennial herb in the sunflower family (*Asteraceae*), and occurs in cismontane woodlands, coastal scrub, lower montane coniferous forests, meadows and seeps, marshes and swamps, vernally mesic valley and foothill grasslands, near ditches, streams, and springs, and in disturbed areas. Blooming period for this species is July through November. San Bernardino aster is a CNPS list 1B.2 species. It is determined that this species has a moderate potential for occurrence within the study corridors.

San Diego ambrosia (*Ambrosia pumila*): San Diego ambrosia is a small, perennial herb in the sunflower family (*Asteraceae*) that is known to occur in chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, disturbed areas, and low, seasonally wet areas with alkaline soil. This is a rhizomatous species that propagates asexually and may not bloom every year. Blooming period for San Diego ambrosia is May through September. San Diego ambrosia is a Federal Endangered and CNPS list 1B.1 species. This species is believed to have been extirpated by development within the Project area, and it is determined that this species has a low potential to occur in the study corridors.

San Miguel savory (*Satureja chandleri*): San Miguel savory is a small herbaceous perennial shrub in the mint family (*Lamiaceae*), and occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. It is associated with gabbroic or metavolcanic soils. Blooming period for this species is June through September. San Miguel savory is a CNPS list 1B.2 species. It is determined that this species has a low potential for occurrence within the study corridors because suitable habitat is not present.

Santa Ana River woollystar (*Eriastrum densifolum* ssp. *sanctorum*): Santa Ana River woollystar is a perennial herb in the Phlox family (*Polemoniaceae*) known to occur in chaparral and alluvial fan coastal scrub, gravelly riverbeds, or gravelly soils. The blooming period is June through September. Santa Ana River woollystar is a federal Endangered, State Endangered, CNPS list 1B.1 species, and is covered under the MSHCP. It is determined that this species has a high potential to occur within the study corridors. Based on Project design, the species is not expected to be directly or indirectly affected.

Slender-horned spineflower (*Dodecahema leptocerus*): Slender-horned spineflower is an annual herb in the buckwheat family (*Polygonaceae*), and is known to occur in chaparral, cismontane woodland, alluvial fan coastal scrub, and sandy soils. Blooming period for this species is April through June. Slender-horned spineflower is a federal Endangered, State Endangered, and CNPS list 1B.1 species. It is determined that this species has a moderate potential to occur within the study corridors. It was, however, not found during focused surveys.

San Miguel savory (*Satureja chandleri*): San Miguel savory is a small herbaceous perennial shrub in the mint family (*Lamiaceae*), and occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. It is associated with gabbroic or metavolcanic soils. Blooming period for this species is June through September. San Miguel savory is a CNPS list 1B.2 species. Because of limited suitable habitat, it is determined that this species has a low potential for occurrence within the study corridors.

Smooth tarplant (*Centromadia pungens* ssp. *laevis*): Smooth tarplant is an annual herb in the sunflower family (*Asteraceae*), and occurs in chenopod scrub, meadows and seeps, riparian woodland, valley and foothill grassland, and alkaline soils. Blooming period for this species is April through September. Smooth tarplant is a CNPS list 1B.1 species. Because of limited suitable habitat, it is determined that this species has a low potential for occurrence within the study corridors.

Sensitive Wildlife Species

Birds

Coastal California gnatcatcher: Coastal California gnatcatcher (*Polioptila californica californica*) is a federal threatened species (1993), a State species of concern, and is covered by the MSHCP. The coastal California gnatcatcher, a small gray songbird, is a resident of sage scrub-dominated plant communities from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties in California into Baja California, Mexico. Breeding season is from February through August, with the peak nesting activity occurring from mid-March through mid-May. This species is associated with coastal sage scrub and Riversidian sage scrub habitats. It is determined that this species has a moderate potential to occur in patches of sage scrub along the Santa Ana River and in the eastern limits of the study corridors. It is not known to be present within the surveyed project corridors.

Least Bell's vireo: Least Bell's vireo (*Vireo bellii pusillus*) is a federal and State endangered species, and is covered by the MSHCP. Since its listing, least Bell's vireo has increased in the United States from 291 to 2,968 known territories. The population restoration has slowed over the last 10 years due to growing human population and associated urbanization (USFWS 2006). Least Bell's vireo are typically 115-125 mm in length and the crown, nape, hindneck, and upper back are dull grayish brown (Brown 2005). In California, nest sites are occasionally found in the same shrub within one meter of the previous year's nest (Greaves 1987).

Least Bell's vireo generally arrives in southern California breeding grounds mid-March to early April, with males arriving in advance of females by several days. This species is an obligate riparian species during the breeding season (USFWS 1998). Habitat associated with this species is dense willow-dominated riparian along water or along dry parts of intermittent streams with lush understory vegetation, southern willow scrub, cottonwood forest, mule fat scrub, sycamore alluvial woodland, coast oak riparian forest, arroyo willow riparian forest, wild blackberry, or mesquite in desert localities.

USFWS Critical Habitat for the least Bell's vireo along the Santa Ana River extends from Rubidoux near Riverside down to Prado Basin (USFWS 1998). The CNDDB reported sightings along the Santa Ana River and 0.5 mile east and west of Van Buren Boulevard overcrossing. Based on Project 2007 and 2008 focused survey data, this species is determined to be present within the study corridors along the Santa Ana River [TRC (Bloom), 2007/ POWER (Bloom) 2008]. Focused surveys conducted in spring and summer 2008 located an estimated 95 pairs of least Bell's vireos in or adjacent to the Project corridors. Most of these were sighted immediately west or north of the Pedley Substation, near the intersection point of Segments H, I, and J. Other vireo specimens were sighted between Segments K and D, and both west and east of the proposed 230 kV substation at the intersection point of Segments A, B, and C. It is determined that this species is present within the Project area occupying forage and breeding habitat

within the established vegetation in the Santa Ana River channel. The Project is not expected to directly affect this species, but has the potential to result in temporary indirect impacts to this species.

Southern California rufous-crowned sparrow: The Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a State species of concern and is covered by the MSHCP. The rufous-crowned sparrow is largely a resident species and occurs in central California, north central Arizona, southwestern New Mexico, southeastern Colorado, northwestern and central Oklahoma, south discontinuously to southern Baja, California and Mexico. This species is often found in areas of coastal sage scrub, sparse mixed chaparral, and relatively steep rocky hillsides with patches of shrubs and grass. It is determined that this species has a low potential for occurring within the study corridors.

Southwestern willow flycatcher: The southwestern willow flycatcher (*Ampidonax traillii extimus*) is a federal and State endangered species and is covered by the MSHCP. This migratory bird is often associated with dense riparian habitats, usually shrubby, along rivers, streams or other wetlands. Large numbers of willow flycatcher pass through southern California during spring and fall migration. It is difficult to differentiate between the endangered subspecies that breeds in southern California and the non-endangered subspecies (*E. t. brewsteri*) that breeds to the north in the Sierra Nevada and Cascade Mountain ranges. There is a period of overlapping occurrence in southern California riparian habitats for these two very similar-looking subspecies during spring and fall migrations.

The southwestern willow flycatcher is of particular importance because the habitat of this species is restricted to river corridors in the arid West; therefore, regional conservation planning efforts (e.g., MSHCP) attempt to protect habitats associated with this species. Suitable habitat for southwestern willow flycatcher is located along the Santa Ana River. The CNDDB reported sightings along the Santa Ana River and 0.5 mile east and west of Van Buren Boulevard overcrossing. Based on Project 2007 focused survey data, this species is determined to be present within the study corridors along the Santa Ana River (TRC (Bloom), 2007). Focused surveys conducted in May and June of 2008 located three willow flycatchers, presumed migrant, two of which may have been the same individual. All sightings were outside of the Project corridor. Two occurred in the Santa Ana River west of the Pedley Substation at the intersection point of Segments H, I, and J. The other sighting was in the Santa Ana River northeast of the Pedley Substation (Bloom 2008). The study did not determine that any of these observed individuals established nests within the Project area of the Santa Ana River.

Because of the limited observations and the migrant characteristic of the observation, it is determined that the Project is not expected to directly affect this species. Construction activity may result in short-term indirect impact to this species should it occur as a migrant or if it should establish nesting territory.

Tricolored blackbird: The tricolored blackbird (*Agelaius tricolor*) is a State species of concern. This species nests in colonies and requires open water, preferably in emergent wetland, with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs, and forages in grassland and cropland habitats (MSHCP). This species has a moderate potential to occur in the Project area within the established vegetation in the Santa Ana River channel. The Project is not expected to directly affect this species, but has the potential to result in temporary indirect impacts to this species during the construction phase.

Western yellow-billed cuckoo: The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is a federal candidate for listing, and a State endangered species. This species is often found in areas of riparian vegetation; however, this species prefers open woodlands with clearings and a dense shrub layer. Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat in areas where this species has been studied.

In California, breeding is restricted to isolated sites in Sacramento, Amaragosa, Kern, Santa Ana, and Colorado River valleys (Laymon and Halterman 1987). Suitable habitat was identified within the study area within the Santa Ana River channel. The study corridors support limited fragment, disturbed habitat that is considered to be marginally suitable for this species. It is determined that this species has a low potential to occur within the Project area within the established vegetation in the Santa Ana River channel. The Project is not expected to directly affect this species, but has the potential to result in temporary indirect impacts to this species during the construction phase.

Western burrowing owl: The western burrowing owl (*Athene cunicularia hypugaea*) is a State species of concern and, as with most other bird species, is protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The burrowing owl is a comparatively small owl (approximately 8-10 inches), distinguished by its long legs and burrow (ground) nesting behavior. The western burrowing owl is semi-diurnal in that it is active in early morning and evening hours and will commonly perch during daylight hours at the entrance to its burrow or on a shorter post or perch. This species feeds primarily on insects and crustaceans, but will prey upon small birds and small mammals (Thomsen 1971). Burrowing owls nest in single pairs and small colonies. It utilizes burrows (underground holes) created by other burrowing mammals (e.g., ground squirrels) and will use open-ended pipes, culverts, and rock debris piles with suitable cavities. It does not excavate its own burrow.

As listed in Table 4, potential and occupied burrowing owl habitat exists within the Project corridor. Habitat utilized by this species includes, but is not limited to, native and non-native grasslands, fallow fields, washes, arroyos, areas of low-density cover, vacant lots, and road embankments. Burrowing owls were observed at multiple locations (see Appendix A maps) within the study corridor (TRC 2006). There is a potential for this species to nest and winter within the study corridor. It is determined that this species is present within the study corridors. Based on Project design, potential nest burrows identified during preconstruction surveys will be avoided. The Project is expected to result in potential temporary impact to this species during construction, but is not expected to result in direct impact. Minimal occupied foraging or breeding habitat will be permanently adversely affected by Project implementation.

Yellow-breasted chat: The yellow-breasted chat (*Icteria virens longicauda*) is a State species of concern. The yellow-breasted chat utilizes riparian habitat with low, dense thickets of willows, blackberry, and wild grape near watercourses. It typically nests within ten feet of the ground. Suitable habitat occurs along links associated with the Santa Ana River within the study corridors. It is determined that this species has a moderate potential to occur within the Project area within the established vegetation in the Santa Ana River channel. The Project is not expected to directly affect this species. During construction, the Project has the potential to result in temporary indirect impacts to this species.

Mammals

American badger: The American badger (*Taxidea taxus*) is a State species of concern. Habitat utilized by this species includes grasslands, savanna, and mountain meadows. The American badger requires open, uncultivated ground, and preys on burrowing species. It is determined that this species is absent in the study area. Any potential suitable habitat is fragmented and most adjacent areas are urbanized; no burrows or other sign was observed. It is determined the Project is not expected to directly or indirectly affect this species.

Los Angeles pocket mouse: The Los Angeles pocket mouse (LAPM) (*Perognathus longimembris brevinasus*) is a State species of concern, and covered by the MSHCP. The LAPM is one of the two *P. longimembris* that occur on the coastal plain of southern California. This species is associated with various sage scrub plant communities and has been observed in open grasslands, alluvial sage scrub, alluvial fan scrub, and within coastal sage scrub. The CNDDB records one occurrence of LAPM upstream

of the Project area within and adjacent to the Santa Ana River channel area. As part of initial RTRP siting studies, earlier evaluated links included areas to the east of the Project area. Focused small mammal surveys captured 60 individuals east of Riverside Avenue on both the north and south sides of the Santa Ana River. Approximately 408 acres of occupied habitat occurred within and immediately adjacent to the surveyed area. A large population of LAPM is located on the north side of the Santa Ana River between Riverside Avenue and the Rialto Channel. A smaller population is located south of the Santa Ana River between Riverside Avenue and the base of the La Loma Hills; however, it is thought that the populations are not isolated from each other and should be considered the same population (Davenport (TRC) 2006). The final evaluated links did not support suitable habitat for this species. It is determined this species is absent from the Project area evaluated for the identified links.

Northwestern San Diego pocket mouse: The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is a State species of concern. Suitable habitat consists of sandy, herbaceous areas, rocks, or coarse gravel. Individual species were trapped during the 2006 focused surveys (Davenport (TRC) 2006) in the areas of earlier evaluated potential routes. The final evaluated links did not support suitable habitat for this species. It is determined this species is absent from the Project area evaluated for the identified links.

San Bernardino kangaroo rat: The San Bernardino kangaroo rat (SBKR) (*Dipodomys merriami parvus*) is federal endangered species, a State species of special concern, and covered by the MSHCP. The SBKR is one of the two subspecies of *D. merriami* that occur on the coastal plain of southern California (i.e., south of the Transverse Range and west of the Peninsular Ranges). This species is associated with alluvial sage scrub and adjacent plant communities where the soils are sandy. As of 2008, the CNDDB recorded four observations of SBKR within 13 miles of the study corridor. During focused surveys in 2006, no SBKR were trapped or otherwise detected (Davenport (TRC) 2006). Because of the focused survey results, change in evaluated links, and lack of suitable habitat, it is determined that this species is not present within the Project area.

San Diego black-tailed jackrabbit: The San Diego black-tailed jackrabbit (*Lepus californicus bennettii)* is a State species of concern. Suitable habitat for this species consists of grasslands, rangelands, coastal sage scrub, and disturbed areas. San Diego black-tailed jackrabbit was observed in the eastern limits of the study corridors during focused small mammal surveys (Davenport (TRC) 2006). It is determined that this species is present within the study corridors.

Southern grasshopper mouse: The southern grasshopper mouse (*Onychomys torridus ramona*) is a State species of concern. The southern grasshopper mouse utilizes desert areas, especially scrub with friable soil, with low to moderate shrub cover. Based on the focused small mammal survey results and lack of sufficient suitable habitat, it is determined that this species has a low potential to be present in the study corridors.

Stephen's kangaroo rat: The Stephen's kangaroo rat (*Dipodomys stephensi*) is a federal endangered species. Habitat for this species consists of annual and perennial grasslands, coastal scrub, and sagebrush with sparse canopy cover. Based on the focused small mammal survey results and lack of sufficient suitable habitat, it is determined that this species has a low potential to be present in the study corridors.

Western mastiff bat: The western mastiff bat (*Eumops perotis californicus*) is a State species of concern. Habitat utilized by this species includes open, semi-arid to arid, coastal scrub, grasslands, chaparral, conifer, and deciduous woodlands. This species usually roosts in crevices in cliff faces, high buildings, trees, and tunnels. Suitable roost sites and forage habitat is present within links along the Santa Ana River, and it is determined that this species has a moderate potential to occur within the study corridors. The Project is not expected to directly affect this species. While the Project area supports existing aerial

man-made elements, the new transmission line will provide a new aerial obstacle. This has the potential to result in a small and unquantifiable impact to this species' foraging habitat.

Western yellow bat: The western yellow bat (*Lasiurus xanthinus*) is a State species of concern. The western yellow bat tends to roost in trees, particularly palms. Typical habitat for this species consists of valley foothill riparian, desert riparian, desert wash, and palm oasis. Suitable roost sites and forage habitat is present within links along the Santa Ana River. It is determined that this species has a moderate potential to occur within the study corridors. The Project is not expected to directly affect this species. While the Project area supports existing aerial man-made elements, the new transmission line will provide a new aerial obstacle. This has the potential to result in a small and unquantifiable impact to this species' foraging habitat.

Reptiles

Northern red-diamond rattlesnake: The northern red-diamond rattlesnake (*Crotalus exsul*) is a Federal Special Concern species (FSC) and a State species of concern. This species is known to occur throughout western Riverside County. In the northern part of its range, the red diamond rattlesnake occupies environments from the coast to the desert slopes of the mountains, but avoids the lower desert flats and elevations above 5,000 feet. During warm weather this species is most active at dusk and at night. It is determined that this species has a moderate potential to occur within the study corridors.

Orange-throated whiptail: The orange-throated whiptail (*Aspidoscelis hyperythra*) is a State species of concern. Habitat for this species includes coastal scrub, chaparral, valley-foothill hardwood, washes, and other sandy areas with loose soil and rocks. This species feeds on termites and other insects. It is determined that this species has a moderate potential to occur within the study corridors.

San Diego banded gecko: The San Diego banded gecko (*Coleonyx variegatus abbotti*) is a State species of concern. Habitat for this species includes rocky areas, canyon walls, and sand dunes. Because of the level of urban disturbance and lack of sufficient suitable habitat, it is determined that this species is absent from the Project area.

Insects

Busck's gallmoth: The Busck's gallmoth (*Caolella busckana*) is a State species of concern. This species was last observed in 1906. Habitat type for this species is not clearly defined. Because of the level of urban disturbance, age of the last recorded sighting, and lack of sufficient native habitat, it is determined that this species absent from the Project area.

Cuckoo wasp: The cuckoo wasp (*Ceratochrysis longimala*) is a State species of concern. This species was last observed in the Project area in 1915. The cuckoo wasp species prefers chaparral and scrub habitat. Because of the level of urban disturbance, age of the last recorded sighting, and lack of sufficient suitable habitat, it is determined that this species is absent in the study corridors.

Delhi sands flower-loving fly: The Delhi sands flower-loving fly (DSF) (*Rhaphiomidas terminatus abdominalis*) is a federal endangered species (58 Federal Register 49881) (USFWS 1997), and is covered by the MSHCP. The DSF is approximately 2.5 centimeters in length, orange-brown in color, and has dark brown spots on the upper surface of the abdomen (USFWS 1997). This species is restricted by the distribution and availability of open habitats within the fine, sandy Delhi series soil. The life span of this animal is unknown, but the larval stage may be two years or longer, depending on the availability of food, temperature, rainfall, and various other environmental factors (USFWS 1997). The early stages of the DSF are specialized for a fossorial (burrowing) existence in substrates with a high blow sand fraction. The body shape and structures enable the larva to burrow through the fine sand, and the head of the pupa

possess a large spine that may be useful in tunneling through the soil for emergence (USFWS 1997). Adults are active in the late summer; however, the animal spends the rest of its life cycle underground.

DSF distribution in the Project vicinity straddles I-10 in the surrounding cities of Colton, Rialto, and Riverside, and western San Bernardino County. The distribution of the DSF within Riverside County is limited to the northern portion of the County within Mira Loma, Jurupa, and the Agua Mansa area. Dominant plants within the DSF habitat consist of California buckwheat, telegraph weed (*Heterotheca grandiflora*), and croton (*Croton californicus*).

During initial siting evaluation, certain potential routes were determined to support suitable or mapped habitat for this species. Focused surveys in 2006 did locate several individuals of this species within potential alignment links that were not continued for project analysis due to identified constraints. These observed occurrences are not within the links evaluated in this technical report. Survey protocols, set forth by the USFWS Interim General Survey Guidelines for the DSF, were utilized to maximize the validity of a presence/absence determination (Osborne 2006). During focused surveys in 2006, two female and three male Delhi sands flower-loving flies were observed within an initially evaluated eastern corridor.

Based on the evaluated links for this assessment, suitable habitat was not identified within the Project area study limits. Potential mapped habitat (MSHCP) is located at the northern end of the western route near Interstate 15. This area currently supports ruderal, non-native vegetation, appears to have been used for pasture or agriculture, and does not support any native characteristic plants. Because of the lack of suitable habitat, it is determined that this species is absent within the study corridors. Focused surveys, of this parcel will be conducted in 2010 and 2011 to comply with MSHCP requirements. Construction alternatives to avoid tie-in at this parcel are optional. Therefore, the "not likely to affect" determination is supported for the analysis.

Greenest tiger beetle: The greenest tiger beetle (*Cicindela tranquebarica viridissima*) is State species of concern. Habitat utilized by this species includes woodlands adjacent to the Santa Ana River basin. It is determined that this species has a high potential to occur within the study corridors. The Project is not expected to directly or indirectly affect this species based on design and construction specifications. Potential habitat is expected to be avoided by construction.

Fish

Arroyo Chub: The arroyo chub (*Gila orcutti*) is a State species of concern. The arroyo chub is known to occur in the Santa Ana River, from Jurupa downstream to the Prado Basin (MSHCP 2001). This species breeds more or less continuously from February through August, although most spawning takes place in June and July. The Project would span the Santa Ana River, and is determined to not directly or indirectly affect this species.

Santa Ana Sucker: The Santa Ana sucker (*Catostomus santaanae*) is a federal threatened species (65 Federal Register 19686-19698) and a State species of concern. Historically, this species ranged throughout Southern California, including the San Gabriel, Los Angeles, and Santa Ana River drainages (MSHCP 2001). This species lives in shallow streams and survives in the lower portions of the Santa Ana River from the Imperial Highway (State Route 90) to Rubidoux near the City of Riverside (MSHCP 2001). The Santa Ana sucker breeds in tributary streams; however, it has not been observed to breed in the Santa Ana River. The river channel typically supports a higher velocity flow and the water quality is also considered unsatisfactory to support this species' breeding requirements. Dispersal usually occurs up or downstream as conditions and suitable habitat permit, and is typically facilitated by flooding events. The Project would span the Santa Ana River and is determined to not directly affect this species.

TABLE 1. POTENTIAL FOR OCCURRENCE OF SPECIAL-STATUS PLANT AND ANIMAL SPECIES FOR ALL PROJECT LINKS (230 KV TRANSMISSION LINE ALTERNATIVES)

Species	Listing Status			Link Number																		
	Federal	State	CNPS	Ax	Bx	D	H	I	Ja	Jb	Jc	Jd	K	L	M	N	P	Q	R	S	T	U
Vegetation																						
Brand's phacelia (*Phacelia stellaris*)*	FC	None	1B.1	L	M	M	L	L	A	A	A	A	L	A	L	L	A	A	A	A	L	L
Bristly sedge (*Carex comosa*)	None	None	2.1	L	L	L	L	A	L	A	A	A	M	A	L	L	A	A	L	A	L	L
Chaparral sand-verbena (*Abronia villosa* var. *aurita*)	**None**	**None**	1B.1	L	L	L	L	L	L	L	L	L	M	A	A	A	A	A	L	A	A	L
Gambel's water cress (*Rorippa gambelii*)	**FE**	**ST**	1B.1	L	M	L	A	L	M	A	A	A	M	A	L	L	A	A	L	A	L	L
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	None	None	1A	L	L	L	A	A	L	A	A	A	L	A	L	L	A	A	L	A	L	L
Marsh sandwort (*Arenaria paludicola*)	**FE**	**SE**	1B.1	L	M	L	A	L	LL	A	A	A	L	A	L	L	A	A	L	A	L	L
Mesa horkelia (*Horkelia cuneata* ssp. *puberula*)	None	None	1B.1	L	L	L	L	L	A	A	A	A	L	A	A	A	A	A	A	A	A	A
Parish's desert-thorn (*Lycium parishii*)	None	None	2.3	L	L	L	L	L	A	A	A	A	L	A	A	A	A	A	A	A	A	A
Parish's gooseberry (*Ribes divaricatum* var. *parishii*)	None	None	1B.1	L	M	L	A	L	M	A	L	A	M	A	L	L	A	A	A	L	L	L
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	None	None	3.2	L	L	L	L	L	M	A	L	A	L	A	A	A	A	A	A	A	L	A
Plummer's mariposa lily (*Calocortus plummerae*)	None	None	1B.2	M	M	M	M	M	M	M	M	L	M	A	A	A	A	A	L	L	L	A
Pringle's monardella (*Monardella pringlei*)	None	None	1A	L	L	L	L	L	A	A	A	A	M	A	A	A	A	A	A	A	A	A
Rayless ragwort (*Senecio aphanactis*)	None	None	2.2	M	M	M	M	M	L	L	L	A	M	A	A	A	A	A	A	A	A	A
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	None	None	1B.2	M	M	M	M	M	A	A	A	A	L	A	A	A	A	A	A	A	A	A
Salt Spring checkerbloom (*Sidalcea neomexicana*)	None	None	2.2	L	L	L	L	L	A	A	A	A	L	A	A	A	A	A	A	A	A	A
San Bernardino aster (*Symphyotrichum defoliatum*)	None	None	1B.2	M	M	M	M	M	M	L	L	L	M	A	L	A	A	A	A	A	M	L
San Diego ambrosia (*Ambrosia pumula*)*	**FE**	None	1B.1	L	L	L	L	L	L	L	L	L	L	L	A	A	A	A	A	L	L	L
San Miguel savory (*Satureja chandleri*)*	None	None	1B.2	L	M	M	M	M	M	L	L	L	M	A	L	A	A	A	L	A	L	L
Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*)	**FE**	**SE**	1B.1	L	M	L	L	L	H	L	A	A	H	A	A	A	A	A	A	A	L	A
Slender-horned spineflower (*Dodecahema leptocerus*)	**FE**	**SE**	1B.1	L	L	L	L	L	M	A	A	A	M	A	A	A	A	A	A	A	L	A
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	None	CSP	1B.1	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Wildlife																						
Invertebrates																						
Cuckoo wasp species (*Ceratochrysis longimala*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Busck's gallmoth (*Carolella busckana*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)	**FE**	CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Greenest tiger beetle (*Cicindela tranquebarica viridissima*)		CSA		H	H	H	M	M	H	H	H	L	H	H	M	M	L	L	L	L	H	H

Species	Listing Status			Link Number																	
	Federal	State	CNPS	Ax	Bx	D	H	I	Ja	Jb	Jc	Jd	K	L	M	N	P	Q	R	S	T	U
Reptiles																						
Northern red-diamond rattlesnake (*Crotalus ruber ruber*)		CSC		M	M	H	H	M	H	L	L	M	H	L	L	L	L	M	M	L	H	H
Orange-throated whiptail (*Aspidoscelis hyperythra*)		CSC		M	M	M	L	L	M	A	L	M	M	A	A	A	A	A	L	A	M	M
San Diego banded gecko (*Coleonyx variegatus abbotti*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Birds																						
Western burrowing owl *(Athene cunicularia)*		CSC		H	H	H	H	H	A	M	M	H	P	A	A	H	A	H	P	H	A	A
Coastal California gnatcatcher (*Polioptila californica californica*)	FT	CDC		M	M	M	L	L	M	A	A	A	A	A	A	A	A	A	A	A	A	A
Least Bell's vireo (*Vireo bellii pusillus*)	**FE**	**SE**		H	P	P	M	M	P	A	L	A	P	P	A	A	A	A	L	A	P	P
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)		CSC		M	M	M	L	L	M	A	L	L	A	A	A	A	A	L	L	L	L	A
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	**FE**			M	M	M	M	M	M	A	L	A	M	M	A	A	A	A	L	A	M	M
Tricolored blackbird (*Agelaius tricolor*)		CSC		A	A	A	A	A	A	A	A	L	A	A	A	A	A	A	A	A	A	A
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC	**SE**		L	L	L	A	A	L	A	A	A	L	A	A	A	A	A	L	A	L	L
Yellow-breasted chat (*Icteria virens*)		CSC		M	M	M	A	A	M	A	A	A	M	A	A	A	A	A	M	A	M	M
Mammals																						
American badger (*Taxidea taxus*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
San Bernardino kangaroo rat (*Dipodomys merriami parvus*)	**FE**	CSC		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)		CSC		L	M	H	H	H	L	H	H	L	L	L	A	A	A	L	L	L	A	L
Southern grasshopper mouse (*Onychomys torridus ramona*)		CSC		L	M	M	M	L	A	L	L	L	L	L	A	L	A	L	L	L	A	A
Western mastiff bat (*Eumops perotis californicus*)		CSC		M	M	M	M	M	M	A	A	L	M	A	A	A	A	M	M	M	M	M
Western yellow bat (*Lasiurus xanthinus*)		CSA		L	M	M	L	L	M	L	L	L	M	L	L	L	L	L	L	L	M	M

P = Present
H = High potential for occurrence
M = Moderate potential for occurrence
L = Low potential for occurrence
A = Absent/none

* Also covered under the MSHCP
FE – Federal Endangered
FC – Federal Candidate
SE – State Endangered
ST – State Threatened
CSP – California Special Plant

List 1A – Presumed Extinct in California
List 1B – Rare, threatened, or endangered in California and elsewhere
- 1B.1 – Seriously endangered in California
- 1B.2 – Fairly endangered in California
- 1B.3 – Not very endangered in California

List 2 – Rare, threatened, or endangered in California, but more common elsewhere
- 2.1 – Seriously endangered in California
- 2.2 – Fairly endangered in California
- 2.3 – Not very endangered in California

List 3 – More information required (Review List)
- 3.2 – Fairly endangered in California

California Department of Fish and Game
SE = State listed, endangered
ST = State listed, threatened
CSC = California species of special concern
CSA = California special animal

U.S. Fish and Wildlife Service
FE = Federally listed, endangered
FT = Federally listed, threatened

3.3.5. 69 kV Transmission Corridors

The 69 kV subtransmission line study corridor is in a developed area surrounded primarily by residential structures and exotic, ornamental vegetation and non-native grassland; however, there are small patches of vegetation communities, such as alluvial scrub, Riversidian sage scrub, riparian scrub, and southern cottonwood / willow riparian that could potentially support special-status species.

Vegetation communities and cover types and special-status species are listed below for the 69 kV Project study area. Refer to Section 3.3.1 for a detailed description of the vegetation communities and species. For special-status species that only occur in the 69 kV study corridor, a description is provided.

69 kV Vegetation Communities and Cover Types

Plant communities were characterized by utilizing series descriptions from MSHCP and CNDDB. This information was cross-referenced with other sources, including USGS 7.5-minute quadrangle maps, GIS data, and a review of prior survey reports conducted in the general area. The vegetation communities present along each link are presented in the Technical Appendices of this report. The identified cover types include:

- Agriculture
- Alluvial Scrub
- Arundo
- Bare Ground / Disturbed
- Disturbed
- Landscaping
- Non-Native Grassland
- Riparian Scrub
- Riversidian Sage Scrub
- Southern Cottonwood / Willow Riparian
- Developed

69 kV Special-Status Species

Special-status species include those listed as threatened, endangered, candidate, or proposed under the federal ESA and under the CESA, and those included in the MSHCP. Sensitive plant species include those that occur on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California.

A special-status species was considered a potential inhabitant of the study area if its known geographical distribution encompasses part of the RTRP site, or if its distribution was located near the site and general habitat requirements of this species was present (e.g., foraging habitat, nesting or roosting, specific soil type, or a permanent water source). The habitat associations for all special-status plant and animal species are summarized in Tables 6 and 7.

The following special-status species have the potential to occur along the 69 kV subtransmission study corridors (see Appendix A) and were described in detail in Section 3.3.4.

Sensitive Plant Species – 69 kV Project links

Within the vegetation communities crossed by the 69 kV subtransmission study corridors, seven sensitive plant species have the potential to occur. Although no sensitive plant species were observed during field

surveys, the following plants have the potential to occur within the 69 kV limits of the Project area because suitable habitat is present.

- San Diego ambrosia
- slender-horned spineflower
- Parish's desert-thorn
- Parry's spineflower
- rayless ragwort
- Robinson's peppergrass
- San Miguel savory

Sensitive Wildlife Species – 69 kV Project links

The following sensitive wildlife species have the potential to occur within the 69 kV portions of the Project area.

Special-Status Bird Species

- western burrowing owl
- least Bell's vireo
- southwestern willow flycatcher,
- tricolored blackbird
- western yellow-billed cuckoo

Special-Status Mammal Species

- Stephen's kangaroo rat
- western mastiff bat
- western yellow bat

Special-Status Reptiles

- coast horned lizard
- northern red-diamond rattlesnake
- orange-throated whiptail

3.3.6. Wildlife/Wilderness Substations

The proposed substations are located in an area dominated by commercial and industrial uses. The vegetation cover of the site is comprised of manicured lawn, ruderal/disturbed field, and non-native grassland. Three species have the potential to be located within this disturbed area, and are listed below.

Special-Status Plants

- **San Diego ambrosia**

Special-Status Bird Species

- **western burrowing owl**

Special-Status Mammal Species

- **western yellow bat**

3.4 MSHCP COMPLIANCE

Riverside County and partner cities and organizations have agreed to manage western Riverside County species under a Biological Opinion (2005). As part of the County's review requirements, there are four specific resource areas to be addressed in a biological assessment for determination of adequacy by the MSHCP. These are discussed below.

3.4.1. MSHCP Section 6.1.2 Riparian

The RTRP includes aerial spans of riparian habitat for several evaluated links. The aerial spans will be elevated above mature tree height. It is not expected that construction or operation will require temporary or permanent impact to these riparian habitats. Based on Project design, the Project is not expected to result in direct or indirect impacts to this resource.

Evaluated links cross the Santa Ana River within Criteria Cell 643. The link includes a lattice structure tower that would have a footprint on the upper bank. It is not anticipated that this location would result in loss of native habitat.

The several western links have the potential to affect the 100-year flood plain with a construction of berm for tower access. This area supports a small area of wetland and upper floodplain. It was disturbed by a dairy facility, but this operation has ceased and the area is now disturbed, ruderal habitat.

3.4.2. MSHCP Section 6.1.3 Narrow Endemic Plant

Focused surveys were conducted during 2006, 2007, and 2008 to evaluate the potential of the Project area to support sensitive species and identified narrow endemic plants (MSHCP, Riverside / Norco Planning Area). As identified in this document, several links have the potential to support sensitive plant species but no target species were observed during the survey. Project design and requirements include preconstruction Spring surveys to confirm that no observed sensitive plant species will be affected the Project.

3.4.3. MSHCP Section 6.3.2 Additional Species

The Project area supports additional species listed within the Riverside or Norco planning areas. These species may be temporarily and indirectly affected by the Project, similar to impacts identified for other sensitive species.

3.4.4. MSHCP Section 6.1.4 Wildland Interface

The Project includes links parallel to the Santa Ana River, and design includes one aerial span crossing of the river channel for the 230 kV transmission line. The Santa Ana River is Quasi-Public Land and Open Space as defined by the MSHCP. In the Project area, the river is bound by commercial land use, golf courses along the northern river bank as well as residential land use, and open space park land on the southern river bank. For this region this area is considered a wildland interface. The Project construction has the potential to result in short-term temporary impacts during construction. It is not expected that the Project would result in significant long-term permanent impacts to the value of the Santa Ana River channel and open space along the adjacent banks in respect to wildland interface. The Project does not

significantly obstruct migration or movement paths, result in discordant land use that would conflict with wildlife use or significantly degrade the existing lower habitat value of the area.

TABLE 2. POTENTIAL FOR OCCURRENCE OF SPECIAL-STATUS PLANT AND ANIMAL SPECIES BY PROJECT LINK (69 KV TRANSMISSION LINE ALTERNATIVES, LINKS WS-MV1 THROUGH WS-MV13)

Species	Listing Status			Link Number												
	Federal	State	CNPS	WS-MV1	WS-MV2	WS-MV3	WS-MV4	WS-MV5	WS-MV6	WS-MV7	WS-MV8	WS-MV9	WS-MV10	WS-MV11	WS-MV12	WS-MV13
Vegetation																
Parish's desert-thorn (*Lycium parishii*)		CSP	2.3	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)*		CSP	3.2	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
Rayless ragwort (*Senecio aphanactis*)		CSP	2.2	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)		CSP	1B.2	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
San Diego ambrosia (*Ambrosia pumila*)*	**FE**	CSP	1B.1	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
San Miguel savory (*Satureja chandleri*)*		CSP	1B.2	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
Slender-horned spineflower (*Dodecahema leptocerus*)*	**FE**	**SE**	1B.1	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
Wildlife																
Invertebrates																
Cuckoo wasp species (*Ceratochrysis longimala*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A
Busck's gallmoth (*Carolella busckana*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A
Reptiles																
Northern red-diamond rattlesnake (*Crotalus ruber ruber*)		CSC		A	A	L	A	A	A	A	A	A	A	A	A	M
Orange-throated whiptail (*Aspidoscelis hyperythra*)		CSC		A	A	L	A	A	A	A	A	A	A	A	A	A
Coast (San Diego) horned lizard (*Phrynosoma coronatum)*		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A
Birds																
Western burrowing owl *(Athene cunicularia)*		CSC		L	L	L	L	L	L	A	L	L	L	L	A	a
Least Bell's vireo (*Vireo bellii pusillus*)	**FE**	**SE**		A	A	L	A	A	A	A	A	A	A	A	A	L
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	**FE**			A	A	L	A	A	A	A	A	A	A	A	A	L
Tricolored blackbird (*Agelaius tricolor*)		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC	**SE**		A	A	L	A	A	A	A	A	A	A	A	A	L
Mammals																
Stephen's kangaroo rat *(Dipodomys stephensi)*	**FE**			A	A	A	A	A	A	A	A	A	A	A	A	A
Western mastiff bat (*Eumops perotis californicus*)		CSC		M	M	M	M	M	M	M	M	M	M	M	M	M
Western yellow bat (*Lasiurus xanthinus*)		CSA		A	A	L	A	A	A	A	A	A	A	A	A	L

TABLE 3. POTENTIAL FOR OCCURRENCE OF SPECIAL-STATUS PLANT AND ANIMAL SPECIES BY PROJECT LINK (69 KV TRANSMISSION LINE ALTERNATIVES, LINKS 1-42)

Species	Listing Status			Link Number														
	Federal	State	CNPS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15a-42. N-1-N-5
Vegetation																		
Parish's desert-thorn (*Lycium parishii*)		CSP	2.3	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	L	L
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)*		CSP	3.2	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	L	L
Rayless ragwort (*Senecio aphanactis*)		CSP	2.2	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	M	M
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)		CSP	1B.2	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	M	M
San Diego ambrosia (*Ambrosia pumila*)*	**FE**	CSP	1B.1	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	L	L
San Miguel savory (*Satureja chandleri*)*		CSP	1B.2	L	L	L	L	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	L	L
Slender-horned spineflower (*Dodecahema leptocerus*)*	**FE**	**SE**	1B.1	M	M	M	M	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	M	M
Wildlife																		
Invertebrates																		
Cuckoo wasp species (*Ceratochrysis longimala*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Busck's gallmoth (*Carolella busckana*)		CSA		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Reptiles																		
Northern red-diamond rattlesnake (*Crotalus ruber ruber*)		CSC		A	M	A	L	L	L	L	L	A	A	A	A	A	A	A
Orange-throated whiptail (*Aspidoscelis hyperythra*)		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Coast (San Diego) horned lizard (*Phrynosoma coronatum)*		CSC		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Birds																		
Western burrowing owl *(Athene cunicularia)*		CSC		H	L	H	P	H	H	H	H	H	H	L	A	L	L	H
Least Bell's vireo (*Vireo bellii pusillus*)	**FE**	**SE**		A	A	A	L	M	M	H	A	A	A	A	A	A	A	A
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	**FE**			A	A	A	L	L	L	L	A	A	A	A	A	A	A	A
Tricolored blackbird (*Agelaius tricolor*)		CSC		A	A	L	L	L	L	L	L	A	L	L	A	A	A	L
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC	**SE**		A	A	A	L	L	L	L	A	A	A	A	A	A	A	A
Mammals																		
Stephen's kangaroo rat *(Dipodomys stephensi)*	**FE**			A	L	A	A	A	L	L	A	A	A	A	A	A	A	L
Western mastiff bat (*Eumops perotis californicus*)		CSC		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Western yellow bat (*Lasiurus xanthinus*)		CSA		A	A	A	M	M	A	M	A	A	A	A	A	A	A	A

P = Present
H = High potential for occurrence
M = Moderate potential for occurrence
L = Low potential for occurrence
A = Absent/none

* Also covered under the MSHCP
FE – Federal Endangered
FC – Federal Candidate
SE – State Endangered
ST – State Threatened
CSP – California Special Plant

California Native Plant Society (CNPS)
List 1A – Presumed Extinct in California
List 1B – Rare, threatened, or endangered in California and elsewhere
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- 1B.2 – Fairly endangered in California
- 1B.3 – Not very endangered in California

List 2 – Rare, threatened, or endangered in California, but more common elsewhere
- 2.1 – Seriously endangered in California
- 2.2 – Fairly endangered in California
- 2.3 – Not very endangered in California

List 3 – More information required (Review List)
- 3.2 – Fairly endangered in California

California Department of Fish and Game
SE = State listed, endangered
ST = State listed, threatened
CSC = California species of special concern
CSA = California special animal

U.S. Fish and Wildlife Service
FE = Federally listed, endangered
FT = Federally listed, threatened

4.0 ENVIRONMENTAL IMPACT ANALYSIS

4.1 METHODS

As required under CEQA, this section addresses the potential impacts on the environmental resources in the surrounding area which could result from the implementation of the proposed action. The study area includes the 230 kV transmission lines, 69 kV subtransmission lines, and the Wildlife and Wilderness Substations.

The Project has the potential to result in three types of impacts to biological resources: direct, indirect, and cumulative. Direct impacts are considered to include mortality resulting from construction or operation of the Project, permanent loss of habitat, and permanent alteration of breeding, foraging or movement habitat and structure. Indirect impacts are considered to be secondary related effects that decrease habitat value through temporary or permanent disturbance, including short-term noise, dust, or water impacts during construction. Direct and indirect impacts may be either long-term (permanent impacts) or short-term (temporary impacts during construction only). Cumulative impacts are discussed in Section 4.2.2.

Potential to affect and potential impact are analyzed for each identified Project area link.

4.1.1. Significance Criteria

A significant impact is defined as "a substantial, or potentially substantial, adverse change in the environment" (CEQA § 21068). Expected significant impacts include disturbance and removal of natural vegetation that may be utilized by sensitive species, habitat fragmentation, and decrease in habitat quality. The proposed Project is expected to create short-term construction-related impacts, and long-term or permanent displacement from the new transmission towers.

The following sensitivity criteria are based on the CEQA environmental checklist presented in Appendix G of the CEQA Statutes and Guidelines, and are used to describe the potential impacts of the proposed Project and alternatives upon the sensitive biological resources that may occur in the proposed Project area (Tables 8 and 9). A project would have a significant impact on biological resources if it would result in one or more of the following:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.
- Have an adverse effect, either directly or through habitat modifications, on any species listed as endangered, threatened, or proposed or critical habitat for these species.
- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, or coastal) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native residents or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of the Western Riverside County MSHCP, or other approved local, regional, or State habitat conservation plan without equivalent compensation mitigation and agency approval.

4.1.2. Impact Types

The proposed Project could result in direct or indirect impacts to sensitive vegetation communities and sensitive plant or animal species. Direct and indirect impacts (e.g., access roads, tower structures, and maintenance) were analyzed along the presumed centerline for both the 230 kV and 69 kV Project components.

- Indirect impact may result from ongoing maintenance activities or routine operations at a site that could affect adjacent resources, such as increased foot or vehicle traffic in the area. In addition, the quality of habitat in neighboring areas would be indirectly affected by Project noise, surface disturbance, dust, and other off-site intrusions.

- Direct impact is based on the amount of various types of habitat disturbed by movement of equipment and materials, construction, installation of transmission towers and conductors, and construction of access roads for construction and maintenance of the transmission lines. Impact may also result from adverse effects on wetlands, or interference with the movement of any native resident or migratory fish, wildlife species, or with established native resident wildlife species or migratory wildlife corridors during construction.

Based on the potential for direct or indirect impact, each species known to occur or have a high potential to occur along the proposed alignments was analyzed to determine if mitigated Project impact would be high, moderate, or low. This assessment identified specific portions of the identified links as supporting high, moderate, or low sensitive habitat or biological resources, and then applied avoidance measures as part of the construction design to determine expected level of sensitivity to the potential or occurring resource. Factors considered in the sensitivity analysis included the federal, State, and regional status of the resource, likelihood of occurrence based on historical record and current habitat quality, ability of the Project impacts to be mitigated during final Project design, and modification of construction activities.

For sensitive plants and animals, the sensitivity level was dependent upon the status of the species, the size of the population, rarity of the characteristic habitat in the region, and other attributes that may apply. Any wildlife or plant species listed by federal or State resource agencies with known presence or high potential to occur was identified as a High Sensitivity resource. The RTRP analysis considered species that were relatively common, or non-sensitive (by federal or State listing; most plants included on CNPS lists 3 or 4) as having a Low Sensitivity. Lower sensitivity species that are dependent upon riparian or wetland habitats are considered Moderate Sensitivity, due to their dependence on the Highly Sensitive habitat.

- High Sensitivity to biological resources may result from actions that cause a long-term reduction or permanent loss in the quantity or quality of habitat of a protected or sensitive species or the take of individual protected or sensitive species. This may include construction that occurs near the species' occupied habitat. High Sensitivity is associated with species or characteristic habitat being present and potential to affect from construction with avoidance measures.

- Moderate Sensitivity to biological resources may result from actions that cause short-term (as evaluated for this report, less than three years) reduction in the quantity or quality of habitat of a protected or sensitive species. Moderate Sensitivity is associated with species or characteristic habitat having the potential to occur but not observed during field surveys, and habitat being

partially disturbed or degraded by adjacent land use. Moderate Sensitivity is also associated with reduced potential-to-affect determination for sensitive resources with avoidance measures.

- Low Sensitivity to biological resources may result from actions that cause a short-term (during construction) reduction in the quantity or quality of habitat of a protected or sensitive species, such as causing individuals to temporarily relocate. Low Sensitivity is associated with species or characteristic habitat potentially occurring but unlikely due to habitat being degraded or disturbed.

- No Sensitivity to biological resources was identified for those areas where urbanization has modified the habitat through structure construction, pavement, industrial, or commercial use. No Sensitivity is associated with no potential for sensitive species or habitat to occur other than a migrant species incidentally occurring but not using the area for forage, cover, or breeding habitat.

4.1.3. Impact Assessment Model

By evaluating site-specific terrain and existing access routes, the 230 kV and 69 kV components are likely to have potential ground disturbance from: (1) construction and maintenance of access to structures sites (e.g., access roads and structure pads), and (2) for conductor pulling and tensioning sites during construction. Assumed disturbance levels ranging from Level 1 (very minimal disturbance) to Level 5 (high disturbance) for the 230 kV component, and Level 1 (very minimal) to Level 2 (minimal to moderate disturbance) for the 69 kV component, were determined for the centerline and associated right-of-way (ROW) for all study links.

A GIS layer depicting the presumed ground disturbance levels along the centerline of all links was used in combination with vegetation mapping and potential species habitat maps throughout the study corridors. Based on the maps, location-specific analyses on direct and indirect impacts could be made. After considering the inherent sensitivity of the species that would be affected, a determination of whether high, moderate, or low sensitivity would result was made. These determinations were made consistently throughout all study links. The biological impact tables are included in the Appendix of this report.

4.2 RESULTS

4.2.1. No Action

Under the no action alternative, there would be no construction of additional transmission lines in the study area. Therefore, there would be no impacts to biological resources, including special-status species that may occur in the vicinity of the proposed transmission line, from construction and operation of the proposed transmission lines.

4.2.2. Cumulative

The Project area is primarily disturbed and urbanized; however, the Project is within land now covered by the MSHCP to provide conservation and species protection. Consequently, the Project will comply with cumulative impacts identified and addressed in the MSHCP and permitted through this plan. No additional cumulative impact is identified as a result of the proposed RTRP that would not be mitigated to a level consistent with the MSHCP.

4.2.3. Proposed Action

The types of potential direct and indirect impacts on biological resources due to the proposed Project activities are described below.

Applicant Proposed Measures (APMs), where relevant and applicable with federal, State, and regional policies, were identified for potential impacts to sensitive biological resources and built into the project description. Due to the high sensitivity of certain rare habitats and resident listed species, the occurrence of these resources within the study corridors and the potential effect of the Project on these resources are presented below for all Project components. These biological resources include Riversidian sage scrub, Delhi sands, riparian areas, cottonwood/willow woodland habitats, wetlands, and water. The species considered include wildlife and plant species listed in the MSHCP, Core A Area, or identified as having the potential to occur by USFWS or CDFG, including Los Angeles pocket mouse, Delhi sands flower-loving fly, burrowing owl, San Bernardino kangaroo rat, least Bell's vireo, and southwestern willow flycatcher.

For each potential impact associated with RTRP, a level of significance is determined and reported in the impact statement. Conclusions of significance are defined as follows: significant impact, potentially significant impact, less than significant, or no impact. If the APMs would not diminish significant or potentially significant impacts to a less-than-significant level, the impacts are classified as "significant unavoidable impacts." In this section, BR refers to Biological Resources. APMs referenced are described in detail in Section 4.3.

Vegetation

Impact: The Project could affect sensitive vegetation communities and native habitat with both temporary and permanent impacts caused by facility construction, road construction, and facility operation.

The proposed Project could result in both temporary and permanent impacts to non-native grasslands, Delhi sands, disturbed habitat, riparian habitat, alluvial fan scrub, Riversidian sage scrub, and wetlands. Ground-disturbing activity would include: pole installation, tower pad preparation and construction, anchor and guard installation, grading of existing and new access and spur roads, transportation, and pulling and tensioning site clearing.

With the exception of disturbed and landscaped areas, the permanent loss and temporary disturbance of native vegetation communities (Riversidian sage scrub, coastal and freshwater marsh, riparian scrub, alluvial fan sage scrub, and southern cottonwood/willow riparian) resulting from the construction of the proposed Project would result in significant impacts to native vegetation communities without integration of best management practices and environmental protection elements (EPEs).
Significance Level: Less than Significant Level

Impact: The Project could introduce non-native and invasive plant species.

Introduction of non-native plant species could occur primarily during construction, and could continue to occur during operation and maintenance phase of the proposed Project. Vehicles moved from other areas supporting non-native or invasive species could introduce identified non-native or invasive plants by transporting seeds that may be clinging to vehicle structures or that have been incorporated into soil adhering to the vehicle. In addition, the potential for establishment of invasive plants can be increased when construction vehicles alter the structure of existing soils through compaction or excavation, which alters the ability of native plants to compete with introduced plant species. The introduction or spread of non-native plant species would result in significant impacts without mitigation.

Significance Level: Less than Significant

Impact: The Project could cause temporary loss of foraging habitat for wildlife.

Riparian habitats provide the majority of foraging habitat for wildlife in the Project area. Riparian habitat occurs along the Santa Ana River and functions as habitat for a variety of native wildlife species, and the habitat also serves as foraging habitat for many birds of prey that may have home ranges extending beyond the Project limits. Installation of new towers would result in the permanent loss of native and non-native vegetation communities including riparian areas, non-native grasslands, and Riversidian sage scrub. New cables may disrupt or hamper natural foraging behavior of avian species. Temporary and permanent loss of habitat that raptors use for foraging would be considered a significant impact without mitigation.

Significance Level: Less than Significant

Wildlife

Impact: Construction activities and increased vehicular traffic on access roads could disturb wildlife species.

Direct loss of small mammals, reptiles, and other species could occur along the proposed Project. This action would result primarily from the use of construction vehicles and the grading of laydown areas for the tower construction and line pulling. Fossorial species may be harmed through crushing of burrows or loss of refuge from predators, and direct mortality from construction activities is possible. Construction activities and human presence can also alter or disrupt breeding and foraging habitat. Clearing and grading would generate the greatest construction impacts on wildlife. Removal of vegetation during the construction phase of this Project would temporarily diminish the amount of habitat available for wildlife in the area. Individuals displaced from the areas cleared of native vegetation could be jeopardized if adjacent habitats are already at carrying capacity or if they are exposed to an increased risk of predation. Direct mortality of wildlife is anticipated to occur during habitat clearing, earth removal, grading, digging, and equipment movement. Deaths related to construction would be incurred primarily by burrow-dwelling animals, eggs, and nestlings of bird species with small, well-hidden nests, and species with slower or constrained mobility (e.g., snakes, lizards, and amphibians). More mobile species like birds and larger mammals are likely to relocate and utilize an adjacent habitat area if it is present during the land clearing and grading phase associated with tower construction.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

Impact: Construction activity during the breeding season could potentially affect nesting birds.

Nesting birds, their active nests, eggs, and chicks are protected under the Migratory Bird Treaty Act (MBTA). Destruction of an active nest would be a violation of the MBTA. Clearing of dense native vegetation or those areas supporting nesting birds during the nesting season is considered a significant impact. Disturbances from construction could result in nest, roost, or territory abandonment and subsequent reproductive failure if these disturbances were to occur during affected species' breeding seasons.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

Impact: The Project could potentially affect wildlife movement corridors and disturb wildlife movement.

The Santa Ana River is a wildlife corridor. It is identified as Core Area A in the MSHCP (Jurupa and City of Riverside/Norco Planning Areas). The Project would affect the corridor during construction, and would result in limited effects to the corridor during operation and maintenance of the facility. Implementation of the proposed Project would temporarily interfere or impede movement of native resident or migratory wildlife species. The proposed Project would not result in significant adverse interference with wildlife movement, or with the established wildlife corridor.

Significance Level: Significant, reduced to Less than Significant Level

Sensitive Species

Impact: The Project could potentially cause loss of special-status plant species.

Based on survey data and known ranges and population locations, Project construction is not expected to adversely affect a federal or State protected plant species. The Project may affect individuals or portions of known populations of State species of concern. These impacts could occur as a direct result of construction activities (mortality) or as an indirect impact if invasive plants were accidentally introduced.

Significance Level: Less than Significant Level

Impact: The Project could potentially cause loss of sensitive wildlife species.

Based on Project design and construction specifications for spanning the Santa Ana River, the Project is not expected to directly affect a federal or State endangered, threatened, or candidate wildlife species. The Project has the potential to affect, with direct and indirect impacts, federal and State species of concern. The Project is determined to not significantly affect any sensitive species to the extent that would result in the extinction of the species or necessitate the need for federal or State protection. Many of the special-status species identified do not occur within areas potentially affected by the proposed Project; however, potential habitat does occur. Consequently, there would be minimal direct or indirect impacts to protected species with the implementation of the proposed action.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

Impact: The proposed Project could result injury or death of wildlife species through conductor collision or electric shock.

Wildlife has the potential to collide with conductors or be exposed to electrocution risk. Avian collision and death from transmission line electrocution are documented events. Electrocution may take place when a bird touches two phase conductors or one conductor and an earthed device simultaneously, especially when the feather area is wet (Beavenger 1998).

There is evidence that the design of transmission lines and pylons is important in determining the risk of death from electrocution (Janss 2000). Electrocution may occur because of a combination of biological and electrical system design factors. Biological factors are those that influence avian use of poles, such as habitat, prey, and species. The electrical design factor most crucial to avian electrocutions is the physical separation between energized and/or grounded structures, conductors, hardware, or equipment that can be bridged by birds to complete a circuit (APLIC 2006). Electrical transmission lines tend to electrocute avian species when the animal touches two conductors, or a positive conductor and a ground, at once. The

majority of raptor electrocutions are caused by transmission lines that are energized at voltage levels between 1 kV and 69 kV and "the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low" (APLIC 2006). 230 kV lines do not present an electrocution risk because of conductor spacing. Design standard for RPU is to use 115 kV conductor spacing for 69 kV lines; therefore, these lines do not present electrocution risk either.

Significance Level: Less than Significant Level

Birds

Impact: The Project could potentially result in the collision of avian species with the transmission lines.

Factors that influence collision risk can be divided into three categories: those related to avian species, those related to the environment, and those related to the configuration and location of transmission lines (APLIC 2006). Species-related factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. A bird's flight performance has been shown to be one of the most important factors determining the chances of collision with a transmission line (Janss 2000). Environmental factors influencing collision risk include the effects of weather and time of day for transmission line visibility, surrounding land use practices that may attract birds, and human activities that may flush birds into transmission lines. Line-related factors include the configuration and location of the transmission line and transmission line placement with respect to other structures or topographic features. The spatial configuration of the transmission lines for RTRP would be relatively open, allowing movement above, beneath and between the transmission lines.

Bird collisions also tend to occur with transmission lines when some migrant species travel at reduced altitudes and encounter tall structures (e.g., transmission lines and towers) in their path. It is difficult to predict the magnitude of collision-caused bird mortality without extensive information on bird species and movements in the Project vicinity. This data is not available for the proposed transmission line study area; however, it is generally expected that collision mortality would be greatest where the movements of susceptible species are the greatest (e.g. near open bodies of water, wetlands, ridge lines, etc.), such as the Santa Ana River. A portion of this area currently supports existing utility distribution lines. It is possible that birds would strike the new transmission lines; however; it is not expected to result in a substantial increase from current conditions due to preexisting transmission lines within the same area. Through the implementation of Project APMs identified below, Project activities may affect, but are not likely to adversely affect avian species. Potential to affect migratory and resident avian species would be reduced to a less-than-significant level with the implementation of APLIC design standards

Significance Level: Less than Significant Level

Impact: Impacts on Special Status Species. The Proposed Project could adversely affect the coastal California gnatcatcher, least Bell's vireo, yellow-billed cuckoo, and southwestern willow flycatcher.

The coastal California gnatcatcher, southwestern willow flycatcher, and least Bell's vireo are Federal and State protected sensitive species. The yellow-billed cuckoo is listed as State endangered and a candidate for listing by the Federal government. The avian species are associated with riparian habitats (i.e. Riparian and Cottonwood/Willow Woodland) along the Santa Ana River. Direct and indirect impacts could occur to these species during Project activities. It is possible that the proposed Project may have short term indirect effects on these bird species during the construction of the new transmission line. Indirect impacts could also occur from clearing and grading for new tower locations. The removal of vegetation from these areas could result in the loss of forage and cover for the species. This impact could

be considered significant; however, it can be reduced to a level of less-than-significant with the incorporation of EPEs and compliance with MSHCP requirements.
Significance Level: Significant, reduced to Less than Significant Level with EPEs

Impact: Impacts on Special Status Species. The Proposed Project could adversely affect the burrowing owl.

Burrowing owls have been observed on the Project site. Direct impacts to this species could occur from the removal of active burrows and direct mortality of owls during Project activities. Indirect impacts could occur from increased noise, lighting, and dust during construction. Although this species is not currently listed by federal agencies, it is a state species of special concern and impacts to this species would be significant because the CDFG (Assembly Bill 3180) requires consideration this species according to currently accepted protocols.

Significance Level: Less than Significant Level

Mammals

Impact: The Proposed Project could result in direct or indirect impact to Stephen's kangaroo rat, and San Bernardino kangaroo rat.

There is a low potential for the Stephen's kangaroo rat to occur along the 69 kV subtransmission line corridors. Habitat for this species includes annual and perennial grasslands, coastal scrub, and sagebrush with sparse canopy cover. The 69 kV study area supports predominantly disturbed and urbanized area with no suitable undisturbed habitat for this species.

Direct impacts on these species, if present, could occur as a result of crushing from mechanized equipment, and temporary disruption of foraging. Breeding behavior could also be disturbed due to construction noise, and the timing of construction activities. Disturbance to the area would be associated with the temporary removal of vegetation for the construction of tower footings or pull sites. Incidental take of individual species (e.g. adults and juveniles) may result during construction depending on the construction season. These species are primarily nocturnal; impacts from vehicle use at dawn, dusk, and during the evening would be of concern because they are subject to road kill by passing vehicles. A smaller bout of surface activity may occur before sunrise in the spring and summer.

Indirect effects to these species, if present, may be caused by human activities with increased noise or by attracting predators such as the common raven, bobcat, and coyote to trash and litter. Increased noise can interfere with breeding and mask the approach of predators. The proposed Project may have short term indirect effects on these species during the construction of the new transmission line. Indirect impacts could also occur from clearing and grading for new tower locations. The removal of vegetation from these areas could result in the loss of forage and cover for these species. Through the implementation of the Project APMs, Project activities may affect, but are not likely to adversely affect populations of these species if present.

Significance Level: Less than Significant Level

Impact: The Proposed Project could directly or indirectly affect northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, and the southern grasshopper mouse.

The northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, and the southern grasshopper mouse are all listed as species of special concern by the state of California. The San Diego

pocket mouse and the San Diego black-tailed jackrabbit are present along the 230 kV transmission line corridors. The Southern grasshopper mouse has the potential to occur in the Study area. It is possible that the proposed Project may have short term indirect effects on the mammal species during construction of the new transmission line. Indirect impacts could also occur from clearing and grading for new tower locations. The removal of vegetation from these areas could result in the loss of forage and cover for these species. This impact could be considered significant without the incorporation of the following mitigation actions.

Direct impacts to these species, if present, could occur from the proposed Project as a result of crushing from mechanized equipment, and temporary disruption of foraging. Breeding behavior could also be disturbed due to construction noise and the timing of construction activities. Disturbance to the area would be associated with the temporary removal of vegetation for the construction of tower footings or pulling sites. Construction activity may result in the incidental take of individual species (e.g. adults and juveniles), depending on the construction season.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

Impact: The Proposed Project could adversely affect the western mastiff bat and western yellow bat.

The western mastiff bat is listed as a species of special concern and the western yellow bat is listed as a special animal by the state of California. Although these species were not observed during reconnaissance surveys, suitable habitat is present and bats could move into or off of the site at any time.

Direct impacts to this species could occur from the removal of active roosts and direct mortality of bats during Project activities. Bats are known to abandon young when disturbed. Maternity colonies form prior to March 1 and young are usually volant (flying) after July 31. Indirect impacts could occur from increased noise, lighting, and dust during construction.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

Reptiles

Impact: The Proposed Project could adversely affect coast horned lizard, red-diamond rattlesnake, orange-throated whiptail and San Diego banded gecko.

The coast horned lizard, red-diamond rattlesnake, and orange-throated whiptail are listed as species of special concern. The San Diego banded gecko is listed as a special animal by the state of California. Potential impacts to these species include habitat loss, disturbance, and mortality during construction through crushing.

Significance Level: Significant, reduced to Less than Significant Level with EPEs

4.3 ENVIRONMENTAL PROTECTION ELEMENTS

Both RPU and SCE employ a variety of measures as standard practice to avoid and minimize potential impacts associated with their infrastructure projects. Some of these are integral to construction and operations and maintenance methodologies and are described in their appropriate Project description sections above. Others are general environmental protection elements (EPEs) applied *pro re nata* (as circumstances arise) throughout the Project, as standard practice. A list of EPEs may be found in the

project description Chapter 2. Specific implementation of EPEs is detailed below. Each is tied to one or more EPEs. Some are tied to RCA input on project design.

Develop and implement a Habitat Protection and Restoration (HPR) Plan.

The plan will consist of restoring all areas disturbed by Project construction, including temporary disturbance areas around tower construction sites, laydown/staging areas, and temporary access and spur roads. Where onsite restoration is planned for mitigation of temporary impacts to sensitive vegetation communities, a qualified Habitat Restoration Specialist will be identified and approved by the lead agency. An HPR Plan will specify topsoil salvage in sensitive habitat, fencing and resource flagging, native seed and cutting collection and propagation, native seed and plant mix specific to affected habitats, mature tree avoidance and trimming, mulching of cleared vegetation, irrigation system design and installation, success criteria, and maintenance and monitoring requirements.

Remedial activities (e.g., additional planting, weeding, or erosion control) will be taken as necessary to ensure the success of the restoration effort. Restoration will also include the repair or replacement of damaged trees and plants. Fastening ropes, cables, or fences to trees will be prohibited. Temporary fencing to mark environmentally sensitive areas shall be installed prior to construction and field inspected by the Project Biologist to verify proper placement. Areas of concern will be flagged to avoid or minimize use of highly sensitive sites such as river edges and wetlands.

In study areas that occur in the MSHCP plan area, the lead agency shall use applicable Best Management Practices as identified in the MSHCP.

The creation or restoration of habitat shall be monitored for five years after mitigation of site construction, or until established success criteria are met. Monitoring would assess progress and identify potential problems with the restoration site. Remedial activities (e.g., additional planting, weeding, or erosion control) shall be taken during the monitoring period as necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise noted by the CPUC, CDFG, or USFWS.

Conduct pre-construction surveys.

A qualified biologist shall conduct pre-construction surveys for sensitive wildlife in any area subject to project disturbance. Surveys shall be conducted during a time of year when these species are known to be active. The location of sensitive species identified during the pre-construction surveys shall be identified on project maps. Focused surveys required are listed in other APMs. At a minimum, surveys will be conducted during breeding season for active bird nests.

Conduct biological monitoring.

A qualified Project Biologist will be responsible for monitoring of study area, including the laydown areas, staging areas, access roads, and any area subject to project disturbance. The Project Biologist shall look for sensitive wildlife species that may be located within or immediately adjacent to the construction areas. If sensitive species are found, then the Project Biologist shall move them to a safe location (listed species require take authorization) to avoid direct impacts to these species. The Project Biologist shall compile monitoring reports and a compliance reporting procedure to document compliance, approved variances, and non-compliance issues and resolutions. The Project Biologist will be onsite at least one day per week during active construction in native areas or areas supporting sensitive biological resources.

Implement control measures for invasive and noxious weeds.

Project personnel will limit the introduction of soil or debris to the Project area or from the Project area that could hold noxious weed species seed. All construction equipment transported to the Project area from outside of the adjacent counties or areas of potential invasive species will be cleaned of mud and debris prior to transporting to the Project area. The Project Biologist will coordinate with CDFG and the Counties of Riverside and San Bernardino Agricultural Commissions to determine a complete list of noxious weeds and develop and an acceptable cleaning plan. Only certified (e.g. County Agricultural Commissioner) weed-free straw or native grass bales will be used for the Project.

Vehicles and all equipment must be washed BEFORE AND AFTER entering all project areas unless otherwise directed in writing. Prior to first use, the under-carriages and bodies of construction and operations equipment will be thoroughly washed in maintenance yards by high pressure jets to eliminate any soil buildup that may contain invertebrates, such as ants and ant eggs, or the seeds of exotic plant species. This includes wheels, undercarriages, bumpers, and all parts of the vehicle. In addition, all tools such as chain saws, hand clippers, pruners, etc., must also be washed BEFORE AND AFTER entering all study areas. All washing must take place where rinse water is collected and disposed of in either a sanitary sewer or a landfill.
When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and staff present. The log shall contain the signature of the responsible crewmember.

Project personnel will be restricted to the approved ROW limits.

The Project will not allow hunting, pets, killing, or harassing of native wildlife. Should night-time work be required, the Project will shield lighting and restrict dusk to dawn work activity that could affect diurnal and nocturnal foraging by native wildlife.

Vegetation clearing would be restricted to the minimum amount required, and would not be conducted more than 30 days prior to the start of pole installation unless approved by the Project biologist to comply with work restriction windows for breeding seasons.

Restoration would be initiated upon installation of new transmission lines and may begin prior to activation of the new circuit. Efforts should be phased to best sequence with the natural rain season and environmental conditions and not just construction completion

Demonstrate compliance with the Western Riverside County MSHCP (MSHCP).

The lead agency shall provide documentation that is has complied with the provisions under MSHCP.

Implement the Best Management Practices required by the MSHCP.

The lead agency shall provide documentation that it has implemented the Best Management Practices set forth in Appendix C of the MSHCP.

Conduct Pre-construction Surveys for Nesting Birds.

A qualified biologist will conduct surveys for nesting birds if construction activities are scheduled to occur during the breeding season for raptors or other migratory birds. Surveys shall be conducted in areas within 500 feet of tower sites, laydown/staging areas, substation sites, and access road/spur road locations.

If state or federally listed birds with active nests are found, a biological monitor shall establish a buffer around the nest and no activities will be allowed within the buffer until the nesting cycle is complete or the nest fails. The appropriate buffer distance will depend on the species and consultation with the CDFG and USFWS.

The biological monitor shall be responsible for documenting the results of the surveys and the ongoing monitoring.

Minimize impacts to wildlife corridors and limit edge effects for drainage, toxics, lighting, noise, and invasive species impacts.

Shield lighting will be used on all permanent facilities to focus the light canopy to only the work limits within facility boundary (i.e. substations). Shield or focus light will be used for any construction activity that must occur between dusk and dawn adjacent to native habitat or open space. A *Hazardous Spill Prevention and Hazardous Materials Control Plan* will be implemented to prevent the introduction of toxic material into the wildlife corridor. The Project will utilize the latest noise reduction techniques or equipment during construction, and idling of trucks and use of multiple equipment within or adjacent to wildlife corridors will be minimized to the greatest extent possible. Effects to drainages contributing to the Santa Ana River will be minimized by siting towers, poles, pull sites, and roads in non-drainage areas. Conserve wetland and riparian habitat for no net loss through avoidance, restoration as approved, or compensation through wetland creation or riparian habitat enhancement programs (arrundo removal as approved by CDFG)..

Conduct focused pre-construction surveys during the growing season to locate and map listed plant species.

Focused surveys will be conducted by a qualified biologist to identify listed and sensitive plants prior to construction. Surveys for sensitive plant species will be conducted during the appropriate blooming periods in all suitable habitats located within the Project ROW, and within 100 feet of all ground-disturbing activities.

If necessary, alternative construction methods and material placement will be considered to reduce disturbance to native habitat and to habitat supporting sensitive species.

As feasible, temporary and permanent access roads will be constructed to avoid identified sensitive plant populations. Sensitive species will be salvaged and relocated in adjacent suitable portions of the ROW that would not be affected by Proposed Project construction or maintenance activities.

Wildlife electrocution-reducing techniques in installation of transmission line.

Transmission lines for the proposed Project would follow the 2006 (or most current at the start of construction) APLIC guidelines to prevent electrocution of avian species.

The 230 kV transmission line alternative for the Project would be constructed with energized components (conductors) and grounding structures in excess of ten feet apart. Because the 69 kV subtransmission line would utilize post, 115kV class insulators (per RPU standards) and a single conductor, any avian contact would not complete an electrical circuit; therefore, there is low risk of electrocution from the 69 kV subtransmission line.

Utilize collision-reducing techniques in installation of transmission lines.

Collision-reducing techniques, as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art 2006," or most current updated version, shall be implemented to prevent bird collisions. Towers and transmission lines will be located significantly above existing transmission lines, topographic features, or tree lines to the maximum extent practicable. Overhead transmission lines (i.e., conductors and ground wires) that occur above the previously mentioned features and that are located in highly utilized avian flight paths (i.e., Santa Ana River), will be marked utilizing an agreed upon diversion device. Diversion devices may include aerial marker spheres, swinging plates, spiral vibration dampers, bird flight diverters, avifauna spirals, or another diversion device.

Install aerial transmission line markers on transmission lines overcrossing the Santa Ana River. Install markers that are reflective or otherwise visually alerting to avian species at the recommended rate along the upper and lower transmission lines crossing the river from upper bank to upper bank.

Conduct focused pre-construction surveys for the coastal California gnatcatcher, least Bell's vireo and, as applicable, nesting birds.

Surveys will be conducted in all areas supporting suitable habitat that may be affected by the Project between 30 and 14 days prior to the start of construction, if scheduled to begin February 1 through August 30. This will include a minimum 300-foot buffer around construction activities. Presence/absence of these species shall be determined prior to construction activities. Appropriate nest avoidance or work restrictions will be implemented to prevent direct or indirect impact to active nests and direct impact to protected species. The Project will comply with MSHCP requirements for preconstruction survey and avoidance measures. After definition of suitable habitat, the following requirements apply:

- Construction activities shall be restricted within suitable habitat during the breeding season (February 15 – August 30).

- The lead agency shall implement the applicable Best Management practices in the MSHCP.

- The lead agency shall restore, create, or enhance on-site habitat.

Conduct pre-construction surveys for the burrowing owl and implement protective measures if identified.

Pre-construction burrowing owl survey shall be conducted on the 230 kV transmission line and 69 kV subtransmission line with suitable habitat. Surveys shall be conducted no more than 30 days prior to the onset of construction to ensure avoidance of this species. If no occupied burrows are found, a report shall be submitted to the City and construction may begin without further actions. If owl burrows are found, a 300-foot buffer zone shall be established around each burrow with an active nest until the young have fledged and are able to exit the burrow. For occupied burrows without active nesting or active burrows after the young have fledged, passive relocation of the owls would be performed. A qualified biologist shall conduct the relocation activities and provide construction monitoring during construction activities near the burrows.

The *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* prepared by the Environmental Programs Department of the County of Riverside shall be used as the guideline for the surveys. This document is generally based upon the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium (1997). It provides additional clarification on the methods necessary to obtain sufficient information to address

consistency with (1) specific conservation requirements of the MSHCP as identified in species-specific Objective 5 (Volume I Appendix E), and (2) ensure that direct mortality of burrowing owls is avoided through implementation of species-specific Objective 6 (Volume I Appendix E).

As applicable to compliance with MSHCP or other permitting, conduct focused surveys for Stephen's kangaroo rat (SKR) and San Bernardino kangaroo rat (SBKR) in suitable habitat prior to construction.

Unless otherwise approved through the MSHCP participation, prior to the implementation of construction in areas that support suitable habitat for SKR and SBKR, focused surveys will be conducted to determine if signs (burrows, scat, and etc.) of these species is present in all areas within 100 feet that would permanently or temporarily affected by construction activities. All surveys shall be conducted by a qualified biologist who holds the appropriate permits to conduct trapping surveys for these species. If signs are present, then focused surveys shall be conducted according to accepted protocols to determine presence or absence of these species.

If these species are found to be present, measures will be implemented to avoid direct impacts or as permitted. Known occupied LAPM, SKR, and SBKR habitat will be fenced to exclude these locations from active work areas (pole and tower installations, pull locations, and other ground disturbing areas excluding existing paved and unpaved roads). A qualified biological monitor shall be present during construction to ensure that animals are not harmed and all excavation will be monitored to reduce the potential for harm to individual LAPM, SKR and SKBR.

The fencing must be inspected daily to ensure that it is in good repair, and repaired as necessary. The exclusion fencing can be removed when all construction activities resulting in ground disturbance has been completed.

In occupied SKR and SKBR habitat, work will occur during daylight hours. All food waste, water, and hazardous materials will be properly contained to prevent access by animals.

The occupied habitat will be identified on Operation and Maintenance phase facility maps as a Sensitive Environmental Area with work restrictions for digging or other ground disturbance.

Conduct pre-construction surveys for roosting bats.

A qualified biologist shall conduct surveys for suitable roosting habitat or nursery sites for sensitive bats at the tower location, access/spur roads, and laydown/staging areas that occur in rocky areas. If suitable roosting/nursery sites are found, then focused surveys shall be conducted to determine if the sites support sensitive bat species. If sensitive bat species occur at these roosting/nursery sites, then tower-specific adjustments and adjustments of the locations of access/spur roads and laydown/staging areas shall be made to avoid these sites. If towers, access/spur roads, and/or laydown/staging areas cannot avoid these sites, then construction of the towers, roads, and establishment of laydown/staging areas shall be delayed until the breeding cycles for the sensitive bats are completed. The lead agency shall consult with a bat specialist in order to determine when the breeding cycle for the sensitive bats are completed and document the results of the surveys and any avoidance of roosting/nursery sites for sensitive bats.

4.3.1. 230 kV Transmission Line

The 230 kV transmission line alternatives have the potential to affect sensitive plant and animal species. The majority of ground disturbance related impacts discussed above (Section 4.2) would be common throughout the Project and would apply to the new 230 kV transmission line.

The 230 kV transmission line study corridors lie within the MSHCP planning areas and will affect cells 617, 621, 534, 443, and 187. The 230 kV project component will also affect Existing Core Area A identified as the Santa Ana River wildlife corridor. The utility construction is an identified activity but not a "Covered" activity of the MSHCP. Riverside Public Utilities (RPU) will submit a Certificate of Inclusion per MSHCP Section 7.2.4 and the required biological survey reports to City of Riverside as the lead MSHCP agency and to the MSHCP HANS review board or as directed. This regional plan and other data provided the background information used to evaluate the biological resources within the Project's study area.

Through the incorporation of the APMs, and compliance with the MSHCP, the potential impacts to sensitive biological resources along the 230 kV transmission line would be expected to be reduced to a less than significant level.

4.3.2. 69 kV Subtransmission Line

Ground disturbance related impacts discussed above (Section 4.2) would also apply to the new 69 kV subtransmission line; however, the magnitude of the ground impacts associated with installing the subtransmission line would be minimal to biological resources due to existing access roads and the fact that the study corridor is within currently disturbed areas.

The 69 kV subtransmission transmission line alternatives have the potential to affect sensitive plant and animal species. The integration of EPEs would reduce impacts to less than significant levels.

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Riverside Transmission Reliability Project

RTRP 230 kV Sensitive Species and Habitat

Legend

Route Features

- SCE 230 kV Proposed Route
- Tenth Mile Marker
- Mile Marker
- Link Name
- Link Node

Study Area Boundary (2000 foot wide corridor)

Biological Survey Results

- Burrowing Owl Observation
- Least Bell's Vireo Observation 2008

- Delhi Sands Flower-loving Fly (DSF) Survey Area
- Burrowing Owl Habitat
- Riparian Bird Habitat
- Agricultural
- Arundo
- Bare ground / Disturbed
- Developed
- Disturbed Alluvial
- Landscaping
- Non-native Grassland
- Riparian Scrub
- Riversidian Sage Scrub
- Southern Cottonwood / Willow Riparian
- Wetland

SOUTHERN CALIFORNIA EDISON — An EDISON INTERNATIONAL Company

WATER ENERGY LIFE — CITY OF RIVERSIDE PUBLIC UTILITIES

0 0.25 0.5 0.75 1

Miles

1:38,000

POWER ENGINEERS

November 12, 2009

111734_Bio_230_1117_Rev8_111209_SCD

City of Ontario

San Bernardino County

Riverside County

Fontana

Glen Avon

Jurupa

Mira Loma

Pedley

Rubidoux

Eastvale

City of Norco

City of Riverside

Mira Loma Substation

Pedley Substation

Proposed 230 kV Substation

RERC Substation

Mtn View Substation

Riverside Municipal Airport

Santa Ana River

Milliken Ave

Etiwanda Ave

Van Buren Blvd

Riverside Dr

Sierra Ave

Campbell St

Bain St

Mission Blvd

Valley Way

Felspar St

Pedley Rd

Agate St

Pyrite St

Galena St

Jurupa Rd

Bellegrave Ave

Marlatt St

Rutile St

Camino Real

Pacific Ave

Peralta Pl

Riverview Dr

Limonite Ave

56th St

58th St

Beach St

Hamner Rd

68th St

Schleisman Rd

Cleveland Ave

California Ave

Arlington Ave

Van Buren Blvd

Riverside Transmission Reliability Project

RPU 69 kV Sensitive Species and Habitat

Legend

Route Features

- RPU 69 kV Alternative Link
- Tenth Mile Marker
- 1 Mile Marker
- 23 Link Number
- Link Node

69 kV Preferred Routes

Route Alternative Corridor (1000 foot wide corridor)

Biological Survey Results

- Burrowing Owl Observation
- Least Bell's Vireo Observation
- Delhi Sands Flower-loving Fly (DSF) Survey Area
- Burrowing Owl Habitat
- Riparian Bird Habitat

Vegetation Survey

- Agricultural
- Bare ground / Disturbed
- Developed
- Disturbed Alluvial
- Landscaping
- Non-native Grassland
- Riparian Scrub
- Riversidian Sage Scrub
- Southern Cottonwood / Willow Riparian

0 0.2 0.4 0.6 0.8

Miles

1:28,000

POWER ENGINEERS

October 16, 2009

111728_LU_69kV_Rev5_102709_SCD

City of Riverside

Proposed Wilderness Substation

RERC Substation

Mountain View Substation

Riverside Municipal Airport

Harvey Lynn Substation

Freeman Substation

Casa Blanca Substation

Santa Ana River

Van Buren Blvd

Grand Ave

Jurupa Ave

Dewey Ave

Central Ave

Streeter Ave

Arlington Ave

Colorado Ave

Cypress Ave

Crest Ave

Rutland Ave

Wells Ave

Tyler St

La Sierra Ave

Mull Ave

Cook Ave

Tomlinson Ave

Hole Ave

Pierce St

Magnolia Ave

Indiana Ave

California Ave

Jackson St

Monroe St

Adams St

Jefferson St

Victoria Ave

91

APPENDIX B: IMPACT TABLES

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Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
1	0	100	New Access Road	5	A	Riv Sage Scrub, NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0370044	No	N/A
1	100	155.53	New Access Road	5	A	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0203984	No	N/A
2	0	100	Trail Access Road	4	A	NN Grass	Burrowing Owl	No	High		High		SAS	16	0.0367332	No	N/A
2	100	200	Trail Access Road	4	A	NN Grass	Burrowing Owl	No	High		High		SAS	16	0.0367343	No	N/A
2	200	300	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.036734	No	N/A
2	300	400	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367355	No	N/A
2	400	500	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367435	No	N/A
2	500	600	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.036743	No	N/A
2	600	700	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0369694	No	N/A
2	700	800	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0369768	No	N/A
2	800	900	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367531	No	N/A
2	900	1000	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367567	No	N/A
2	1000	1100	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.036739	No	Hidden Valley Wildlife Area
2	1100	1200	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0368382	No	Hidden Valley Wildlife Area
2	1200	1300	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0368752	No	Hidden Valley Wildlife Area
2	1300	1400	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0368076	No	Hidden Valley Wildlife Area
2	1400	1500	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367777	No	Hidden Valley Wildlife Area
2	1500	1600	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0367369	No	Hidden Valley Wildlife Area
2	1600	1700	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0368356	No	Hidden Valley Wildlife Area
2	1700	1800	Trail Access Road	4	A	NN Grass	Burrowing Owl	Yes	High		High		SAS	16	0.0368351	No	Hidden Valley Wildlife Area
2	1800	1900	Trail Access Road	4	A	Disturbed, NN Grass	Burrowing Owl	Yes	High		High		SAS	24	0.055099	No	Hidden Valley Wildlife Area
2	1900	2000	Trail Access Road	4	A	Disturbed	BUOW	Yes	High		High		SAS	24	0.0555495	No	N/A
2	2000	2100	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0367996	No	N/A
2	2100	2200	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0369548	No	N/A
2	2200	2300	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0367585	No	N/A
2	2300	2400	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0374119	No	N/A
2	2400	2500	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0369243	No	N/A
2	2500	2600	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0367934	No	N/A
2	2600	2700	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0367325	No	N/A
2	2700	2800	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0367318	No	N/A
2	2800	2875.3	Trail Access Road	4	A	Bare Ground/disturbed	BUOW	No	Moderate		Moderate		SAS	16	0.0276505	No	N/A
3	0	100	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367646	No	Hidden Valley Wildlife Area
3	100	200	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367393	No	Hidden Valley Wildlife Area
3	200	300	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367411	No	Hidden Valley Wildlife Area
3	300	400	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367516	No	Hidden Valley Wildlife Area
3	400	500	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036741	No	Hidden Valley Wildlife Area
3	500	600	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368563	No	Hidden Valley Wildlife Area
3	600	700	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367793	No	Hidden Valley Wildlife Area
3	700	800	Unimproved Two-Track Road	4	A, D, T,	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367393	Yes	Hidden Valley Wildlife Area
3	800	900	Unimproved Two-Track Road	4	A, D, T,	Riv Sage Scrub, NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036851	No	Hidden Valley Wildlife Area
3	900	1000	Unimproved Two-Track Road	4	A, D, T,	Riv Sage Scrub	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368591	No	Hidden Valley Wildlife Area
3	1000	1100	Unimproved Two-Track Road	4	A, D, T,	Riv Sage Scrub	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368103	No	Hidden Valley Wildlife Area
3	1100	1200	Unimproved Two-Track Road	4	A, D, T,	Riv Sage Scrub	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367714	No	Hidden Valley Wildlife Area
3	1200	1227.1	Unimproved Two-Track Road	4	A, D, T,	Riv Sage Scrub	BUOW, Riparian Birds	No	High		High		SAS	16	0.00998738	No	Hidden Valley Wildlife Area
4	0	61.44	New Spur	5	B	Disturbed	Riparian Bird, BUOW	Yes	High		High	Ruderal, Riparian	SAS, LBV	26	0.0367225	No	Hidden Valley Wildlife Area
5	0	81.46	New Spur	5	B	Disturbed, Riv Sage Scrub	BUOW, Riparian Birds	No	Moderate		Moderate		SAS	16	0.0299995	No	Santa Ana River Wetlands Mit Bank
6	0	100	Jeep Trail	4	B	Disturbed	Burrowing Owl	Yes	Moderate		Moderate		SAS, LBV	16	0.0367326	No	Santa Ana River Wetlands Mit Bank
6	100	200	Jeep Trail	4	B	Disturbed	Burrowing Owl	Yes	Moderate		Moderate		SAS, LBV	16	0.0367332	No	N/A
6	200	300	Jeep Trail	4	B	Disturbed	Burrowing Owl	Yes	Moderate		Moderate		SAS, LBV	16	0.0367321	No	N/A
6	300	400	Jeep Trail	4	B	Disturbed	Burrowing Owl	Yes	Moderate		Moderate		SAS, LBV	16	0.0367313	No	N/A
6	400	500	Jeep Trail	4	B	Disturbed	Burrowing Owl	Yes	Moderate		Moderate		SAS	16	0.0367318	No	Santa Ana River Wetlands Mit Bank
6	500	600	Jeep Trail	4	B	Disturbed, Riv Sage Scrub	BUOW, Riparian Birds	Yes	Moderate		Moderate		SAS	16	0.0367376	No	Santa Ana River Wetlands Mit Bank
6	600	700	Jeep Trail	4	B	Disturbed, Riv Sage Scrub	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367418	No	Santa Ana River Wetlands Mit Bank
6	700	800	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0367391	No	Santa Ana River Wetlands Mit Bank
6	800	900	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0367393	No	Santa Ana River Wetlands Mit Bank
6	900	943.91	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0161538	No	Santa Ana River Wetlands Mit Bank
7	0	100	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0369541	No	Santa Ana River Wetlands Mit Bank
7	100	200	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0371262	No	Santa Ana River Wetlands Mit Bank
7	200	300	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0374262	No	Santa Ana River Wetlands Mit Bank
7	300	360.15	Jeep Trail	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0224507	No	Santa Ana River Wetlands Mit Bank
8	0	64.91	Unimproved Two-Track Road	5	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0238505	No	Santa Ana River Wetlands Mit Bank
9	0	100	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0372715	No	Santa Ana River Wetlands Mit Bank
9	100	200	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0369112	No	Santa Ana River Wetlands Mit Bank

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
9	200	300	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0367674	No	Santa Ana River Wetlands Mit Bank
9	300	400	Unimproved Two-Track Road	4	B	Bare Ground/disturbed, SC/WR	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0371826	No	Santa Ana River Wetlands Mit Bank
9	400	500	Unimproved Two-Track Road	4	B	Bare Ground/disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0369721	No	Santa Ana River Wetlands Mit Bank
9	500	600	Unimproved Two-Track Road	4	B	Bare Ground/disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0368294	No	N/A
9	600	700	Unimproved Two-Track Road	4	B	Bare Ground/disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0371451	No	Santa Ana River Wetlands Mit Bank
9	700	800	Unimproved Two-Track Road	4	B	Bare Ground/disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0369664	No	Santa Ana River Wetlands Mit Bank
9	800	815.85	Unimproved Two-Track Road	4	B	Bare Ground/disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.00587668	No	N/A
10	0	100	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0370667	No	Santa Ana River Wetlands Mit. Bank
10	100	200	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0368852	Yes	Santa Ana River Wetlands Mit Bank
10	200	300	Unimproved Two-Track Road	4	B	Disturbed, Riv Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0371082	No	Santa Ana River Wetlands Mit Bank
10	300	400	Unimproved Two-Track Road	4	B	Riv Sage Scrub, SC\WR	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0372875	No	Santa Ana River Wetlands Mit Bank
10	400	500	Unimproved Two-Track Road	4	B	SC/WR	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0371357	No	Santa Ana River Wetlands Mit Bank
10	500	600	Unimproved Two-Track Road	4	B	Dist, Riv Sage Scrub, SC/WR	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0375442	No	Santa Ana River Wetlands Mit Bank
10	600	700	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0372566	No	Santa Ana River Wetlands Mit Bank
10	700	741.52	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.0152858	Yes	Santa Ana River Wetlands Mit Bank
13	0	100	Unimproved Two-Track Road	4	B	Riversidian Sage Scrub	Burrowing Owl	No	High		High	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	100	200	Unimproved Two-Track Road	4	B	Riversidian Sage Scrub	Burrowing Owl	No	High		High	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	200	300	Unimproved Two-Track Road	4	B	River Sage Scrub, Dist	Burrowing Owl	No	High		High	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	300	400	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	400	500	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	500	600	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	600	700	Unimproved Two-Track Road	4	B	Disturbed	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	700	800	Unimproved Two-Track Road	4	B	Dist, Riv. Sage Scrub	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit Bank
13	800	900	Unimproved Two-Track Road	4	B	Dist, Riv. Sage Scrub	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	Yes	Santa Ana River Wetlands Mit Bank
13	900	932.13	Unimproved Two-Track Road	4	B	Dist, Riv. Sage Scrub	Riparian Bird	No	Moderate		Moderate	Ruderal	SAS	16	0.0118032	No	Santa Ana River Wetlands Mit Bank
14	0	100	New Access Road	5	B	Disturbed, Riv Sage Scrub	Riparian Bird	No	High		High		SAS, LBV	16	0.0377233	No	Santa Ana River Wetlands Mit Bank
14	100	200	New Access Road	5	B	Riv Sage Scrub, SC\WR	Riparian Bird	No	High		High		SAS, LBV	16	0.0373259	No	Santa Ana River Wetlands Mit Bank
14	200	300	New Access Road	5	B	Disturbed, SC/WR	Riparian Bird	No	High		High		SAS	16	0.036844	No	Santa Ana River Wetlands Mit Bank
14	300	343.55	New Access Road	5	B	Disturbed	N/A	No	Low		Low		SAS	16	0.0160529	No	Santa Ana River Wetlands Mit Bank
15	0	100	New Access Road	5	B	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0370182	No	N/A
15	100	200	New Access Road	5	B	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367901	No	N/A
15	200	300	New Access Road	5	B	Riv Sage Scrub, NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367409	No	N/A
15	300	400	New Access Road	5	B	Riv Sage Scrub	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367733	No	N/A
15	400	500	New Access Road	5	B	Riv Sage Scrub, NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0368447	No	N/A
15	500	564.82	New Access Road	5	B	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0238144	No	N/A
16	0	100	New Spur	5	D	NN Grass	N/A	No					SAS	16	0.0367494	No	N/A
16	100	148.74	New Spur	5	D	NN Grass	N/A	No					SAS	16	0.0179043	No	N/A
17	0	100	New Spur	5	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367417	No	N/A
17	100	155.26	New Spur	5	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0202972	No	N/A
18	0	97.1	New Spur	5	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0357311	No	N/A
19	0	61.32	New Spur	5	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0225359	No	N/A
20	0	100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367503	No	N/A
20	100	200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367559	No	N/A
20	200	300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367501	No	N/A
20	300	400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367902	No	N/A
20	400	500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367321	No	N/A
20	500	600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0371874	No	N/A
20	600	700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367383	No	N/A
20	700	800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367309	No	N/A
20	800	900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367309	No	N/A
20	900	1000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367336	No	N/A
20	1000	1100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367449	No	N/A
20	1100	1200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036766	No	N/A
20	1200	1300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367584	No	N/A
20	1300	1400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367321	No	N/A
20	1400	1500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367315	No	N/A
20	1500	1600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367317	No	N/A
20	1600	1700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367339	No	N/A
20	1700	1800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367313	No	N/A
20	1800	1900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.036733	No	N/A
20	1900	2000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367617	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
20	2000	2100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367743	No	N/A
20	2100	2200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.036753	No	N/A
20	2200	2300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.036774	No	N/A
20	2300	2400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367893	No	N/A
20	2400	2500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367608	No	N/A
20	2500	2600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367446	No	N/A
20	2600	2700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0367349	No	N/A
20	2700	2800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0369358	No	N/A
20	2800	2900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.037101	No	N/A
20	2900	3000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0368429	No	N/A
20	3000	3100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0368407	No	N/A
20	3100	3200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.036733	No	N/A
20	3200	3300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	N/A	16	0.0368361	No	N/A
20	3300	3400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0368358	No	N/A
20	3400	3500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367827	No	N/A
20	3500	3600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0368295	No	N/A
20	3600	3700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036735	No	N/A
20	3700	3800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367378	No	N/A
20	3800	3900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367478	No	N/A
20	3900	4000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367316	No	N/A
20	4000	4100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	N/A
20	4100	4200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367353	No	N/A
20	4200	4300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367329	No	N/A
20	4300	4400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367346	No	N/A
20	4400	4500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367344	No	N/A
20	4500	4600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367353	No	N/A
20	4600	4700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367423	No	N/A
20	4700	4800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367423	No	N/A
20	4800	4900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.03674	No	N/A
20	4900	5000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	N/A
20	5000	5100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367314	No	N/A
20	5100	5200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367313	No	N/A
20	5200	5300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367372	No	N/A
20	5300	5400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367326	No	N/A
20	5400	5500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367382	No	Hidden Valley Wildlife Area
20	5500	5600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0373685	No	Hidden Valley Wildlife Area
20	5600	5700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0379199	No	Hidden Valley Wildlife Area
20	5700	5800	Jeep Trail	4	D	NN Grass, SC/WR	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0371563	No	Hidden Valley Wildlife Area
20	5800	5900	Jeep Trail	4	D	SC/WR	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0375463	Yes	N/A
20	5900	6000	Jeep Trail	4	D	NN Grass, SC/WR	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0373123	No	Hidden Valley Wildlife Area
20	6000	6100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0372509	Yes	Hidden Valley Wildlife Area
20	6100	6200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.036771	No	Hidden Valley Wildlife Area
20	6200	6300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.0367658	No	Hidden Valley Wildlife Area
20	6300	6319.5	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	Moderate		Moderate	Ruderal	SAS	16	0.00714691	No	N/A
21	0	100	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0368204	No	Hidden Valley Wildlife Area
21	100	200	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0368217	No	Hidden Valley Wildlife Area
21	200	300	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0367994	No	Hidden Valley Wildlife Area
21	300	400	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0367618	No	Hidden Valley Wildlife Area
21	400	500	Trail Access Road	4	D	Riv Sage Scrub, NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0368988	No	N/A
21	500	600	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367738	No	N/A
21	600	700	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368377	No	N/A
21	700	800	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367602	No	N/A
21	800	900	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367798	No	N/A
21	900	1000	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036736	No	N/A
21	1000	1100	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367466	No	N/A
21	1100	1200	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.03674	No	N/A
21	1200	1300	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367312	No	N/A
21	1300	1386.8	Trail Access Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0319519	No	N/A
22	0	100	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367419	No	N/A
22	100	200	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367338	No	N/A
22	200	300	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367317	No	N/A
22	300	400	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.036732	No	N/A
22	400	500	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367328	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
22	500	600	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367337	No	N/A
22	600	700	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367775	No	N/A
22	700	800	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0367322	No	N/A
22	800	892.05	Unimproved Two-Track Road	4	D	NN Grass	BUOW	No	Moderate		Moderate		SAS	16	0.0338331	No	N/A
23	0	83.31	New Spur	5	D	NN Grass	BUOW, Riparian Birds	No	High		High	Ruderal	SAS	16	0.0310593	No	Hidden Valley Wildlife Area
24	0	100	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036791	No	N/A
24	100	200	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367511	No	N/A
24	200	300	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367401	No	N/A
24	300	400	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368455	No	N/A
24	400	500	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0368448	No	N/A
24	500	600	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367377	No	N/A
24	600	626	Unimproved Two-Track Road	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.00957585	No	N/A
25	0	100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036734	No	N/A
25	100	200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367334	No	N/A
25	200	227.75	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0101911	No	N/A
26	0	100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036796	No	N/A
26	100	200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367731	No	N/A
26	200	300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036733	No	N/A
26	300	400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367322	No	N/A
26	400	500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367327	No	N/A
26	500	600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367311	No	N/A
26	600	700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367348	No	N/A
26	700	800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367419	No	N/A
26	800	900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367333	No	N/A
26	900	1000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367386	No	N/A
26	1000	1100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367655	No	N/A
26	1100	1200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036744	No	N/A
26	1200	1300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367393	No	N/A
26	1300	1400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367391	No	N/A
26	1400	1500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367381	No	N/A
26	1500	1600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367335	No	N/A
26	1600	1700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036731	No	N/A
26	1700	1800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367355	No	N/A
26	1800	1900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367366	No	N/A
26	1900	2000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367328	No	N/A
26	2000	2100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367457	No	N/A
26	2100	2200	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367572	No	N/A
26	2200	2300	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.03677	No	N/A
26	2300	2400	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367342	No	N/A
26	2400	2500	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.036774	No	N/A
26	2500	2600	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367425	No	N/A
26	2600	2700	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367342	No	N/A
26	2700	2800	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367318	No	N/A
26	2800	2900	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367327	No	N/A
26	2900	3000	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367312	No	N/A
26	3000	3100	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0367311	No	N/A
26	3100	3116.1	Jeep Trail	4	D	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.00590864	No	N/A
27	0	66.02	New Spur	5	D, H, I	NN Grass	BUOW, Riparian Birds	No	High		High		SAS	16	0.0242734	No	N/A
28	0	100	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367452	No	Hidden Valley Wildlife Area
28	100	200	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367647	No	Hidden Valley Wildlife Area
28	200	300	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367577	No	Hidden Valley Wildlife Area
28	300	400	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367539	No	Hidden Valley Wildlife Area
28	400	500	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367364	No	Hidden Valley Wildlife Area
28	500	554.9	Jeep Trail	4	D, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0201668	No	Hidden Valley Wildlife Area
29	0	98.52	New Access Road	5	G, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0361869	No	Hidden Valley Wildlife Area
30	0	100	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367404	Yes	N/A
30	100	200	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.036742	No	N/A
30	200	300	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367848	No	N/A
30	300	400	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367917	No	N/A
30	400	500	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367887	No	N/A
30	500	600	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367714	No	N/A
30	600	700	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367461	No	N/A
30	700	800	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.036732	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
30	800	900	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367328	Yes	N/A
30	900	1000	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367373	No	N/A
30	1000	1100	Unpaved Access Road	3	H	Riparian Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367481	No	N/A
30	1100	1200	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367488	No	N/A
30	1200	1300	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367913	No	N/A
30	1300	1400	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.036813	No	N/A
30	1400	1500	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367446	No	N/A
30	1500	1600	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367417	No	N/A
30	1600	1700	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367504	No	N/A
30	1700	1800	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367332	No	N/A
30	1800	1883.6	Unpaved Access Road	3	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.030695	No	N/A
31	0	100	New Spur	5	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0371474	No	N/A
31	100	133.7	New Spur	5	H	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0124577	No	N/A
32	0	94.4	New Spur	5	H	Cropland, NN Grass	BUOW	No	High		High		SAS	16	0.0346897	No	N/A
33	0	100	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0371135	No	N/A
33	100	200	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0368326	No	N/A
33	200	300	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0368515	No	N/A
33	300	400	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0367891	No	N/A
33	400	500	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0370631	No	N/A
33	500	600	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0368641	No	N/A
33	600	700	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0368776	No	N/A
33	700	800	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.036761	No	N/A
33	800	900	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0367401	No	N/A
33	900	1000	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0367581	No	N/A
33	1000	1100	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0368154	No	N/A
33	1100	1200	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.0367821	No	N/A
33	1200	1234.4	Jeep Trail	4	H	NN Grass	BUOW	No	High		High		SAS	16	0.01264	No	N/A
34	0	100	New Spur	5	I	NN Grass	BUOW	No	High		High		SAS	16	0.0367782	No	N/A
34	100	182.01	New Spur	5	I	NN Grass	BUOW	No	High		High		SAS	16	0.0303703	No	N/A
35	0	100	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0368449	No	N/A
35	100	200	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.03678	No	N/A
35	200	300	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367602	No	N/A
35	300	400	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367458	No	N/A
35	400	500	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367346	No	N/A
35	500	600	Unimproved Two-Track Road	3	I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.0367357	No	N/A
35	600	700	Unimproved Two-Track Road	3	I	Riv Sage Scrub, NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.036732	No	N/A
35	700	782.07	Unimproved Two-Track Road	3	I	Riv Sage Scrub	BUOW	No	High		High	Disturbed, ruderal	SAS	16	0.030147	Yes	N/A
36	0	100	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367379	No	N/A
36	100	200	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367358	No	N/A
36	200	300	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367325	No	N/A
36	300	400	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367349	No	N/A
36	400	500	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.036775	No	N/A
36	500	600	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367802	No	N/A
36	600	700	New Access Road	5	J	Cropland, NN Grass	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0368427	No	N/A
36	700	715.4	New Access Road	5	J	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.00567646	No	N/A
37	0	91.37	New Spur	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0335758	No	N/A
38	0	100	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367323	No	N/A
38	100	200	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367314	No	N/A
38	200	300	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036732	No	N/A
38	300	400	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367315	No	N/A
38	400	500	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	500	600	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	600	700	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	700	800	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	800	900	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
38	900	1000	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367313	No	N/A
38	1000	1100	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	1100	1200	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367332	No	N/A
38	1200	1300	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367409	No	N/A
38	1300	1400	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367329	No	N/A
38	1400	1500	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367335	No	N/A
38	1500	1600	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036733	No	N/A
38	1600	1700	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036733	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
38	1700	1800	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367345	No	N/A
38	1800	1900	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367329	No	N/A
38	1900	2000	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367353	No	N/A
38	2000	2100	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
38	2100	2200	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	2200	2300	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
38	2300	2400	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
38	2400	2500	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367318	No	N/A
38	2500	2600	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367325	No	N/A
38	2600	2700	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
38	2700	2800	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036732	No	N/A
38	2800	2900	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367309	No	N/A
38	2900	3000	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
38	3000	3100	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367309	No	N/A
38	3100	3200	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
38	3200	3300	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
38	3300	3400	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367313	No	N/A
38	3400	3500	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367318	No	N/A
38	3500	3600	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036734	No	N/A
38	3600	3700	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367374	No	N/A
38	3700	3800	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367332	No	N/A
38	3800	3900	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367309	No	N/A
38	3900	4000	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367314	No	N/A
38	4000	4100	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367314	No	N/A
38	4100	4200	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
38	4200	4300	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
38	4300	4400	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367316	No	N/A
38	4400	4500	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367353	No	N/A
38	4500	4600	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367342	No	N/A
38	4600	4697.1	New Access Road	5	J	Ag-Dairy	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0356529	No	N/A
39	0	100	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367315	No	N/A
39	100	200	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367313	No	N/A
39	200	300	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367312	No	N/A
39	300	400	Unimproved Two-Track Road	3	J	Bare Ground/dist, Cropland	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367313	No	N/A
39	400	500	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367311	No	N/A
39	500	600	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367314	No	N/A
39	600	700	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367316	No	N/A
39	700	800	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367315	No	N/A
39	800	900	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367316	No	N/A
39	900	1000	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367313	No	N/A
39	1000	1100	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367311	No	N/A
39	1100	1200	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.036731	No	N/A
39	1200	1300	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.036731	No	N/A
39	1300	1400	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0367313	No	N/A
39	1400	1427.5	Unimproved Two-Track Road	3	J	Bare Ground/disturbed	N/A	No	Low		Low	disturbed, bare	N/A	16	0.0101151	No	N/A
40	0	100	New Spur	5	J	SC/WR	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	65	0.149222	No	Goose Creek Golf Course
40	100	142.72	New Spur	5	J	Landscaping, SC/WR	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	61	0.0598325	No	Goose Creek Golf Course
41	0	100	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	62	0.142333	No	Goose Creek Golf Course
41	100	200	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	59	0.13544799	No	Goose Creek Golf Course
41	200	300	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	55	0.12626299	No	Goose Creek Golf Course
41	300	400	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	56	0.12856001	No	Goose Creek Golf Course
41	400	500	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	52	0.119376	No	Goose Creek Golf Course
41	500	600	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS	50	0.114786	No	Goose Creek Golf Course
41	600	700	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS	51	0.117081	No	Goose Creek Golf Course
41	700	800	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS	48	0.110195	No	Goose Creek Golf Course
41	800	814.62	Golf Cart Trail	4	J	Landscaping	Riparian Bird	Yes	High		High	landscape, riparian	SAS	43	0.0144348	No	Goose Creek Golf Course
42	0	100	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	35	0.0804009	No	N/A
42	100	200	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367661	No	N/A
42	200	300	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367384	No	N/A
42	300	400	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367314	No	N/A
42	400	500	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367332	No	N/A
42	500	600	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367325	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
42	600	700	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.036731	No	N/A
42	700	800	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.036732	No	N/A
42	800	900	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367319	No	N/A
42	900	1000	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.036736	No	N/A
42	1000	1100	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367452	No	N/A
42	1100	1200	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367448	No	N/A
42	1200	1300	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367355	No	N/A
42	1300	1400	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367309	No	N/A
42	1400	1500	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367315	No	N/A
42	1500	1600	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367314	No	N/A
42	1600	1700	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0368262	No	N/A
42	1700	1786.2	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0317476	No	N/A
43	0	100	Unimproved Two-Track Road	3	J	Cropland	Delhi Sands Fly	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.036732	No	N/A
43	100	200	Unimproved Two-Track Road	3	J	Cropland	Delhi Sands Fly	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0367314	No	N/A
43	200	300	Unimproved Two-Track Road	3	J	Cropland	Delhi Sands Fly	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.036731	No	N/A
43	300	347.4	Unimproved Two-Track Road	3	J	Cropland	Delhi Sands Fly	No	Moderate		Moderate	Disturbed, Ag	N/A	16	0.0174193	No	N/A
44	0	100	Unimproved Two-Track Road	4	J	Cropland	N/A	No	Low		Low	Disturbed, Bare	N/A	24	0.11948	No	N/A
44	100	183.15	Unimproved Two-Track Road	4	J	Cropland	N/A	No	Low		Low	Disturbed, Bare	N/A	27	0.0516148	No	N/A
45	0	100	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	45	0.103564	No	N/A
45	100	200	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	24	0.0552544	No	N/A
45	200	300	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	18	0.0413715	No	N/A
45	300	400	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	20	0.0459534	No	N/A
45	400	412.04	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.00442816	No	N/A
46	0	100	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0367649	No	N/A
46	100	165.15	New Access Road	5	J	Cropland	BUOW	No	Moderate		Moderate	Disturbed, Ag	SAS	16	0.0239354	No	N/A
47	0	100	New Access Road	5	J	Bare Ground/dist	None	No	Low		Low	disturbed, bare	N/A	16	0.0368065	No	N/A
47	100	200	New Access Road	5	J	Bare Ground/dist	None	No	Low		Low	disturbed, bare	N/A	16	0.0367504	No	N/A
47	200	215.99	New Access Road	5	J	Bare Ground/dist	None	No	Low		Low	disturbed, bare	N/A	16	0.00587709	No	N/A
48	0	100	Unimproved Two-Track Road	4	J	Ag-Dairy	None	No	Low		Low	disturbed, bare	N/A	16	0.0367314	No	N/A
48	100	200	Unimproved Two-Track Road	4	J	Ag-Dairy	None	No	Low		Low	disturbed, bare	N/A	16	0.0367323	No	N/A
48	200	300	Unimproved Two-Track Road	4	J	Ag-Dairy	None	No	Low		Low	disturbed, bare	N/A	16	0.0367389	No	N/A
48	300	400	Unimproved Two-Track Road	4	J	Ag-Dairy	None	No	Low		Low	disturbed, bare	N/A	16	0.0367517	No	N/A
48	400	500	Unimproved Two-Track Road	4	J	Ag-Dairy	None	No	Low		Low	disturbed, bare	N/A	16	0.0367588	No	N/A
48	500	525.55	Unimproved Two-Track Road	4	J	Bare Ground/dist	None	No	Low		Low	disturbed, bare	N/A	16	0.00938529	No	N/A
49	0	100	New Access Road	5	J	Ag-Dairy	None	No	Low		Low	Disturbed, Ag	N/A	16	0.0367315	No	N/A
49	100	200	New Access Road	5	J	Ag-Dairy	None	No	Low		Low	Disturbed, Ag	N/A	16	0.0367311	No	N/A
49	200	300	New Access Road	5	J	Ag-Dairy	None	No	Low		Low	Disturbed, Ag	N/A	16	0.0367311	No	N/A
49	300	400	New Access Road	5	J	Ag-Dairy	None	No	Low		Low	Disturbed, Ag	N/A	16	0.0367358	No	N/A
49	400	443.67	New Access Road	5	J	Ag-Dairy	None	No	Low		Low	Disturbed, Ag	N/A	16	0.0160431	No	N/A
50	0	100	Unimproved Two-Track Road	4	J, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS, LBV	16	0.0376086	No	N/A
50	100	200	Unimproved Two-Track Road	4	J, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	SAS, LBV	16	0.036848	No	N/A
50	200	300	Unimproved Two-Track Road	4	J, H, I	NN Grass	BUOW	No	High		High	Disturbed, ruderal	N/A	16	0.03684	Yes	N/A
50	300	400	Unimproved Two-Track Road	4	J, H, I	Landscaping, NN Grass	BUOW	No	High		High	Disturbed, ruderal	N/A	16	0.0368694	No	N/A
50	400	437.81	Unimproved Two-Track Road	4	J, H, I	Landscaping	BUOW	No	High		High	Disturbed, ruderal	N/A	16	0.0139095	No	N/A
51	0	100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036871	No	N/A
51	100	200	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0368236	No	N/A
51	200	300	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0368517	No	N/A
51	300	400	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367862	No	N/A
51	400	500	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0368273	No	N/A
51	500	600	Jeep Trail	4	K	NN Grass, SC/WR	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036788	No	N/A
51	600	700	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367315	No	Hidden Valley Wildlife Area
51	700	800	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367319	No	Hidden Valley Wildlife Area
51	800	900	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367365	No	Hidden Valley Wildlife Area
51	900	1000	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036735	No	Hidden Valley Wildlife Area
51	1000	1100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367415	No	Hidden Valley Wildlife Area
51	1100	1200	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367389	No	Hidden Valley Wildlife Area
51	1200	1300	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367475	No	Hidden Valley Wildlife Area
51	1300	1400	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036731	No	Hidden Valley Wildlife Area
51	1400	1500	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367312	No	Hidden Valley Wildlife Area
51	1500	1600	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036731	No	Hidden Valley Wildlife Area
51	1600	1700	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367311	No	Hidden Valley Wildlife Area
51	1700	1800	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367311	No	Hidden Valley Wildlife Area
51	1800	1900	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367311	No	Hidden Valley Wildlife Area

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
51	1900	2000	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036731	No	Hidden Valley Wildlife Area
51	2000	2100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367311	No	Hidden Valley Wildlife Area
51	2100	2200	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.036731	No	Hidden Valley Wildlife Area
51	2200	2300	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.0367321	No	Hidden Valley Wildlife Area
51	2300	2400	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.0367318	No	Hidden Valley Wildlife Area
51	2400	2500	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.0367323	No	Hidden Valley Wildlife Area
51	2500	2600	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.0367319	No	Hidden Valley Wildlife Area
51	2600	2700	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	LBV	16	0.036732	No	Hidden Valley Wildlife Area
51	2700	2800	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367311	No	Hidden Valley Wildlife Area
51	2800	2900	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367315	No	Hidden Valley Wildlife Area
51	2900	3000	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367321	No	Hidden Valley Wildlife Area
51	3000	3100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367327	No	Hidden Valley Wildlife Area
51	3100	3200	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.036764	No	Hidden Valley Wildlife Area
51	3200	3300	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.03691	No	Hidden Valley Wildlife Area
51	3300	3400	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0368681	No	Hidden Valley Wildlife Area
51	3400	3500	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	16	0.0367343	No	Hidden Valley Wildlife Area
51	3500	3600	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.0367402	No	Hidden Valley Wildlife Area
51	3600	3700	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.0367315	No	Hidden Valley Wildlife Area
51	3700	3800	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.0367314	No	Hidden Valley Wildlife Area
51	3800	3900	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0367325	No	Hidden Valley Wildlife Area
51	3900	4000	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0367417	No	Hidden Valley Wildlife Area
51	4000	4100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.036734	No	Hidden Valley Wildlife Area
51	4100	4200	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.0367362	No	Hidden Valley Wildlife Area
51	4200	4261.7	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0226718	No	Hidden Valley Wildlife Area
52	0	56.62	New Spur	5	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	LBV	16	0.0207963	No	Hidden Valley Wildlife Area
53	0	100	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	28	0.0642792	No	Paradise Knolls Golf Course
53	100	200	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	29	0.066575	No	Paradise Knolls Golf Course
53	200	300	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	28	0.0642796	No	Paradise Knolls Golf Course
53	300	400	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	27	0.0619837	No	Paradise Knolls Golf Course
53	400	500	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	26	0.0596895	No	Paradise Knolls Golf Course
53	500	600	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	27	0.0619847	No	Paradise Knolls Golf Course
53	600	700	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	25	0.0574063	No	Paradise Knolls Golf Course
53	700	800	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	21	0.0482177	No	Paradise Knolls Golf Course
53	800	900	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0367324	No	Paradise Knolls Golf Course
53	900	1000	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	22	0.0505055	No	Paradise Knolls Golf Course
53	1000	1100	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	27	0.0619838	No	Paradise Knolls Golf Course
53	1100	1200	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	31	0.0711674	No	Paradise Knolls Golf Course
53	1200	1300	New Access Road	5	K	Landscaping, SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	31	0.0711669	No	Paradise Knolls Golf Course
53	1300	1400	New Access Road	5	K	SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	32	0.0734621	No	Paradise Knolls Golf Course
53	1400	1500	New Access Road	5	K	Landscaping, SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	30	0.0688707	No	Paradise Knolls Golf Course
53	1500	1600	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	35	0.0803494	No	Paradise Knolls Golf Course
53	1600	1700	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	34	0.0780592	No	Paradise Knolls Golf Course
53	1700	1800	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	30	0.0688715	No	Hidden Valley Wildlife Area, Paradise Knolls Golf
53	1800	1900	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	39	0.0895382	No	Paradise Knolls Golf Course
53	1900	2000	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	29	0.0665778	No	Paradise Knolls Golf Course
53	2000	2100	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	32	0.0734621	No	Paradise Knolls Golf Course
53	2100	2200	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	34	0.0780531	No	Paradise Knolls Golf Course
53	2200	2300	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	32	0.0734618	No	Paradise Knolls Golf Course
53	2300	2400	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	31	0.0711661	No	Paradise Knolls Golf Course
53	2400	2500	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	34	0.0780532	No	Paradise Knolls Golf Course
53	2500	2579.2	New Access Road	5	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	34	0.0618046	No	Paradise Knolls Golf Course
54	0	82.67	New Spur	5	K	Disturbed	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.030375	Yes	Hidden Valley Wildlife Area
55	0	100	Unpaved Facility Access Road	3	K	Bare Ground/disturbed	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.036765	No	Hidden Valley Wildlife Area
55	100	200	Unpaved Facility Access Road	3	K	Bare Ground/disturbed	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0367354	No	Hidden Valley Wildlife Area
55	200	239.3	Unpaved Facility Access Road	3	K	Bare Ground/disturbed	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	N/A	16	0.0144413	No	Hidden Valley Wildlife Area
56	0	64	New Spur	5	K	Bare Ground/disturbed	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0235072	No	N/A
57	0	100	New Spur	5	K	Bare Ground/disturbed	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0367326	No	N/A
57	100	141.44	New Spur	5	K	Disturbed	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	N/A	16	0.0152208	No	N/A
58	0	100	New Spur	5	K	NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.0367591	No	Hidden Valley Wildlife Area
58	100	177.3	New Spur	5	K	Bare Ground/dist, NN Grass	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS	16	0.028405	No	Hidden Valley Wildlife Area

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
59	0	64.47	New Access Road	5	K	Bare Ground/disturbed, SC/WR	Riparian Bird, BUOW	No	High		High	Ruderal, Riparian	SAS, LBV	37	0.0547638	No	N/A
60	0	100	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	SAS, LBV	35	0.0803494	No	N/A
60	100	200	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	SAS, LBV	32	0.0734662	No	N/A
60	200	300	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	SAS	27	0.0619859	No	N/A
60	300	400	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	SAS	28	0.0642829	No	N/A
60	400	500	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	N/A	24	0.0550994	No	N/A
60	500	575.1	Unpaved Access Road	3	K	Bare Ground/disturbed	None	No	Low		Low	disturbed	N/A	19	0.0327611	No	N/A
61	0	100	Jeep Trail	4	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	41	0.0941251	No	Paradise Knolls Golf Course
61	100	200	Jeep Trail	4	K	Landscaping, SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	40	0.0918286	No	Paradise Knolls Golf Course
61	200	300	Jeep Trail	4	K	SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	50	0.114789	No	Paradise Knolls Golf Course
61	300	400	Jeep Trail	4	K	Landscaping, SC/WR	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	43	0.098716	No	Paradise Knolls Golf Course
61	400	500	Jeep Trail	4	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	44	0.101017	No	Paradise Knolls Golf Course
61	500	600	Jeep Trail	4	K	Landscaping	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	39	0.0895372	No	Paradise Knolls Golf Course
61	600	700	Jeep Trail	4	K	Landscaping, NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	39	0.0895739	No	Paradise Knolls Golf Course
61	700	800	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	17	0.0390487	No	Hidden Valley Wildlife Area, Paradise Knolls golf
61	800	900	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0367498	No	Hidden Valley Wildlife Area
61	900	1000	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0367492	No	Hidden Valley Wildlife Area
61	1000	1100	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0367468	No	Hidden Valley Wildlife Area
61	1100	1131.7	Jeep Trail	4	K	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	N/A	16	0.0116636	No	Hidden Valley Wildlife Area
62	0	100	New Spur	5	K, R, S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367323	No	N/A
62	100	145.47	New Spur	5	K, R, S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0167024	No	N/A
63	0	57.79	New Spur	5	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0212368	No	Hidden Valley Wildlife Area
64	0	100	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.036778	No	N/A
64	100	200	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367564	No	Hidden Valley Wildlife Area
64	200	300	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367343	No	Hidden Valley Wildlife Area
64	300	400	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367632	No	Hidden Valley Wildlife Area
64	400	500	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367459	No	Hidden Valley Wildlife Area
64	500	600	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367599	No	Hidden Valley Wildlife Area
64	600	700	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367819	No	Hidden Valley Wildlife Area
64	700	800	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.036731	No	Hidden Valley Wildlife Area
64	800	900	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0367462	No	Hidden Valley Wildlife Area
64	900	933.82	Jeep Trail	4	K, U, T	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0124311	No	N/A
65	0	93.49	New Access Road	5	L	Disturbed	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	35	0.0757362	No	N/A
66	0	100	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367557	Yes	N/A
66	100	200	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367411	Yes	N/A
66	200	300	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367513	No	N/A
66	300	400	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367352	No	N/A
66	400	500	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367334	No	N/A
66	500	600	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367325	No	N/A
66	600	700	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367839	No	N/A
66	700	800	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367361	No	N/A
66	800	900	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0368084	No	N/A
66	900	1000	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0370377	No	N/A
66	1000	1100	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.037118	No	N/A
66	1100	1200	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0368137	No	N/A
66	1200	1300	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0368319	No	N/A
66	1300	1400	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367719	No	N/A
66	1400	1500	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367314	No	N/A
66	1500	1600	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367319	No	N/A
66	1600	1700	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367311	No	N/A
66	1700	1800	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.036731	No	N/A
66	1800	1900	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367311	No	N/A
66	1900	2000	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367309	Yes	N/A
66	2000	2100	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367311	No	N/A
66	2100	2200	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.036731	No	N/A
66	2200	2278.8	New Access Road	5	L, M, N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0289292	No	N/A
67	0	100	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367522	No	N/A
67	100	200	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036742	No	N/A
67	200	300	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368635	No	N/A
67	300	400	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.03678	No	N/A
67	400	500	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.03676	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
67	500	600	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367358	No	N/A
67	600	700	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367397	No	N/A
67	700	800	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036738	No	N/A
67	800	900	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367412	No	N/A
67	900	1000	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367489	No	N/A
67	1000	1100	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368012	No	N/A
67	1100	1128.6	New Access Road	5	M, N, P, Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0106229	No	N/A
68	0	100	New Access Road	5	N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	31	0.0713945	No	N/A
68	100	200	New Access Road	5	N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367693	No	N/A
68	200	300	New Access Road	5	N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.0367551	No	N/A
68	300	319.71	New Access Road	5	N	Bare Ground/disturbed	None	No	Low		Low	adjacent riparian	SAS	16	0.00724223	No	N/A
69	0	70.83	New Spur	5	P	Disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0260249	No	N/A
70	0	100	Unimproved Two-Track Road	4	P	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368502	No	N/A
70	100	200	Unimproved Two-Track Road	4	P	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368039	No	N/A
70	200	300	Unimproved Two-Track Road	4	P	Disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.0367549	No	N/A
70	300	307.33	Unimproved Two-Track Road	4	P	Disturbed	None	No	Low		Low	adjacent riparian	N/A	16	0.00269219	No	N/A
71	0	100	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
71	100	200	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
71	200	300	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367362	No	N/A
71	300	400	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367374	No	N/A
71	400	500	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367354	No	N/A
71	500	600	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367323	No	N/A
71	600	700	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367372	No	N/A
71	700	800	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367373	No	N/A
71	800	900	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
71	900	1000	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367309	No	N/A
71	1000	1100	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367348	No	N/A
71	1100	1200	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
71	1200	1300	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367311	No	N/A
71	1300	1400	New Access Road	5	P, Q, R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
71	1400	1500	New Access Road	5	P, Q, R	Bare Ground/dist	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367501	No	N/A
71	1500	1586.5	New Access Road	5	P, Q, R	Bare Ground/dist	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0317706	No	N/A
72	0	100	Unimproved Two-Track Road	3	P, Q, R	Bare Ground/dist	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367426	No	N/A
72	100	200	Unimproved Two-Track Road	3	P, Q, R	Bare Ground/dist	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367442	No	N/A
72	200	229.37	Unimproved Two-Track Road	3	P, Q, R	Bare Ground/dist	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0107893	No	N/A
73	0	100	New Spur	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
73	100	117.43	New Spur	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.00640363	No	N/A
74	0	100	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367866	No	N/A
74	100	200	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0369438	No	N/A
74	200	300	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368556	No	N/A
74	300	400	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0368586	No	N/A
74	400	500	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367512	No	N/A
74	500	600	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367483	No	N/A
74	600	700	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367362	No	N/A
74	700	800	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367354	No	N/A
74	800	817.46	Unimproved Two-Track Road	4	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.00641575	No	N/A
75	0	100	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0374795	No	N/A
75	100	200	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0376105	No	N/A
75	200	300	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0377166	No	N/A
75	300	400	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0369137	Yes	N/A
75	400	500	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0371717	No	N/A
75	500	556.75	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0209024	No	N/A
76	0	73.49	New Access Road	5	Q	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0269968	No	N/A
77	0	100	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	29	0.066576	No	N/A
77	100	200	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	29	0.066577	No	N/A
77	200	300	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	31	0.0711688	No	N/A
77	300	400	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	30	0.0688726	Yes	N/A
77	400	500	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	31	0.0711689	No	N/A
77	500	502.05	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	24	0.00112782	No	N/A
78	0	100	New Spur	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	29	0.0665758	No	N/A
78	100	120.1	New Spur	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0073836	No	N/A
79	0	100	New Access Road	5	R	NN Grass	None	No	Low		Low	Disturbed, bare	N/A	16	0.0367309	No	N/A
79	100	147.88	New Access Road	5	R	NN Grass	None	No	Low		Low	Disturbed, bare	N/A	16	0.0175858	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
80	0	81.67	New Spur	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0299968	No	N/A
81	0	63.21	New Spur	5	R	Bare Ground/dist	None	No	Low		Low	Disturbed, urban	N/A	16	0.0232178	No	N/A
82	0	100	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367313	No	N/A
82	100	200	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
82	200	300	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367332	No	N/A
82	300	400	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367344	No	N/A
82	400	500	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367345	No	N/A
82	500	600	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367346	No	N/A
82	600	659.77	New Access Road	5	R	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0219537	No	N/A
83	0	100	New Access Road	5	R	Disturbed	None	No	Low		Low	Disturbed, urban	N/A	16	0.036732	No	N/A
83	100	120.17	New Access Road	5	R	Disturbed	None	No	Low		Low	Disturbed, urban	N/A	16	0.00740862	No	N/A
84	0	100	Unpaved Facility Access Road	3	R	Bare Ground/dist	None	No	Low		Low	Disturbed, urban	SAS	26	0.059688	No	N/A
84	100	135.96	Unpaved Facility Access Road	3	R	Bare Ground/dist	None	No	Low		Low	Disturbed, urban	SAS	28	0.0231162	No	N/A
85	0	100	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367309	No	N/A
85	100	200	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	24	0.055097	No	N/A
85	200	300	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	28	0.0642792	No	N/A
85	300	400	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	31	0.0711685	No	N/A
85	400	500	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	32	0.0734686	No	N/A
85	500	600	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	32	0.0734628	No	N/A
85	600	700	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	32	0.0734661	No	N/A
85	700	800	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	25	0.0573973	No	N/A
85	800	804.63	New Access Road	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	28	0.00297419	No	N/A
86	0	100	New Spur	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	26	0.0596882	No	N/A
86	100	200	New Spur	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	23	0.0528014	No	N/A
86	200	248.5	New Spur	5	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0178148	No	N/A
87	0	100	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	34	0.0780608	No	N/A
87	100	200	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	31	0.0711775	No	N/A
87	200	300	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	26	0.059693	No	N/A
87	300	400	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	26	0.0596987	No	N/A
87	400	500	Jeep Trail	4	R	NN Grass, SC/WR	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	27	0.0619881	No	N/A
87	500	600	Jeep Trail	4	R	NN Grass, SC/WR	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	24	0.0550986	No	N/A
87	600	700	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367318	No	N/A
87	700	800	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367321	No	N/A
87	800	900	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
87	900	1000	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367309	No	N/A
87	1000	1100	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
87	1100	1127.3	Jeep Trail	4	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0100181	No	N/A
88	0	100	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367319	No	N/A
88	100	200	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367313	No	N/A
88	200	300	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367355	No	N/A
88	300	400	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367451	No	N/A
88	400	500	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0367427	No	N/A
88	500	600	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	29	0.066589	No	N/A
88	600	690.64	Unimproved Two-Track Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	27	0.0561844	No	N/A
89	0	100	Unpaved Facility Access Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	33	0.075758	No	N/A
89	100	148.57	Unpaved Facility Access Road	3	R	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	29	0.0323333	No	N/A
90	0	100	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036734	No	N/A
90	100	200	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367329	No	N/A
90	200	300	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367319	No	N/A
90	300	400	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367323	No	N/A
90	400	500	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367324	No	N/A
90	500	600	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
90	600	700	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367318	No	N/A
90	700	800	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
90	800	900	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	No	N/A
90	900	1000	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367344	No	N/A
90	1000	1100	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367344	No	N/A
90	1100	1200	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367325	No	N/A
90	1200	1246.5	Jeep Trail	3	S	Disturbed	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0170842	No	N/A
91	0	99.78	New Spur	5	S	Bare Ground/dist	None	No	Low		Low	Disturbed, bare	N/A	16	0.0366496	No	N/A
92	0	100	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367319	No	N/A
92	100	200	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367344	No	N/A
92	200	300	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367325	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
92	300	400	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367316	No	N/A
92	400	500	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367317	Yes	N/A
92	500	600	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367336	Yes	N/A
92	600	700	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367314	No	N/A
92	700	800	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367351	No	N/A
92	800	900	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367319	No	N/A
92	900	1000	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367328	No	N/A
92	1000	1100	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367326	No	N/A
92	1100	1200	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
92	1200	1300	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367312	No	N/A
92	1300	1400	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.036731	No	N/A
92	1400	1500	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367333	No	N/A
92	1500	1600	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367323	No	N/A
92	1600	1700	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367328	No	N/A
92	1700	1748.4	Unpaved Access Road	3	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0177667	No	N/A
93	0	100	New Spur	5	S	NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.0367316	No	N/A
93	100	133.81	New Spur	5	S	Disturbed, NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	N/A	16	0.012419	No	N/A
94	0	100	New Spur	5	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0369489	No	Hidden Valley Wildlife Area
94	100	147.83	New Spur	5	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0178075	No	Hidden Valley Wildlife Area
95	0	69.91	New Spur	5	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.025692	No	Hidden Valley Wildlife Area
96	0	100	Unpaved Access Road	3	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS, LBV	16	0.0368877	No	Hidden Valley Wildlife Area
96	100	200	Unpaved Access Road	3	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0368649	No	Hidden Valley Wildlife Area
96	200	300	Unpaved Access Road	3	U	NN Grass	Riparian Bird, BUOW	No	Moderate		Moderate	Ruderal, Riparian	SAS	16	0.0368274	No	Hidden Valley Wildlife Area
96	300	400	Unpaved Access Road	3	U	NN Grass	None	No	Low		Low	ruderal, residential	SAS	16	0.0367354	No	N/A
96	400	500	Unpaved Access Road	3	U	NN Grass	None	No	Low		Low	ruderal, residential	SAS	16	0.0367349	No	N/A
96	500	600	Unpaved Access Road	3	U	NN Grass	None	No	Low		Low	ruderal, residential	SAS	16	0.0367341	No	N/A
96	600	700	Unpaved Access Road	3	U	NN Grass	None	No	Low		Low	ruderal, residential	N/A	16	0.0367488	No	N/A
96	700	752.41	Unpaved Access Road	3	U	NN Grass	None	No	Low		Low	ruderal, residential	N/A	16	0.0192724	No	N/A
97	0	100	Unimproved Two-Track Road	3	A	Bare Ground/disturbed	BUOW, riparian birds	No	Moderate		Moderate		SAS	16	0.036731	No	N/A
97	100	151.78	Unimproved Two-Track Road	3	A	Bare Ground/disturbed	BUOW, riparian birds	No	Moderate		Moderate		SAS	16	0.0190209	No	N/A
98	0	82.23	New Access Road	5	A	Bare Ground/Dist, SC/WRip	BUOW, riparian birds	No	Moderate		Moderate		SAS	16	0.0302028	No	Hidden Valley Wildlife Area
99	0	100	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	100	200	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	200	300	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	300	400	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	400	500	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	Yes	N/A
99	500	600	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	600	700	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	700	800	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	Yes	N/A
99	800	900	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	900	1000	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.036731	No	N/A
99	1000	1010.9	Unimproved Two-Track Road	4	A	Bare Ground/disturbed	BUOW	No	Low		Low	Disturbed, bare	SAS	16	0.00400351	No	N/A
100	0	100	New Access Road	5	B	Dist, Riv. Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS	16	0.036731	No	Santa Ana River Wetlands Mit. Bank
100	100	200	New Access Road	5	B	Dist, Riv. Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.036731	No	Santa Ana River Wetlands Mit. Bank
100	200	300	New Access Road	5	B	Dist, Riv. Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.036731	No	Santa Ana River Wetlands Mit. Bank
100	300	400	New Access Road	5	B	Riversidian Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.036731	No	Santa Ana River Wetlands Mit. Bank
100	400	500	New Access Road	5	B	Rip Scrub, River Sage Scrub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.036731	No	Santa Ana River Wetlands Mit. Bank
100	500	591.01	New Access Road	5	B	Dist, Rip Scrb, Riv Sage Scub	Burrowing Owl	No	Moderate		Moderate	Ruderal	SAS, LBV	16	0.0334292	No	Santa Ana River Wetlands Mit. Bank
101	0	100	New Access Road	4	J (old)	Field Cropland, NN Grass	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
101	100	200	New Access Road	4	J (old)	Field Cropland, NN Grass	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
101	200	223.82	New Access Road	4	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.00874765	No	N/A
102	0	100	New Access Road	4	J (old)	Field Cropland, NN Grass	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
102	100	197.6	New Access Road	4	J (old)	Field Cropland	BUOW	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0358512	No	N/A
103	0	100	Unimproved Two-track Road	3	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	58	0.13315	No	N/A
103	100	200	Unimproved Two-track Road	3	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	50	0.114784	No	N/A
103	200	300	Unimproved Two-track Road	3	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	46	0.105601	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
103	300	400	Unimproved Two-track Road	3	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	26	0.0596878	No	N/A
103	400	500	Unimproved Two-track Road	3	J (old)	NN Grassland, Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	26	0.0596878	No	N/A
103	500	600	Unimproved Two-track Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	18	0.0413223	No	N/A
103	600	661.53	Unimproved Two-track Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	16	0.0226017	No	N/A
104	0	100	New Access Road	5	J (old)	Southern Cotton/Willow Ripari	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	71	0.162994	No	Goose Creek Golf Course
104	100	200	New Access Road	5	J (old)	Landscaping (Golf), SC/WR	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	71	0.162994	No	Goose Creek Golf Course
104	200	237.42	New Access Road	5	J (old)	Landscaping (Golf)	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	68	0.0584091	No	Goose Creek Golf Course
105	0	100	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	68	0.15610699	No	Goose Creek Golf Course
105	100	200	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	69	0.158402	No	Goose Creek Golf Course
105	200	300	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	Yes	High		High	landscape, riparian	SAS, LBV	73	0.167585	No	Goose Creek Golf Course
105	300	400	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS, LBV	75	0.172176	No	Goose Creek Golf Course
105	400	500	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS, LBV	74	0.169881	No	Goose Creek Golf Course
105	500	600	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	78	0.17906301	No	Goose Creek Golf Course
105	600	700	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	78	0.17906301	No	Goose Creek Golf Course
105	700	800	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	78	0.17906301	No	Goose Creek Golf Course
105	800	900	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	78	0.17906301	No	Goose Creek Golf Course
105	900	1000	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	75	0.172176	No	Goose Creek Golf Course
105	1000	1100	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	70	0.160698	No	Goose Creek Golf Course
105	1100	1200	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	70	0.160698	No	Goose Creek Golf Course
105	1200	1300	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	68	0.15610699	No	Goose Creek Golf Course
105	1300	1400	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	69	0.158402	No	Goose Creek Golf Course
105	1400	1500	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	62	0.142332	No	Goose Creek Golf Course
105	1500	1565.3	Golf Cart Trail	4	J (old)	Landscaping (Golf)	Riparian Bird	No	Moderate		Moderate	raptors, wildlife movement	SAS	53	0.0794807	No	Goose Creek Golf Course
106	0	100	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	75	0.172176	No	N/A
106	100	200	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	77	0.176768	No	N/A
106	200	300	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	73	0.167585	No	N/A
106	300	400	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	75	0.172176	No	N/A
106	400	500	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	75	0.172176	No	N/A
106	500	600	New Access Road	5	J (old)	Field Cropland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	70	0.160698	No	N/A
106	600	700	New Access Road	5	J (old)	Field Cropland, NN Grass	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	72	0.165289	No	N/A
106	700	800	New Access Road	5	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	68	0.15610699	No	N/A
106	800	851.07	New Access Road	5	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	Yes	High		High	Disturbed, ruderal	SAS, LBV	69	0.0808958	No	N/A
107	0	100	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS, LBV	67	0.15381099	No	N/A
107	100	200	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS, LBV	67	0.15381099	No	N/A

Road Name	From foot	To foot	Road Type	Build Level	Associated Link	Vegetation Crossing	Spec Habitat	MSHCP Cell	Sensitivity	PDFs	Level of Impact	comments	Critical Habitat	Road Width	Permanent Disturbance	Water Crossing	Park Crossing
107	200	300	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	67	0.15381099	No	N/A
107	300	400	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	61	0.140037	No	N/A
107	400	500	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	61	0.140037	No	N/A
107	500	600	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	59	0.135445	No	N/A
107	600	700	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	54	0.123967	No	N/A
107	700	800	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	34	0.0780533	No	N/A
107	800	863.84	Unimproved Access Road	3	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	16	0.0234492	No	N/A
108	0	100	New Access Road	4	J (old)	Disturbed Alluvial	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS, LBV	61	0.140037	No	N/A
108	100	200	New Access Road	4	J (old)	Disturbed Alluvial, NN Grass	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS, LBV	60	0.137741	No	N/A
108	200	270.86	New Access Road	4	J (old)	Non-native Grassland	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	62	0.100851	No	N/A
109	0	100	New Access Road	5	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
109	100	200	New Access Road	5	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
109	200	300	New Access Road	5	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
109	300	304.33	New Access Road	5	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.00158902	No	N/A
110	0	100	Unpaved Access Road	3	J (old)	Ag-Dairy, NN Grass	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	100	200	Unpaved Access Road	3	J (old)	Ag-Dairy, NN Grass	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	200	300	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	300	400	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	400	500	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	500	600	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	600	700	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	700	800	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	800	900	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.036731	No	N/A
110	900	978.91	Unpaved Access Road	3	J (old)	Non-native Grassland	BUOW, Sm Mammal	No	Moderate		Moderate	Disturbed, ruderal	SAS	16	0.0289841	No	N/A
111	0	100	New Access Road	5	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	55	0.12626299	No	N/A
111	100	198.62	New Access Road	5	J (old)	Riparian Scrub	BUOW, riparian birds, Sm Mammal	No	High		High	Disturbed, ruderal	SAS	60	0.13583501	No	N/A

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	1	1Sub	0	0.008726	Landscaping	None	None	Low	Low	urban	0	0	No	No	None	No
Tubular Steel Pole	2	A	0	0.008726	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential to disturb, take, nest	0	0	Yes	No	PSSW	Agricultural Park, Hidden Valley Wildlife Area
Tubular Steel Pole	3	A	0	0.008726	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	Yes	No	None	Agricultural Park
Tubular Steel Pole	4	A	0	0.008726	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	Agricultural Park
Tubular Steel Pole	5	A	0	0.008726	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	Agricultural Park
Tubular Steel Pole	6	A	0	0.008726	Developed	None	None	low	Low	urban	0	0	No	No	None	No
Tubular Steel Pole	7	A	0	0.008726	Developed	None	None	low	Low	urban	0	0	No	No	None	No
Tubular Steel Pole	8	A	0	0.008726	Developed	None	None	low	Low	urban	0	0	No	No	None	No
Tubular Steel Pole	9	A	0	0.008726	Riversidian Sage Scrub	None	BUOW, Riparian Birds	High	High	proximity to LBVI habitat	0	0	No	No	None	No
Tubular Steel Pole	10	A	0	0.008726	NonNative Grassland	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	11	A	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	12	A	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	13	A	0	0.008726	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	14	A	0	0.008726	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	16	A	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	17	A	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	18	A	0	0.008726	Southern Cottonwood/WRiparian	SAS	Riparian Bird	High	High	proximity to river, LBVI potential to take	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	19	A	0	0.008726	Bare Ground/dist, Disturbed	SAS	BUOW	Moderate	moderate	potential habitat	0	0	No	No	PSSW	No
Tubular Steel Pole	20	A	0	0.008726	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	Yes	Canal	PSSW	Hidden Valley Wildlife Area
Tubular Steel Pole	21	A	0	0.008726	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	22	A-T, A-D	0	0.008726	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	23	B	0	0.008726	Riversidian Sage Scrub	SAS, LBV	BUOW, Riparian Birds	High	High	proximity to river, LBVI potential to take	0	0	Yes	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	24	B	0	0.062075	Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	5	2704	Yes	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	25	B	0	0.008726	Bare ground/disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Tubular Steel Pole	26	B	0	0.008726	Disturbed	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	Yes	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	27	B	0	0.008726	Riversidian Sage Scrub	SAS	BUOW, Riparian Birds	High	High	proximity to river, LBVI potential to take	0	0	No	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	28	B	0	0.008726	Disturbed	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	29	B	0	0.008726	Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take	0	0	No	No	PSSY	Santa Ana River Wetlands Mit
Tubular Steel Pole	30	B	0	0.008726	Disturbed, Riversidian SS	SAS	BUOW, Riparian Birds	High	High	proximity to river, LBVI potential to take	0	0	No	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	31	B	0	0.008726	Riversidian Sage Scrub	SAS, LBV	BUOW	Moderate	Moderate	potential habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	32	B	0	0.008726	Disturbed, Riversidian SS	SAS, LBV	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	33	B	0	0.008726	NonNative Grassland	None	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	34	B-L, B-U	0	0.008726	Southern Cottonwood/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	35	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	36	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	37	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	38	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	39	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	40	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	41	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	42	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	43	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	44	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	45	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	46	D	0	0.008726	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	47	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	48	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	49	D	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	50	D	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	51	D-I, D-H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	52	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	53	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	54	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	55	H	0	0.008726	Riparian Scrub	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	56	H	0	0.008726	Landscaping	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	57	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	58	H	0	0.008726	NonNative Grassland, Rip Scrub	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	59	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	60	H	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	61	H-J, I-J	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	Yes	No	None	No
Tubular Steel Pole	62	I	0	0.008726	Field Cropland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	Savi Ranch Park
Tubular Steel Pole	63	I	0	0.008726	Field Cropland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	Savi Ranch Park
Tubular Steel Pole	64	I	0	0.008726	Landscaping	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	65	I	0	0.008726	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	66	J	0	0.0826445	Field Cropland	SAS	None				7	3600	No	No	None	No
Tubular Steel Pole	67	J	0	0.008726	Field Cropland	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	68	J	0	0.008726	Ag-Dairy	None	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Tubular Steel Pole	69	J	0	0.008726	Ag-Dairy	None	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Tubular Steel Pole	70	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	71	J	0	0.008726	Field Cropland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	72	J	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	73	J	0	0.008726	Developed	None	None				0	0	No	No	None	No
Tubular Steel Pole	74	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	75	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	76	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	77	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	78	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	79	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	80	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	81	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	82	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	83	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	84	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	85	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	85	UK UT TK	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	86	J	0	0.008726	Field Cropland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Tubular Steel Pole	87	J	0	0.062075201	Field Cropland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	5	2704	No	No	None	No
Tubular Steel Pole	88	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	89	J	0	0.044444401	Field Cropland	None	None	Low	Low	disturbed, ag	3	1936	No	No	None	No
Tubular Steel Pole	90	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	91	J	0	0.008726	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Tubular Steel Pole	92	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	93	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	94	J	0	0.008726	Field Cropland	None	DSF	Moderate	Moderate	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	95	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	96	J	0	0.008726	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	97	J	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	98	J (old)	0	0.008726	Field Cropland	SAS	None				0	0	No	No	None	No
Tubular Steel Pole	99	J (old)	0	0.008726	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Tubular Steel Pole	100	J (old)	0	0.008726	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Tubular Steel Pole	101	J (old)	0	0.119007997	Riparian Scrub	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	10	5184	Yes	No	None	No
Tubular Steel Pole	102	J (old)	0	0.132597998	Disturbed Alluvial	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	11	5776	Yes	No	None	No
Tubular Steel Pole	103	J (old)	0	0.177777007	Southern Cottonwood/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	14	7744	No	No	None	Goose Creek Golf Club

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	104	J (old)	0	0.161982998	Field Cropland, NNGrassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	13	7056	Yes	No	None	No
Tubular Steel Pole	105	J (old)	0	0.161982998	Field Cropland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	13	7056	Yes	No	None	No
Tubular Steel Pole	106	J, J (old)	0	0.146924004	Southern Cottonwood/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	12	6400	Yes	No	None	Goose Creek Golf Club
Tubular Steel Pole	107	J, J (old)	0	0.008726	Field Cropland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Tubular Steel Pole	108	K	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	109	K	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	110	K	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	111	K	0	0.062075201	Landscaping	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	5	2704	No	No	None	Paradise Knolls Golf Course
Tubular Steel Pole	112	K	0	0.062075201	Landscaping	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	5	2704	No	No	R2FLW	Paradise Knolls Golf Course
Tubular Steel Pole	113	K	0	0.008726	Landscaping	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Paradise Knolls Golf Course
Tubular Steel Pole	114	K	0	0.044444401	Landscaping	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	3	1936	No	No	P SS/FLW	Paradise Knolls Golf Course
Tubular Steel Pole	115	K	0	0.071992502	Southern Cottonwood/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	6	3136	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	116	K	0	0.008726	Disturbed	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	117	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	118	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	119	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	120	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	121	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	122	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	123	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	124	K	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	125	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	126	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	127	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	128	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	129	K	0	0.008726	Bare Ground/dist, Disturbed	None	BUOW	Moderate	Moderate	potential habitat - prev survey no sm mammal or DSFLF	0	0	No	No	None	No
Tubular Steel Pole	130	K	0	0.008726	Bare ground/disturbed	None	BUOW	Moderate	Moderate	potential habitat - prev survey no sm mammal or DSFLF	0	0	No	No	None	No
Tubular Steel Pole	131	K	0	0.044444401	Bare ground/disturbed	None	None				3	1936	No	No	None	No
Tubular Steel Pole	132	K	0	0.008726	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	133	K	0	0.008726	Bare ground/disturbed	None	BUOW				0	0	No	No	None	No
Tubular Steel Pole	134	K	0	0.008726	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	135	K	0	0.071992502	Southern Cottonwood/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	6	3136	No	No	None	No
Tubular Steel Pole	136	K	0	0.052892499	Landscaping	SAS	None				4	2304	No	No	None	Paradise Knolls Golf Course
Tubular Steel Pole	137	K	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	138	K	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	139	L	0	0.062075201	Disturbed, SC/WR	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	5	2704	No	No	None	No
Tubular Steel Pole	140	L-N, L-M	0	0.008726	Bare ground/disturbed	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
Tubular Steel Pole	141	M	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	142	M	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	143	M	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	144	M	0	0.008726	NN Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	145	MPMQ NQNP	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	146	N	0	0.008726	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	147	N	0	0.008726	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	148	N	0	0.008726	Developed	None	None				0	0	No	No	None	No
Tubular Steel Pole	149	N	0	0.008726	Developed	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	150	N	0	0.0826445	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	7	3600	No	No	None	No
Tubular Steel Pole	151	N	0	0.044444401	Bare ground/disturbed	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	3	1936	No	No	None	No
Tubular Steel Pole	152	P	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	153	P	0	0.008726	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	154	P	0	0.008726	NonNative Grassland	None	None				0	0	No	No	None	No
Tubular Steel Pole	155	Q	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	156	Q	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	157	Q	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	158	Q	0	0.008726	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	159	Q-R, P-R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	160	R	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	161	R	0	0.008726	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	162	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	163	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	164	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	165	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	166	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	167	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	168	R	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	169	R	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	170	R	0	0.008726	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	171	R	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	172	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Tubular Steel Pole	173	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	174	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	175	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	176	R	0	0.008726	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	177	R	0	0.052892499	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	4	2304	No	No	None	No
Tubular Steel Pole	178	R	0	0.044444401	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	3	1936	No	No	None	No
Tubular Steel Pole	179	R	0	0.044444401	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	3	1936	No	No	None	No
Tubular Steel Pole	180	R	0	0.052892499	Southern Cottonwood/WRiparian	SAS	BUOW	Moderate	Moderate	potential habitat	4	2304	No	No	None	No
Tubular Steel Pole	181	R	0	0.044444401	NonNative Grassland	SAS	BUOW	Low	Low	disturbed, ruderal	3	1936	No	No	None	No
Tubular Steel Pole	182	R	0	0.044444401	NonNative Grassland	SAS	BUOW	Low	Low	disturbed, ruderal	3	1936	No	No	None	No
Tubular Steel Pole	183	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	184	R	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	185	R-S, K-S	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	186	S	0	0.008726	NonNative Grassland	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	187	S	0	0.008726	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Tubular Steel Pole	188	S	0	0.008726	NonNative Grassland	None	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	189	S	0	0.008726	NonNative Grassland	None	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Tubular Steel Pole	190	S	0	0.008726	Bare groud/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	191	S	0	0.008726	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	192	S	0	0.008726	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Tubular Steel Pole	193	U	0	0.008726	NonNative Grassland, Rip Scrub	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	194	U	0	0.008726	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Tubular Steel Pole	195	B	0	0.008726	Riversidian Sage Scrub	SAS, LBV	Riparian Bird, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Tubular Steel Pole	196	A	0	0.008726	NonNative Grassland	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	200	A	0.690999985	0	NonNative Grassland, RivSS	LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	201	A	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	202	A	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	203	A	0.690999985	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	Canal	None	No
Pulling&Tensioning	204	A	0.690999985	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	205	A	0.690999985	0	NonNative Grassland, RivSS	LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	206	A	0.690999985	0	BareGrd/dist, NNGrass, RivSS	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	207	A	0.690999985	0	Disturbed, Landscap, NNGrass	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	No
Pulling&Tensioning	208	A	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	Yes	No	None	Agricultural Park, Hidden Valley Wildlife Area
Pulling&Tensioning	209	A	0.690999985	0	Baregrnd/disturb,Lands, NNGras	SAS	pot. Sm. Mammal	Moderate	moderate	disturbed, ruderal	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	210	A	0.690999985	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	211	A	0.690999985	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	212	A	0.690999985	0	Bare Ground/dist, Disturbed	None	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No
Pulling&Tensioning	213	A	0.690999985	0	Bare Grd/dist, Disturb, Landsc	None	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No
Pulling&Tensioning	214	A	0.690999985	0	NonNative Grassland	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit

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Pulling&Tensioning	215	A-T	0.690999985	0	Developed, NNGrass, RivSS	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	Canal	None	Hidden Valley Wildlife Area
Pulling&Tensioning	216	A-T	0.690999985	0	Developed, NNGrass, RivSS	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal, Int	None	Hidden Valley Wildlife Area
Pulling&Tensioning	217	B	0.690999985	0	Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	218	B	0.690999985	0	Disturbed, Rip Scrub, SC/WR	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	Int Stream	None	Hidden Valley Wildlife Area
Pulling&Tensioning	219	B	0.690999985	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	220	B	0.690999985	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
Pulling&Tensioning	221	B	0.690999985	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	Canal	PSSY	Santa Ana River Wetlands Mit
Pulling&Tensioning	222	B	0.690999985	0	Disturbed, Rip Scrub, RivSS	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	Canal	PSSY	Santa Ana River Wetlands Mit
Pulling&Tensioning	223	B-L	0.690999985	0	NNGrassland, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	Int Stream	None	Hidden Valley Wildlife Area
Pulling&Tensioning	224	B-L	0.690999985	0	Riparian Scrub, SC/WRiparian	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	Int Stream	PSSW	Hidden Valley Wildlife Area
Pulling&Tensioning	225	D	0.690999985	0	NonNative Grassland, RivSS	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	226	D	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	227	D	0.690999985	0	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	228	D	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	229	D-H	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	230	D-H	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	231	H	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	232	H	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	233	H	0.690999985	0	Field Cropland, NNGrass	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat, ag	0	0	No	No	None	Savi Ranch Park
Pulling&Tensioning	234	H	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	235	H	0.690999985	0	NonNative Grassland, Rip Scrub	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Pulling&Tensioning	236	H	0.690999985	0	NonNative Grassland, Rip Scrub	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	237	H-J, I-J	0.690999985	0	NonNative Grassland	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	Yes	Canal	None	No
Pulling&Tensioning	238	H-J, I-J	0.690999985	0	NonNative Grassland	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	Yes	No	None	No
Pulling&Tensioning	239	J	0.690999985	0	Field Cropland, NNGrassland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Pulling&Tensioning	240	J	0.690999985	0	Field Cropland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
Pulling&Tensioning	241	J	0.690999985	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Pulling&Tensioning	242	J	0.690999985	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	Int Stream	None	No
Pulling&Tensioning	243	J	0.690999985	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Pulling&Tensioning	244	J	0.690999985	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Pulling&Tensioning	245	J	0.690999985	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	246	J	0.690999985	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	247	J	0.690999985	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	248	J	0.690999985	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	249	J	0.690999985	0	Field Cropland	None	DSF	Moderate	Moderate	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	250	J	0.690999985	0	Field Cropland	None	None				0	0	No	No	None	No
Pulling&Tensioning	251	J	0.690999985	0	Bare ground/disturb, Cropland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	252	J	0.690999985	0	Field Cropland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	253	J	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	254	J (old)	0.690999985	0	Landscaping, SC/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	0	0	Yes	No	None	Goose Creek Golf Club
Pulling&Tensioning	255	J (old)	0.690999985	0	Landscaping, SC/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	0	0	Yes	No	None	Goose Creek Golf Club
Pulling&Tensioning	256	J (old)	0.690999985	0	Field Cropland, NNGrassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Pulling&Tensioning	257	J (old)	0.690999985	0	Field Cropland, NNGrassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Pulling&Tensioning	258	K	0.690999985	0	Landscaping	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	R2FLW	Paradise Knolls Golf Course
Pulling&Tensioning	259	K	0.690999985	0	NNGrassland, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	260	K	0.690999985	0	NonNative Grassland	SAS	None				0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	261	K	0.690999985	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	262	K	0.690999985	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	263	K-S	0.690999985	0	Disturbed, NNGrassland	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	264	K-S	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	265	L-M	0.690999985	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
Pulling&Tensioning	266	L-M	0.690999985	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
Pulling&Tensioning	267	M	0.690999985	0	NN Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	268	M	0.690999985	0	NN Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	269	M	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	270	M	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	271	M-Q, N-Q	0.690999985	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No

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Pulling&Tensioning	272	M-Q, N-Q	0.690999985	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	273	N	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	274	N	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	275	P	0.690999985	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	276	P	0.690999985	0	Disturbed, Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	277	Q	0.690999985	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	278	Q	0.690999985	0	NonNative Grassland, Orchard	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	No
Pulling&Tensioning	279	Q-R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	280	Q-R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	281	R	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Int Stream	None	No
Pulling&Tensioning	282	R	0.690999985	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Int Stream	None	No
Pulling&Tensioning	283	R	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	284	R	0.690999985	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	285	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	286	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	287	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	288	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	289	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	290	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	291	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	292	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	293	R	0.690999985	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Pulling&Tensioning	294	S	0.690999985	0	Landscaping, Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	295	S	0.690999985	0	Landscaping, Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Pulling&Tensioning	296	S	0.690999985	0	NonNative Grassland	None	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Pulling&Tensioning	297	UK UT TK	0.690999985	0	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	298	UK UT TK	0.690999985	0	NNGrassland, SC/WRiparian	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
Pulling&Tensioning	299	A	0.690999985	0	Bare Ground/dist, Disturbed	None	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No
Pulling&Tensioning	300	A	0.690999985	0	Bare Ground/dist, Disturbed	None	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No
TSP Assembly Area	400	A	0.461400002	0	Developed, NNGrass	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	PSSW	Agricultural Park, Hidden Valley Wildlife Area
TSP Assembly Area	401	A	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	Yes	No	None	Agricultural Park, Hidden Valley Wildlife Area
TSP Assembly Area	402	A	0.461400002	0	NNGrassland, SC/WRiparian	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Int Stream	None	Agricultural Park, Hidden Valley Wildlife Area
TSP Assembly Area	403	A	0.461400002	0	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	Canal	PSSW	Hidden Valley Wildlife Area
TSP Assembly Area	404	A	0.461400002	0	Bare Ground/dist, Disturbed	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	Canal	PSSW	Hidden Valley Wildlife Area
TSP Assembly Area	405	A	0.461400002	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	406	A	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	407	A	0.461400002	0	Landscaping	None	BUOW	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
TSP Assembly Area	408	A	0.461400002	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	409	A	0.461400002	0	Landscaping	None	BUOW	Moderate	Moderate	ruderal, grassland	0	0	No	No	None	No
TSP Assembly Area	410	A	0.461400002	0	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	411	A-D	0.461400002	0	Developed, NNGrass, RivSS	SAS	BUOW, sm mammal	Moderate	Moderate	ruderal, grassland	0	0	No	Canal, Int	PSSW	Hidden Valley Wildlife Area
TSP Assembly Area	413	B	0.461400002	0	Landscaping, NNGrass	LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	414	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds				0	0	No	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	415	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds				0	0	No	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	416	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds				0	0	No	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	417	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds				0	0	Yes	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	418	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, Riparian Birds				0	0	Yes	No	None	Santa Ana River Wetlands Mit
TSP Assembly Area	419	B	0.461400002	0	Bare Ground/dist, Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	Int Stream	None	Hidden Valley Wildlife Area
TSP Assembly Area	420	B-U	0.461400002	0	Bare grnd/dist, Rip Scr, SC/WR	SAS, LBV	Riparian Bird				0	0	Yes	Int Stream	None	Hidden Valley Wildlife Area
TSP Assembly Area	421	D	0.461400002	0	NonNative Grassland	SAS	None				0	0	No	No	None	No
TSP Assembly Area	421	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
TSP Assembly Area	422	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	423	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	424	D	0.461400002	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	425	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	426	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	427	D	0.461400002	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	428	D	0.461400002	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	429	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	430	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	431	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	432	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	433	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	434	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	435	D	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	436	D-I	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	437	H	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	438	H	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area

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TSP Assembly Area	439	H	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	440	H	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	441	H	0.461400002	0	NonNative Grassland, Rip Scrub	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Int Stream	None	No
TSP Assembly Area	442	H	0.461400002	0	Landscaping	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	443	I	0.461400002	0	Field Cropland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	Savi Ranch Park
TSP Assembly Area	444	I	0.461400002	0	Field Cropland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	Savi Ranch Park
TSP Assembly Area	445	I	0.461400002	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	No
TSP Assembly Area	446	I	0.461400002	0	Landscaping	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	447	J	0.461400002	0	Field Cropland	SAS	None				0	0	No	No	None	No
TSP Assembly Area	448	J	0.461400002	0	Field Cropland	SAS	BUOW, sm mammal	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	449	J	0.461400002	0	Ag-Dairy	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
TSP Assembly Area	450	J	0.461400002	0	Ag-Dairy	None	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
TSP Assembly Area	451	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	452	J	0.461400002	0	Field Cropland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
TSP Assembly Area	453	J	0.461400002	0	Field Cropland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	454	J	0.461400002	0	Field Cropland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	455	J	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	456	J	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	457	J	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	458	J	0.461400002	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	459	J	0.461400002	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	460	J	0.461400002	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	461	J	0.461400002	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	462	J	0.461400002	0	Field Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	463	J	0.461400002	0	Field Cropland, NNGrassland	None	None				0	0	No	No	None	No
TSP Assembly Area	464	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	465	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	466	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	467	J	0.461400002	0	Bare ground/disturb, Cropland	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
TSP Assembly Area	468	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	469	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	470	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	471	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	472	J	0.461400002	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	473	J	0.461400002	0	Landscaping, SC/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	0	0	Yes	No	None	Goose Creek Golf Club
TSP Assembly Area	474	J (old)	0.461400002	0	Landscaping, SC/WRiparian	SAS, LBV	Riparian Bird	Moderate	Moderate	Landscape, golf course	0	0	No	No	None	Goose Creek Golf Club
TSP Assembly Area	475	J (old)	0.461400002	0	Field Cropland, Landscaping	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	Goose Creek Golf Club
TSP Assembly Area	476	J (old)	0.461400002	0	Field Cropland, NNGrassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
TSP Assembly Area	477	J (old)	0.461400002	0	Disturbed Alluvial	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
TSP Assembly Area	478	J (old)	0.461400002	0	Riparian Scrub	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
TSP Assembly Area	479	J (old)	0.461400002	0	NonNative Grassland	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
TSP Assembly Area	480	J (old)	0.461400002	0	Field Cropland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
TSP Assembly Area	481	J (old)	0.461400002	0	Field Cropland, NNGrassland	SAS	BUOW, sm mammal	Moderate	Moderate	Sm mammal habitat, old dairy	0	0	No	No	None	No
TSP Assembly Area	482	K	0.461400002	0	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	483	K	0.461400002	0	NNGrassland, SC/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	484	K	0.461400002	0	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	485	K	0.461400002	0	Landscaping, SC/WRiparian	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Paradise Knolls Golf Course
TSP Assembly Area	486	K	0.461400002	0	Landscaping, SC/WRiparian	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area, Paradise Knolls Golf
TSP Assembly Area	487	K	0.461400002	0	Landscaping, SC/WRiparian	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	R2FLW	Paradise Knolls Golf Course
TSP Assembly Area	488	K	0.461400002	0	Landscaping, SC/WRiparian	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	R2FLW	Paradise Knolls Golf Course
TSP Assembly Area	489	K	0.461400002	0	Landscaping, SC/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	P SS/FLW	Paradise Knolls Golf Course
TSP Assembly Area	490	K	0.461400002	0	BareGrnd/dist, SC/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	No
TSP Assembly Area	491	K	0.461400002	0	Southern Cottonwood/WRiparian	SAS, LBV	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	492	K	0.461400002	0	Bare Ground/dist, Dist, SC/WR	SAS	BUOW, Riparian Birds,	High	High	proximity to river, LBVI potential to take,	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	493	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	494	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	495	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	496	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	497	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	498	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	499	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	500	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	501	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	502	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	503	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	504	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	505	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	506	K	0.461400002	0	Bare ground/disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	507	K	0.461400002	0	Bare Ground/dist, Disturbed	None	BUOW	Moderate	Moderate	potential habitat - prev survey no sm mammal or DSFLF	0	0	No	No	None	No
TSP Assembly Area	508	K	0.461400002	0	Bare Ground/dist, Disturbed	None	BUOW	Moderate	Moderate	potential habitat - prev survey no sm mammal or DSFLF	0	0	No	No	None	No
TSP Assembly Area	509	K	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	510	L	0.461400002	0	Disturbed, SC/WR	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
TSP Assembly Area	511	L-N	0.461400002	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
TSP Assembly Area	512	M	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	513	M	0.461400002	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	514	M-P, N-P	0.461400002	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	515	N	0.461400002	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
TSP Assembly Area	516	N	0.461400002	0	BareGrnd/dist, SC/WRiparian	SAS	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	No
TSP Assembly Area	517	N	0.461400002	0	Developed	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	518	N	0.461400002	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	519	N	0.461400002	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	520	P	0.461400002	0	NonNative Grassland	None	None				0	0	No	No	None	No
TSP Assembly Area	521	P	0.461400002	0	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	522	P-R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	523	Q	0.461400002	0	NonNative Grassland	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	524	Q	0.461400002	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	525	Q	0.461400002	0	NonNative Grassland	None	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	526	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	527	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	528	R	0.461400002	0	NonNative Grassland	SAS	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	529	R	0.461400002	0	NonNative Grassland	SAS	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	530	R	0.461400002	0	NNGrassland, SC/WRiparian	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	531	R	0.461400002	0	NonNative Grassland	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	532	R	0.461400002	0	NNGrassland, SC/WRiparian	SAS	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	533	R	0.461400002	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	534	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	535	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	536	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	537	R	0.461400002	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	538	R	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	539	R	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	540	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	541	R	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	542	R	0.461400002	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	543	R	0.461400002	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	544	R-S	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	545	S	0.461400002	0	NonNative Grassland	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	546	S	0.461400002	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
TSP Assembly Area	547	S	0.461400002	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	548	S	0.461400002	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
TSP Assembly Area	549	S	0.461400002	0	NonNative Grassland	None	BUOW	Moderate	Moderate	potential habitat	0	0	No	No	None	No
TSP Assembly Area	550	U	0.461400002	0	NonNative Grassland, Rip Scrub	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	551	U	0.461400002	0	NonNative Grassland	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	No	No	None	Hidden Valley Wildlife Area
TSP Assembly Area	552	B	0.461400002	0	Disturbed, Riversidian SS	SAS, LBV	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	Canal	None	Santa Ana River Wetlands Mit
Guard Pole Holes/Truck Damage	600	A	0.003053	0	Bare ground/disturbed	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Guard Pole Holes/Truck Damage	601	A	0.003053	0	Bare ground/disturb, Landscape	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	602	A	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	603	A	0.003053	0	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	604	A	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	605	A	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	606	B	0.003053	0	Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	Santa Ana River Wetlands Mit
Guard Pole Holes/Truck Damage	607	B	0.003053	0	Disturbed	SAS, LBV	BUOW, Riparian Birds, sm mammal	High	High	proximity to river, LBVI potential to take, pot. Sm mammal habitat	0	0	Yes	No	None	No
Guard Pole Holes/Truck Damage	608	H	0.003053	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	609	H	0.003053	0	NonNative Grassland	SAS	BUOW, sm mammal	Moderate	Moderate	potential habitat	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	610	H	0.003053	0	Landscaping, NNGrass	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	611	H	0.003053	0	Landscaping	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	612	I	0.003053	0	NonNative Grassland	SAS	None	Low	Low	disturbed, ruderal	0	0	No	No	None	Hidden Valley Wildlife Area
Guard Pole Holes/Truck Damage	613	I	0.003053	0	Field Cropland, NNGrassland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	Savi Ranch Park
Guard Pole Holes/Truck Damage	614	I	0.003053	0	Landscaping	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	615	I	0.003053	0	Landscaping	None	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	616	J	0.003053	0	Field Cropland	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	617	J	0.003053	0	Bare ground/disturbed	SAS	None	Low	Low	disturbed, ag	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	618	J	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	619	J	0.003053	0	Field Cropland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	620	J	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	621	J	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	622	J	0.003053	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	623	J	0.003053	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	624	J	0.003053	0	Ag-Dairy	None	None	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	625	J	0.003053	0	Developed, Cropland	None	DSF	Moderate	Moderate	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	626	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	627	K	0.003053	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	Hidden Valley Wildlife Area
Guard Pole Holes/Truck Damage	628	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	629	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	630	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	631	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	632	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	633	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	634	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	635	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	636	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	637	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	638	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	639	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	640	K	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	641	L	0.003053	0	Bare ground/disturbed	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	642	L	0.003053	0	Disturbed	SAS	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	643	M	0.003053	0	NonNative Grassland	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	644	M	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	645	M	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	646	M	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	647	N	0.003053	0	Landscaping	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	648	N	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	649	N	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	650	N	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No

Type	Reference Number	Associated Link	Temporary Disturbance (ac)	Permanent Disturbance (ac)	Vegetation Type	Critical Habitat	Species Habitat	Bio Sensitivity	Impact	Comment	Pad Height	Pad Base Area (sf)	MSHCP cell	Stream Crossing	NWI Type	Park Crossing
Guard Pole Holes/Truck Damage	651	P	0.003053	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	652	P	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	653	Q	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	654	Q	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	655	R	0.003053	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	656	R	0.003053	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	657	R	0.003053	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	658	R	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	659	R	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	660	R	0.003053	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	661	R	0.003053	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	662	R	0.003053	0	Disturbed	None	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	663	R	0.003053	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	664	R	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	665	R	0.003053	0	Disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	666	R	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	667	R	0.003053	0	NonNative Grassland	SAS	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	668	R	0.003053	0	Disturbed	SAS	BUOW	Low	Low	disturbed, ruderal	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	669	S	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	670	S	0.003053	0	Landscaping, Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	671	S	0.003053	0	Developed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No
Guard Pole Holes/Truck Damage	672	S	0.003053	0	Bare ground/disturbed	None	None	Low	Low	disturbed, urban	0	0	No	No	None	No

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APPENDIX C: BURROWING OWL SURVEY REPORTS

Burrowing Owl Focused Survey Report – for the 69kV Portion of the Planned Riverside Public Utility's Riverside Transmission Reliability Project

August 2007

Completed For
Power Engineers, Inc.
731 East Ball Road, Suite 100
Anaheim, CA 92805
(714) 507-2700

Completed By
TRC
1903 Wright Place, Suite 190
Carlsbad, CA 92008
(760) 603-1740

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

In order to comply with Section 6.3.2 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), habitat assessments and focused surveys for western burrowing owl (burrowing owl) (*Athene cunicularia hypugaea*) were conducted for the Riverside Transmission Reliability Project (RTRP) (project) 69 kilovolt (kV) power line located in Riverside County, California. This report describes the findings of the surveys conducted pursuant to MSHCP accepted protocols. The surveys were conducted along the specified study corridors for the four 69 kV power lines that will comprise the project.

1.1 PROJECT DESCRIPTION

RTRP is a Riverside Public Utilities (RPU) project that will provide the City of Riverside with a new 230 kilovolt (kV) power line, substation, and upgrade the existing 69 kV power lines (Figure 1). Four 69 kV power line routes are proposed south of the Santa Ana River. These routes will be between the Wilderness and Mountain View substations (Links 3 and 9); between Wilderness and Jurupa Ave. (Link 1); between the RERC and Harvey Lynn, and Freeman substations (Segment A Links 3, 4, 10-12; Segment B Link 16; Segment C Links 17, 19, 20, 26-30; Segment D Links 32-33, 36, 38, 41-42); and between the Riverside, University, and La Colina substations (Route D Links 1, 2, 5-6, 9-10, 12, 15-16, 25, 28). Southern California Edison will build the new 230 kV power lines and RPU will build the 69 kV power lines. Power Engineers, Inc. (POWER) has been contracted by RPU to design and manage the construction of the new power lines. TRC has been subcontracted by POWER to conduct the biological surveys for the project.

1.2 BIOLOGICAL SETTING

The habitat types observed in areas in which focused surveys for burrowing owl were conducted include disturbed and nonnative grassland. The disturbed areas are dominated by weedy species, including ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), hare barley (*Hordeum murinum* ssp. *leporinum*), mustard (*Sisymbrium* sp.), wild radish (*Raphanus sativus*), western jimson weed (*Datura wrightii*), horseweed (*Conyza canadensis*), tocalote (*Centaurea melitensis*), and Russian thistle (*Salsola tragus*).The nonnative grassland areas are dominated by ripgut grass, foxtail chess, and foxtail barley.

2.0 SURVEY NEED

The MSHCP requires focused surveys for the burrowing owl if appropriate habitat for the species exists within the project area mapped on the MSHCP burrowing owl overlay (Figure 6-4 of the MSHCP).

2.1 MSHCP BACKGROUND

The MSHCP is a multi-jurisdictional habitat conservation plan focusing on conservation of species and their associated habitats in Western Riverside County. Pursuant to MSHCP Section 6.3.2 and species-specific objective 5, the burrowing owl is considered an MSHCP-covered species adequately conserved, with focused surveys required within the mapped overlays if suitable habitat is present in the project area. During the habitat assessment, suitable burrowing owl habitat was identified within portions of the project area (See Figure 1). Focused burrowing owl surveys were conducted in areas of the specified survey corridor that have suitable burrowing owl habitat.

3.0 SPECIES BACKGROUND

The burrowing owl is currently listed as a species of special concern in the State of California. The burrowing owl typically use burrows made by fossorial mammals and inhabit a wide array of natural and modified habitats; including, but not limited to, native and nonnative grasslands, fallow fields, washes, arroyos, areas of low-density cover, vacant lots, and road embankments.

4.0 BURROWING OWL SURVEY METHODOLOGY

MSHCP GIS shape files of the burrowing owl overlay survey areas (Figure 6-4 of the MSHCP) obtained from the County of Riverside, were overlaid onto aerial photography of the 69 kV specified survey corridor to identify potentially suitable habitat areas to be surveyed. A map of these survey areas is provided as Figure 1. Focused surveys for the burrowing owl were completed in areas of potentially suitable habitat within the MSHCP burrowing owl overlay to evaluate presence and abundance within the specified survey corridor. Two biologists (Leslie Nelson and Ryan Villanueva, TRC) experienced with this species conducted the surveys on May 16, 2007 and May 23, 2007. Leslie Nelson conducted the surveys on May 17, 18, 21, 22, 25, 29, 30 and 31, 2007. The *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* prepared by the Environmental Programs Department (EPD) of the County of Riverside was used as the guideline for the surveys. This document is generally based upon the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium (1997), but provides additional clarification on the methods necessary to obtain sufficient information to address consistency with (1) specific conservation requirements of the MSHCP as identified in species-specific Objective 5 (Volume I Appendix E), and (2) ensure that direct mortality of burrowing owls is avoided through implementation of species-specific Objective 6 (Volume I Appendix E).

Phase I was completed on May 23, 2007, and Phase II, which is made up of two parts, Part A and Part B, was completed on May 31, 2007.

Phase I is a habitat assessment survey to assess the presence of suitable burrowing owl habitat within a 150-meter buffer zone (approximately 500-foot) surrounding the project

site. Habitat was considered suitable for burrowing owl if appropriate vegetation and/or burrows were observed during the survey.

Phase II involves a focused burrow survey (Part A) and a focused burrowing owl survey (Part B).

Phase II Part A is a focused burrow survey, which involves conducting surveys for burrows, including burrowing owl sign. In areas where suitable burrowing owl habitat was identified during Phase 1, Phase II Part A was required. The surveys were conducted on the specified survey corridor for the 69 kV power line. Focused burrow surveys were conducted by systematically walking transects of a designated width in each area in which burrows were observed in Phase I of the surveys. The transect width never exceeded 30 meters (approximately 100 feet). The transect width varied depending on the density and height of the vegetation. Narrower transect widths were walked in areas with denser or taller vegetation, in order to allow 100 percent visual coverage of the ground surface. All surveys were conducted by a maximum of two biologists. To ensure that owls and owl sign were detected, surveys were not conducted within five days after rain. The location of all suitable burrowing owl habitat (burrows or man-made structures that could support burrowing owl) present on-site and burrowing owl sign, occupied burrows or owls were recorded and locations were mapped using GPS to collect coordinates, as required by the protocol and summarized below.

Step II (Page 2) of the EPD approved MSHCP protocol states, “Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign.” Step II, Part A 2 (Page 3) of the protocol requires GPS coordinates for these in addition to suitable burrowing owl habitat and potential owl burrows as follows, “The location of all suitable burrowing owl habitat, potential owl burrows, burrowing owl sign, and any owls observed should be recorded and mapped, including GPS coordinates.” Due to the density of burrows observed and the large extent of this project, mapping and acquiring GPS coordinates for all potential owl burrows would have required significant additional field work and data processing that would not contribute meaningful additional data to the study of the burrowing owl in this area. Therefore TRC contacted the County of Riverside EPD to clarify the protocol. EPD informed TRC they did not expect GPS coordinates for every burrow, and that coordinates should be taken as follows:

1. Provide one GPS coordinate at a central point for each different area/parcel characterized as suitable habitat. The areas with no burrowing owl sign would not be subject to any avoidance, but would require preconstruction surveys. Therefore if the area was occupied by burrowing owl in the future, GPS coordinates for the occupied burrows and owls would be taken during the preconstruction survey.

2. GPS all burrows with burrowing owl sign (i.e. occupied burrows) and any owl sightings, as these areas would require avoidance.

Phase II Part B includes focused burrowing owl surveys. Part B was required in areas where potential burrowing owl sign was observed, or burrowing owls were observed. Part

B of the focused burrowing owl surveys required site visits on four separate days. Surveys were conducted from one hour before sunrise to two hours after sunrise. All burrowing owl sightings, occupied burrows, and burrows with owl sign were recorded and GPS coordinates collected. If burrowing owls were observed, the location, number of owls (including number of adults and juveniles) as well as behavior, was noted. To ensure that owls and owl sign were detected during the surveys, they were not conducted within five days after rain or during periods of high wind, fog, or in temperatures over 90 degrees Fahrenheit. Part B surveys were conducted by initially scanning all suitable habitat using 10 x 42 binoculars. If owls were observed on-site, their location and behavior was recorded. If owls were not observed by scanning the area with binoculars, walking surveys were conducted. These surveys were conducted by systematically walking transects of a designated width through suitable habitat. The transect width never exceeded 30 meters (approximately 100 feet). The transect width varied depending on the density and height of the vegetation. Narrower transect widths were walked in areas with denser or taller vegetation, in order to allow 100 percent visual coverage of the ground surface.

Phase III consists of the submittal of a final report to the Riverside County EPD and the Regional Conservation Authority (RCA) Monitoring Program Administrator for review. This report will be submitted by POWER during the MSHCP approval process.

Pursuant to the survey protocol described above, Phase I was conducted for the entire specified study corridor within the MSHCP burrowing owl overlay, Phase II Part A was only conducted in areas of potentially suitable habitat identified during the Phase I survey, and Phase II Part B was conducted in areas where burrowing owl or its sign was observed on the site based on the Phase II Part A survey.

5.0 BURROWING OWL SURVEY RESULTS

The habitat assessment survey for burrowing owl covered an area of approximately 329 acres along the specified study corridor. Approximately 21.38 acres of potentially suitable burrowing owl habitat was identified during the Phase I survey, and approximately 10.72 acres of owl habitat was identified as part of the Phase II Part A survey. Several locations with suitable burrow habitat within the 150-meter (500-foot) buffer zone were identified along Link 1 between the Wilderness substation and Jurupa Ave., Link 3 between the Wilderness and Mountain View substations, and Links 4, 10 and 41 of the RERC to Harvey-Lynn/Freeman Route. The total length of the specified study corridor is approximately 14.3 miles. The Phase II Part B surveys conducted within the 10.72-acre area, including the project area and the 150-meter (500-foot) buffer zone surrounding the project area, identified one location within the project area near Van Buren Golf Center occupied by a minimum of two adult (one pair) burrowing owls. All burrowing owl observations occurred on Segment A, Link 4 of the RERC to Harvey-Lynn/Freeman Route (See Figure 1). Coordinates taken during the surveys are provided in Appendix A, and representative photographs of burrowing owls and active burrows observed are provided in Appendix B.

The burrowing owls were observed on an approximate 10.72 acre plot located off Doolittle Road near the Van Buren Golf Center. The location can be described as disturbed with loose soil piles. Trash and debris litter the area. Little to no vegetation is present on the site. A berm is located along the western edge of Doolittle Avenue. The owls were associated with a burrow located on the berm. The burrow's apron was littered with white wash. The location of the burrow is within the 150-meter (500-foot) buffer zone for burrowing owl.

The focused survey concluded that this site supports a minimum of two adult (one pair) burrowing owls. On May 18, 2007, Leslie Nelson observed one adult burrowing owl along the berm. The owl was associated with a burrow containing white wash. On May 29 and 30, 2007 one adult owl was observed on the berm above the burrow entrance. On May 31, 2007, two owls were observed; one owl stood just outside the burrow entrance while a second owl emerged from the burrow to clean the burrow and afterwards, returned to the burrow.

No other burrowing owls were observed within the project area or within the 150-meter (500-foot) buffer zone surrounding the project area. However, suitable habitat is present in a few areas along Links 1, 3, 4, 10 and 41 (See Figure 1).

6.0 CONCLUSIONS

1. Several locations with suitable burrow habitat within the 150-meter (500-foot) buffer zone were identified along Link 1 between the Wilderness substation and Jurupa Ave., Link 3 between the Wilderness and Mountain View substations, and Links 4, 10 and 41 of the RERC to Harvey-Lynn/Freeman Route. One burrowing owl family unit is located within the 150-meter (500-foot) buffer zone surrounding the project area along Link 4 of the RERC to Harvey-Lynn/Freeman Route.

2. Since burrowing owls were found on the project during focused surveys, the MSHCP will require avoidance or relocation. The locations of the two burrowing owls for this project are outside of MSHCP Cell Criteria Areas within approximately 10.72 acres of habitat. Since the project contains a minimum of one pair of owls and a minimum 10.72 acres of habitat, the project may be considered eligible for relocation of the owls. Based on the species-specific objectives outlined in the MSHCP, projects outside the MSHCP Cell Criteria Area that contain or are part of an area supporting less than 35 acres of suitable habitat, or the site and the surrounding area supports fewer than three pairs of burrowing owls, the on-site burrowing owls can be passively relocated following accepted protocols. However, areas surrounding the 69kV project that were not surveyed as part of this report may support additional owls or suitable habitat based on the MSHCP overlay distribution, and at least 35 acres of suitable habitat and three pairs of owls are known to exist to the north along the 230kV line documented in a separate report. This could be considered part of the surrounding area, and for projects outside the MSHCP Cell Criteria Area that support three or more pairs of burrowing owls with greater than 35 acres of suitable habitat, avoidance of both the burrowing owls and 90 percent of the area with long-term conservation values is required. The project should be able to comply

with these requirements since transmission line poles can typically be relocated to a certain degree during the design process to avoid burrowing owls, and the poles typically have minimal footprint impact on habitat. Please note that any determination will require review and approval of project specific design pursuant to the MSHCP Joint Project Review process through the RCA.

3. Preconstruction presence/absence surveys for burrowing owl will be required in all areas mapped on Figure 1 with suitable burrow habitat (see Objective 6, Volume I Appendix E). Pursuant to the MSHCP accepted protocol for preconstruction surveys, any initial ground disturbance associated with the project must begin within 30 days of the survey start date or an updated survey will be required.

4. If burrowing owls are present at the time of the preconstruction surveys, passive relocation may occur. As outlined in the MSHCP (see Objective 6, Volume I Appendix E), take of active nests will be avoided and passive relocation (use of one-way doors and collapse of burrows) will occur when owls are present outside the nesting season.

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Figure 1: MSHCP Burrowing Owl Overlay and Focused Survey Results - 69 kV Line

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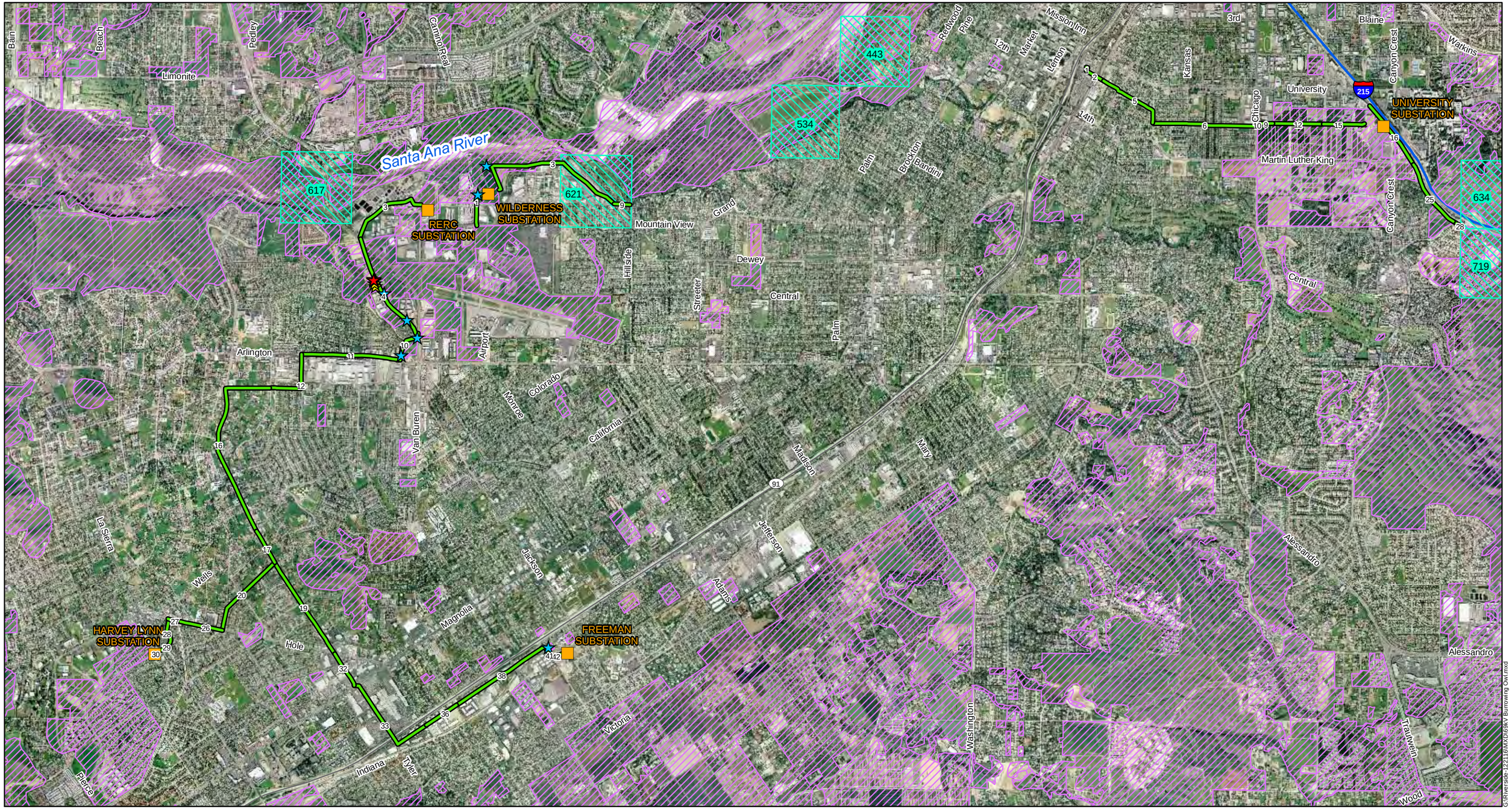

Legend

- Link # — 69kV Transmission Project
- Criteria Cells MSHCP
- Burrowing Owl MSHCP Overlay
- Suitable Habitat *
- Burrow with Burrowing Owl Sign
- Burrow with Burrowing Owl Sign and Burrowing Owls
- Substations

Source:
MSHCP - Riverside County GIS Dept.
Transmission line data - Power Engineers
Aerial photo taken - Power Engineers (Spring 2006)

* Note: One GPS coordinate was taken in a central point for each area/parcel determined potential burrowing owl habitat based on the presence of suitable vegetation and burrow(s).

Date Created: 7/11/2007
Date Modified: 8/24/2007

N

1" = 3,500'

3,500 1,750 0 3,500 7,000 Feet

Riverside Transmission Reliability Project

MSHCP Burrowing Owl Overlay and Focused Survey Results - 69 kV Line

Figure 1

TRC

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Appendix A: Coordinates for burrowing owl suitable habitat, burrows with sign, and owls observed during the 69 kV survey

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APPENDIX A: Coordinates for burrowing owl suitable habitat, burrows with sign, and owls taken during the 69kV survey.								
LATITUDE	LONGITUDE	LINK	ROUTE	APN	DESCRIPTION	SUITABLE HABITAT	BURROWS WITH SIGN	OWLS AND SIGN
33.96368	-117.44677	1	Wilderness substation and Jurupa Ave.	189090014	East of Wilderness Road.Few burrows observed; occupied by ground squirrels. No owl sign. Potentially suitable habitat.	Y	N	N
33.96672	-117.44569	3	Wilderness and Mountain View substations	189100006	Burrows found in embankments along bike route adjacent to Santa Ana River. No owl sign. Potentially suitable habitat.	Y	N	N
33.95313	-117.45848	4	RERC to Harvey-Lynn / Freeman Route	155280059	East of Doolittle Road, west of golf course. Burrows not appropriate size (small).No owl sign.	Y	N	N
33.95037	-117.45554	4	RERC to Harvey-Lynn / Freeman Route	155280029	West of Doolittle. Few burrows. Areas of dense vegetation. No owl sign. Potentially suitable habitat.	Y	N	N
33.95385	-117.45956	4	RERC to Harvey-Lynn / Freeman Route	155280007	Burrow along berm facing Doolittle Rd. Previously active. Old sign present. Sign (whitewash, pellets).	Y	Y	N
33.95417	-117.45970	4	RERC to Harvey-Lynn / Freeman Route	155280007	Burrow along berm facing Doolittle Rd. Previously active. Old sign present. Sign (whitewash, pellets).	Y	Y	N
33.95457	-117.45975	4	RERC to Harvey-Lynn / Freeman Route	155280005	Active burrow. Two adults observed. Whitewash, pellets.	Y	Y	Y
33.95458	-117.45977	4	RERC to Harvey-Lynn / Freeman Route	155280005	Active burrow. Whitewash. No owls observed at this burrow.Close proximity to active burrow. Sign (whitewash, pellets).	Y	Y	N
33.95461	-117.45978	4	RERC to Harvey-Lynn / Freeman Route	155280005	Potentially active burrow. Close proximity to active burrows. No owl sign.	Y	N	N
33.95450	-117.45972	4	RERC to Harvey-Lynn / Freeman Route	155280006	Active burrow. Whitewash. No owls observed at this burrow.Close proximity to active burrow. Sign (whitewash, pellets).	Y	Y	N
33.94850	-117.45421	10	RERC to Harvey-Lynn / Freeman Route	155290009	Corner of Van Buren and Doolittle. Few burrows. No owl sign. Potentially suitable habitat.	Y	N	N
33.94665	-117.45623	10	RERC to Harvey-Lynn / Freeman Route	155290017	Corner of Van Buren and Doolittle.Burrows in bank of drainage. Feral cats. No owl sign. Potentially suitable habitat.	Y	N	N
33.91608	-117.43720	41	RERC to Harvey-Lynn / Freeman Route	233170003	Corner of Indiana and Gibson near Freeman Sub. Three burrows. No owl sign. Potentially suitable habitat.	Y	N	N

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Appendix B: Representative photographs of burrowing owl habitat, burrows with sign, and owls observed during the 69kV survey

Link 4. RERC to Harvey-Lynn/Freeman Route. Representative burrowing owl habitat located west of Doolittle Avenue and northwest of Morris Street. This photograph was taken on May 30, 2007, facing west.

Link 4. RERC to Harvey-Lynn/Freeman Route. Burrow with owl sign. This site is located west of Doolittle Avenue and northwest of Morris Street. This photograph was taken on May 30, 2007, facing west northwest.

Link 4. RERC to Harvey-Lynn/Freeman Route. Burrows with an individual. This site is located west of Doolittle Avenue and northwest of Morris Street. This photograph was taken on May 18, 2007, facing west southwest.

Burrowing Owl Focused Survey Report – for the 230kV Portion of the Planned Riverside Public Utility's Riverside Transmission Reliability Project

August 2007

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

In order to comply with Section 6.3.2 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), habitat assessments and focused surveys for western burrowing owl (burrowing owl/owl) (*Athene cunicularia hypugaea*) were conducted for the planned Riverside Transmission Reliability Project (RTRP) (project) 230 kilovolt (kV) power line located in Riverside County, California. The surveys were conducted along selected portions of the initial study corridors for the 230 kV power line that will comprise the project. This report describes the findings of the surveys conducted pursuant to MSHCP accepted protocols.

1.1 PROJECT DESCRIPTION

RTRP is a Riverside Public Utilities (RPU) project that will include the creation of a new Southern California Edison (SCE) 230 kilovolts (kV) transmission connection (Figure 1), the construction of a new SCE substation, the construction of a new RPU substation, and the expansion of the existing RPU 69 kV system. Habitat assessments and focused surveys conducted along the 69kV route are reported in separate documents. The proposed 230 kV power line will extend from the existing SCE 230 kV power line north of the City of Riverside to the proposed Jurupa substation, which will be located on the south side of the Santa Ana River approximately 1 mile east of Van Buren Boulevard. SCE will construct the new 230 kV power line. Power Engineers, Inc. (POWER) has been contracted by RPU to design and manage the construction of the RTRP. TRC (formerly TRC Essex) has been subcontracted by POWER to conduct the biological surveys for the RTRP.

1.2 BIOLOGICAL SETTING

The habitat types observed in areas in which focused surveys for burrowing owl were conducted include disturbed and nonnative grassland. These habitats are dominated by nonnative, invasive species, including ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), hare barley (*Hordeum murinum* ssp. *leporinum*), mustard (*Sisymbrium* sp.), wild radish (*Raphanus sativus*), western jimson weed (*Datura wrightii*), horseweed (*Conyza canadensis*), tocalote (*Centaurea melitensis*), and Russian thistle (*Salsola tragus*).

2.0 SURVEY NEED

The MSHCP (2003) requires focused surveys for the burrowing owl if appropriate habitat for the species exists within the project area mapped on the MSHCP burrowing owl overlay (Figure 6-4 of the MSHCP).

2.1 MSHCP BACKGROUND

The MSHCP is a multi-jurisdictional habitat conservation plan focusing on conservation of species and their associated habitats in Western Riverside County. Pursuant to MSHCP Section 6.3.2 and species-specific objective 5, the burrowing owl is considered an MSHCP-covered species adequately conserved, with focused surveys required within the mapped overlays if suitable habitat is present in the project area. During the habitat assessment, suitable burrowing owl habitat was identified within portions of the project area (See Figure 1). Focused burrowing owl surveys were conducted in areas of the specified survey corridor that have suitable burrowing owl habitat.

3.0 SPECIES BACKGROUND

The burrowing owl is listed as a species of special concern in the State of California. Burrowing owl typically use burrows made by fossorial mammals, and inhabit a wide array of natural and modified habitats; including, but not limited to, native and nonnative grasslands, fallow fields, washes, arroyos, areas of low-density cover, vacant lots, and road embankments.

4.0 BURROWING OWL SURVEY METHODOLOGY

MSHCP GIS shape files of the burrowing owl overlay survey areas (Figure 6-4 of the MSHCP) obtained from the County of Riverside, were overlaid onto aerial photography of the 230 kV specified survey corridor to identify potentially suitable habitat areas to be surveyed. A map of these survey areas is provided as Figure 1. A habitat assessment along the proposed 230 kV transmission line study corridors was conducted in 2006 by Paula Potenza and Leslie Nelson (TRC). Results of the habitat assessment are presented in the *Riverside Transmission Reliability Project Burrowing Owl and Riparian Bird Species Habitat Assessment* submitted to POWER in November 2006. Focused surveys for the burrowing owl were completed in areas of potentially suitable habitat within the MSHCP burrowing owl overlay to evaluate presence and abundance within the specified survey corridor. Two biologists (Leslie Nelson and Ryan Villanueva, TRC) experienced with this species conducted a field review of the 2006 habitat assessment to check for any land use changes and conducted the focused surveys on May 16, 2007 and May 23, 2007. Leslie Nelson conducted the field review/surveys on May 17, 18, 21, 22, 25, 29, 30 and 31, 2007. The *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* prepared by the Environmental Programs Department (EPD) of the County of Riverside was used as the guideline for the surveys. This document is generally based upon the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium (1997), but provides additional clarification on the methods necessary to obtain sufficient information to address consistency with (1) specific conservation requirements of the MSHCP as identified in species-specific Objective 5 (Volume I Appendix E), and (2) ensure that direct mortality of burrowing owls is avoided through implementation of species-specific Objective 6 (Volume I Appendix E).

The phase I review was completed on May 23, 2007; and Phase II, Part A and Part B, was completed on May 31, 2007.

Phase I is a habitat assessment survey to assess the presence of suitable burrowing owl habitat within a 150-meter buffer zone (approximately 500-foot) surrounding the project site. Habitat was considered suitable for burrowing owl if appropriate vegetation and/or burrows were observed during the survey.

Phase II involves a focused burrow survey (Part A) and a focused burrowing owl survey (Part B).

Phase II Part A is a focused burrow survey, which involves conducting surveys for burrows, including burrowing owl sign. In areas where suitable burrowing owl habitat was identified during Phase 1, Phase II Part A was required. The surveys were conducted on the specified survey corridor for the 230 kV power line. Focused burrow surveys were conducted by systematically walking transects of a designated width in each area in which burrows were observed in Phase I of the surveys. The transect width never exceeded 30 meters (approximately 100 feet). The transect width varied depending on the density and height of the vegetation. Narrower transect widths were walked in areas with denser or taller vegetation, in order to allow 100 percent visual coverage of the ground surface. All surveys were conducted by a maximum of two biologists. To ensure that owls and owl sign were detected, surveys were not conducted within five days after rain. The location of all suitable burrowing owl habitat (burrows or man-made structures that could support burrowing owl) present on-site and burrowing owl sign, occupied burrows or owls were recorded and locations were mapped using GPS to collect coordinates, as required by the protocol and summarized below.

Step II (Page 2) of the EPD approved MSHCP protocol states, “Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign.” Step II, Part A 2 (Page 3) of the protocol requires GPS coordinates for these in addition to suitable burrowing owl habitat and potential owl burrows as follows, “The location of all suitable burrowing owl habitat, potential owl burrows, burrowing owl sign, and any owls observed should be recorded and mapped, including GPS coordinates.” Due to the density of burrows observed and the large extent of this project, mapping and acquiring GPS coordinates for all potential owl burrows would have required significant additional field work and data processing that would not contribute meaningful additional data to the study of the burrowing owl in this area. Therefore TRC contacted the County of Riverside EPD to clarify the protocol. EPD informed TRC they did not expect GPS coordinates for every burrow, and that coordinates should be taken as follows:

1. Provide one GPS coordinate at a central point for each different area/parcel characterized as suitable habitat. The areas with no burrowing owl sign would not be subject to any avoidance, but would require preconstruction surveys. Therefore if the area was occupied by burrowing owl in the future, GPS coordinates for the occupied burrows and owls would be taken during the preconstruction survey.

2. GPS all burrows with burrowing owl sign (i.e. occupied burrows) and any owl sightings, as these areas would require avoidance.

Phase II Part B includes focused burrowing owl surveys. Part B was required in areas where potential burrowing owl sign was observed, or burrowing owls were observed. Part B of the focused burrowing owl surveys required site visits on four separate days. Surveys were conducted from one hour before sunrise to two hours after sunrise. All burrowing owl sightings, occupied burrows, and burrows with owl sign were recorded and GPS coordinates collected. If burrowing owls were observed, the location, number of owls (including number of adults and juveniles) as well as behavior, was noted. To ensure that owls and owl sign were detected during the surveys, they were not conducted within five days after rain or during periods of high wind, fog, or in temperatures over 90 degrees Fahrenheit. Part B surveys were conducted by initially scanning all suitable habitat using 10 x 42 binoculars. If owls were observed on-site, their location and behavior was recorded. If owls were not observed by scanning the area with binoculars, walking surveys were conducted. These surveys were conducted by systematically walking transects of a designated width through suitable habitat. The transect width never exceeded 30 meters (approximately 100 feet). The transect width varied depending on the density and height of the vegetation. Narrower transect widths were walked in areas with denser or taller vegetation, in order to allow 100 percent visual coverage of the ground surface.

Phase III consists of the submittal of a final report to the Riverside County EPD and the Regional Conservation Authority (RCA) Monitoring Program Administrator for review. This report will be submitted by POWER during the MSHCP approval process.

Pursuant to the survey protocol described above, Phase I was conducted for the entire specified study corridor within the MSHCP burrowing owl overlay, Phase II Part A was only conducted in areas of potentially suitable habitat identified during the Phase I survey, and Phase II Part B was conducted in areas where burrowing owl or its sign was observed on the site based on the Phase II Part A survey.

5.0 BURROWING OWL SURVEY RESULTS

The habitat assessment survey for burrowing owl covered an area of approximately 333 acres along the specified study corridor. Of this, a total of approximately 145.31 acres of potentially suitable burrowing owl habitat was identified during the Phase I survey. The specific project design segments or links include 1-2, 4-5, 7-8, 11, and 15. The total length of the study area for this report is approximately 6.6 miles. A total of approximately 32.6 acres of owl habitat was identified as part of the Phase II Part A survey. The Phase II Part B surveys conducted within the ±32.6-acre area, including the project area and the 150-meter (approximately 500-foot) buffer zone surrounding the project area, identified one location within the project area occupied by a minimum of two adult (one pair) burrowing owls and at least one juvenile burrowing owl. The owls were observed along Link 8 on an approximately 12.3 acre parcel located on the southeast side of Van Buren Boulevard, between Galena Avenue and Van Buren

Boulevard (see Figure 1). Coordinates taken during the surveys are provided in Appendix A, and representative photographs of burrowing owls and active burrows observed are provided in Appendix B.

The parcel appears to have been previously disked, except for a small, raised portion located on the northwest corner of the parcel. It is in this raised, non-disked area that the owls were observed. The parcel is dominated by nonnative grasses, including ripgut grass and foxtail chess. Other disturbed species include western jimson weed, (*Solanum* sp.), mustard, horseweed, and Russian thistle. The parcel was surveyed using transects spaced at 30.48-meter (100-foot) intervals.

May 16, 2007, two juvenile and one adult burrowing owl were observed. Both the adult and the juveniles were observed at the entrance to burrow #1, located approximately 3 meters (10 feet) northeast of the sidewalk along Galena Avenue. The burrow was surrounded by whitewash, pellets, feathers, and horse manure. A second active burrow, burrow #2, was observed approximately 7.5 meters (25 feet) west of active burrow #1. Whitewash, pellets, feathers, and horse manure were also observed around the entrance of burrow #2.

On May 21, 2007, one adult burrowing owl was observed at the entrance to burrow #2 initially identified on May 16, 2007. Three additional large burrows were observed within approximately 4.5 meters (15 feet) of active burrow #1. No sign was observed at these other burrows. California ground squirrels (*Spermophilus beecheyi)* were observed utilizing burrows within the same approximate 15-meter (50-foot) radius as the active owl burrows. No burrowing owl sign was observed surrounding the burrows, which appeared to be occupied by ground squirrels.

On May 25 and 29, 2007, two adult burrowing owls were observed on-site. One adult was located at each of the two active burrows (burrow #1 and #2). No juvenile was observed on these days. One adult moved back and forth between the two active burrows throughout the survey period. The second adult remained at active burrow #1.

On May 30, 2007, both adult burrowing owls were observed on-site, one at each entrance to active burrow #1 and #2. The adult at active burrow #2 was flushed by a pedestrian, and perched on the speed limit sign located adjacent to the sidewalk for approximately 10 minutes before returning to its original position. No juveniles were observed. Young ground squirrels were observed playing within approximately 15-meters (50 feet) of the active owl burrows throughout the survey.

On May 31, 2007, the two adults were observed adjacent to the entrance to active burrow #1. The two adults were observed preening each other around the face and neck for several minutes at a time. One adult was observed breaking horse manure into pieces and scraping debris out of the burrow entrance. Both adults were observed preening and scratching during all of the surveys.

No other burrowing owls were observed within the project area or within the 150-meter (500-foot) buffer zone surrounding the project area. However, suitable habitat is present and burrowing owls were observed approximately 76 meters (250 feet) outside of the 150-meter (500 foot) buffer zone surrounding the project area on an approximately 11.8-acre parcel located on the southeast corner of the intersection of Van Buren Boulevard and Bellegrave Avenue. Because suitable habitat for burrowing owl exists both within and outside of the 150-meter (500-foot) buffer zone in this area, and burrowing owls were observed within close proximity to the buffer zone, it is recommended that preconstruction surveys for burrowing owl be conducted in this and other areas identified as suitable habitat (See Figure 1) pursuant to the MSHCP species-specific objective 6.

6.0 CONCLUSIONS

1. Two burrowing owl family units were observed during the focused surveys.

One family unit is located within the 150-meter (500-foot) buffer zone surrounding the project area. This family unit includes a minimum of two adults and two juveniles.

One family unit is located outside of the project area and outside of the 150-meter (500-foot) buffer zone surrounding the project area. This family unit includes a minimum of two adults and one juvenile.

2. Since burrowing owls were found within the project area during focused surveys, the MSHCP will require avoidance or relocation. The locations of the burrowing owls within the project area and adjacent survey areas are outside of MSHCP Cell Criteria Areas within at least 32.6 acres of habitat. In addition, a previous, unrelated survey (and other available data) identified four pairs of owls within a quarter mile of the project area, near the intersection of Bellegrave and Van Buren roads. Based on the species-specific objectives outlined in the MSHCP, avoidance of both the burrowing owls and 90 percent of the area with long-term conservation value is required for projects outside the MSHCP Cell Criteria Area that support three or more pairs of burrowing owls with greater than 35 acres of suitable habitat. Since the project supports at least one pair of burrowing owl with juveniles and at least 32.6 acres of habitat, and suitable habitat and owls were observed or are known to occur in areas adjacent to the project, it appears the project would need to comply with the MSHCP requirement for avoidance of the burrowing owls, rather than relocation. The project should be able to comply with this requirement since transmission line poles and towers can typically be relocated to a certain degree during the design process, to avoid burrowing owls. The MSHCP also requires 90 percent avoidance of the area with long-term conservation value for the owl. The project should also be able to comply with this requirement since transmission line poles and towers typically have minimal footprint impact on habitat. Please note that any determination will require review and approval of project specific design pursuant to the MSHCP Joint Project Review process through the RCA.

3. Preconstruction presence/absence surveys for burrowing owl will be required in all areas mapped on Figure 1 with suitable habitat (see Objective 6, Volume I Appendix E).

Pursuant to the MSHCP-accepted protocol for preconstruction surveys, any initial ground disturbance associated with the project must begin within 30 days of the survey start date or an updated survey will be required.

4. If burrowing owls are present at the time of the preconstruction surveys, passive relocation may occur. As outlined in the MSHCP (see Objective 6, Volume I Appendix E), take of active nests will be avoided and passive relocation (use of one-way doors and collapse of burrows) will occur when owls are present outside the nesting season.

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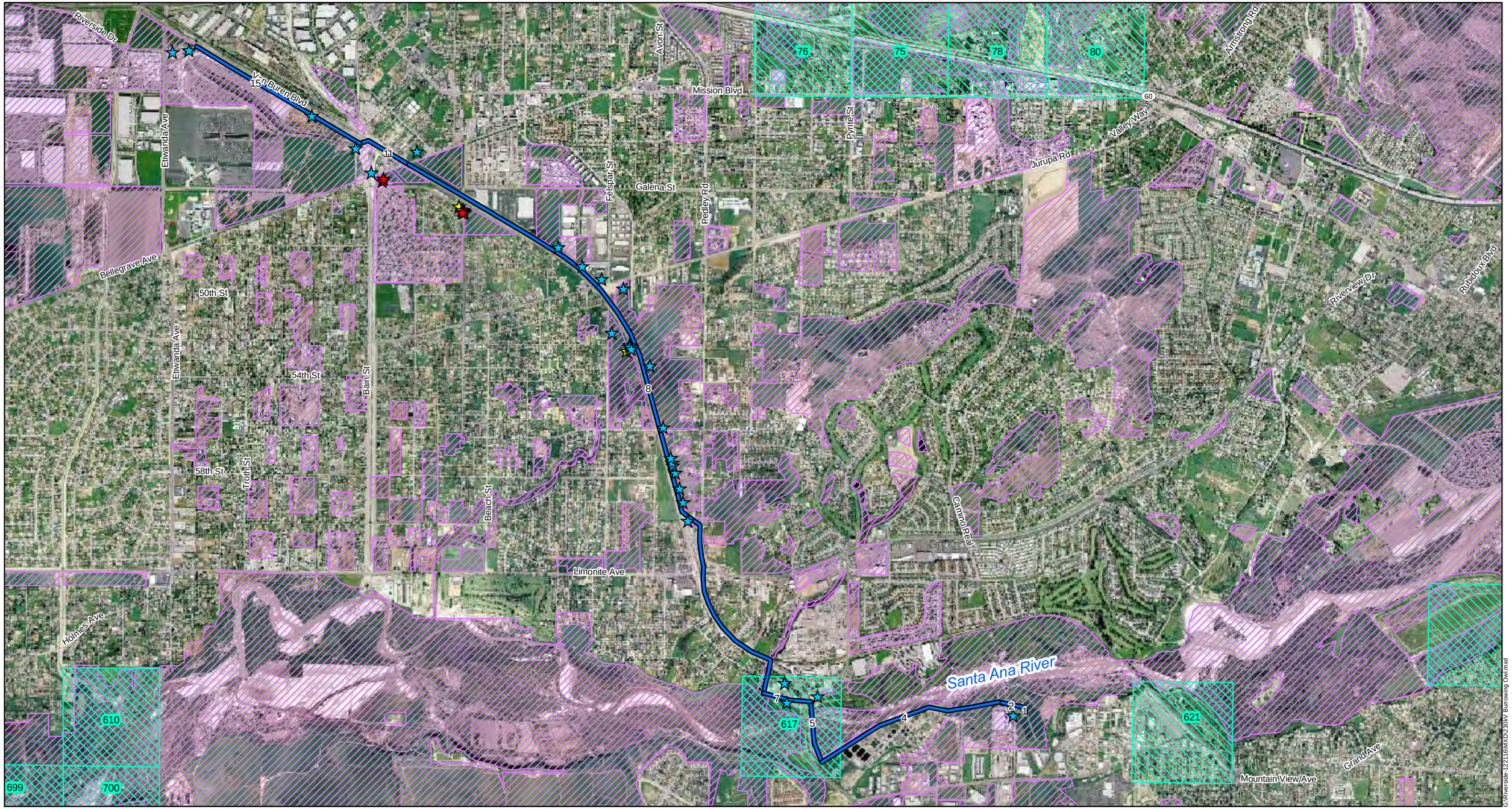
Figure 1: MSHCP Burrowing Owl Overlay and Focused Survey Results - 230kV Line



Legend

- Link # — 230kV Transmission Project
- Criteria Cells MSHCP
- Burrowing Owl MSHCP Overlay
- Suitable Habitat*
- Burrow with Burrowing Owl Sign
- Burrow with Burrowing Owl Sign and Burrowing Owls

Source:
MSHCP - Riverside County GIS Dept.
Transmission line data - Power Engineers
Aerial photo taken - Power Engineers (Spring 2006)

* Note: One GPS coordinate was taken in a central point for each area/parcel determined potential burrowing owl habitat based on the presence of suitable vegetation and burrow(s).

Date Created: 7/11/2007
Date Modified: 8/24/2007

N

1" = 2,500'

1 0.5 0 1 Miles

Riverside Transmission Reliability Project

MSHCP Burrowing Owl Overlay and Focused Survey Results - 230 kV Line

Figure 1

TRC

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Appendix A: Coordinates for burrowing owl suitable habitat, burrows with sign, and owls observed during the 230kV survey

APPENDIX A: Coordinates for burrowing owl suitable habitat, burrows with sign, and owls observed during the 230kV surve							
LATITUDE	**LONGITUDE**	**LINK**	**APN**	**DESCRIPTION**	**SUITABLE HABITAT**	**BURROWS WITH SIGN**	**OWLS AND SIGN**
33.96526	-117.44714	2	189120006	Burrows found in embankments along bike route adjacent to Santa Ana River. No owl sign.	Y	N	N
33.96650	-117.46484	5	163300005	W of Van Buren, N of Santa Ana River. Burrows in south-facing embankment. No owl sign.	Y	N	N
33.96749	-117.46783	7	163300002	Area partially graded. Soil piles. Burrows occupied by groun squirrels. No owl sign.	Y	N	N
33.96602	-117.46761	7	163300021	Area is marginal habitat. Sandy. Areas of dense vegetation Burrows present. No owl sign.	Y	N	N
33.99275	-117.48219	8	169300012	Adjacent to Van Buren Blvd. No owl sign.	Y	N	N
33.99265	-117.48214	8	169300012	Adjacent to Van Buren Blvd. No owl sign.	Y	N	N
33.99246	-117.48204	8	169300012	Adjacent to Van Buren Blvd. No owl sign.	Y	N	N
33.99231	-117.48247	8	169300012	Approx. 100 ft. west of Van Buren. Small amount of whitewash on adjacent rock.	Y	Y	N
34.00007	-117.48873	8	167110029	North side of Van Buren. Several burrow complexes occupied by squirrels. No owl sign.	Y	N	N
33.99702	-117.48282	8	169290005	Northeast corner of Van Buren and Jurupa. Disturbed. Marginal. Few burrows. No owl sign.	Y	N	N
33.97958	-117.47673	8	165140008	Property N of train station off of Pedley. Burrows along soutl side of property. No owl sign.	Y	N	N
33.98098	-117.47720	8	165140007	North of Area 11 along railroad tracks. Burrows along east side of tracks. No owl sign.	Y	N	N
33.98203	-117.47750	8	165140029	North of Area 12 along railroad tracks.Area has been disced No burrows.No owl sign.	Y	N	N
33.98318	-117.47792	8	165080005	Continuing north.Concrete and rubbish piles. No burrows observed.No owl sign.	Y	N	N
33.98373	-117.47813	8	165080004	Continuing north. Area has been graded. Tractor trailers. No burrows observed. No owl sign.	Y	N	N
33.98397	-117.47822	8	165080004	Continuing north. Graded area with plant nursery. Few burrows. No owl sign.	Y	N	N
33.98431	-117.47834	8	165080003	Continuing north. Bare ground and debris. Few burrows. No owl sign.	Y	N	N
33.98659	-117.47906	8	165050016	North of 56th Street. Disced area. Burrows on berm just N o 56th Street. No owl sign.	Y	N	N
33.99126	-117.48033	8	169300002	East of Van Buren between Areas 14 and 16. Disturbed.Burrows observed. No owl sign.	Y	N	N
33.99768	-117.48477	8	167160020	NE corner of Van Buren and Jurupa.Few burrows along RR tracks. No owl sign.	Y	N	N
33.99865	-117.48654	8	167160039	Disturbed lot north of Area 17. Marginal. Few burrows. No owl sign.	Y	N	N
33.99366	-117.48380	8	169300012	Lot located W of Brookhollow.Several burrow complexes occupied by squirrels. No owl sign.	Y	N	N

34.00712	-117.50159	8	170320004	NE corner of Van Buren and Bellegrave. Few burrows. Sandy.No owl sign.	Y	N	N
34.00260	-117.49727	8	167330007	Active burrow. One adult observed at this burrow. Pellets, feathers, whitewash.	Y	Y	Y
34.00268	-117.49726	8	167330007	Active burrow. Whitewash. No owls observed at this burrow.Close proximity to active burrow.	Y	Y	N
34.00277	-117.49734	8	167330010	Active burrow. Whitewash. No owls observed at this burrow.Close proximity to active burrow.	Y	Y	N
34.00306	-117.49774	8	167330010	Active burrow. Whitewash. No owls observed at this burrow.Close proximity to active burrow.	Y	Y	N
34.00275	-117.49746	8	167330010	Potentially active burrow. Close proximity to active burrows No owl sign.	Y	N	N
34.00257	-117.49742	8	167330011	Active burrow. Two adults and two juveniles observed. Whitewash, pellets, feathers.	Y	Y	Y
34.00486	-117.50471	11	170330009	Active burrow. Burrow located outside of 500 ft. buffer. 2 adults and one juvenile observed.	Y	Y	Y
34.00550	-117.50570	11	170330026	Area stretches between Van Buren and Bellegrave.Rubbish piles. No owl sign.	Y	N	N
34.00506	-117.50459	11	170330009	Active burrow. One adult observed at this burrow. Pellets, feathers, whitewash.	Y	Y	Y
34.00734	-117.50713	15	156210082	Area stretches between Van Buren and Bellegrave.Disturbed. No owl sign.	Y	N	N
34.01437	-117.52377	15	156200040	Near corner of Etiwanda and Van Buren No burrows, no owl sign. No additional surveys.	Y	N	N
34.01456	-117.52231	15	156200039	Northern terminus of 230kV. Disturbed. Burrows in slope up to railroad track.No owl sign.	Y	N	N
34.00972	-117.51112	15	156210082	Adjacent to railroad property at north end of 230kV. Soil and rubbish piles. No owl sign. Owls were observed in southwes corner of this parcel (outside of 500 ft. buffer) during sensitive plant and invertebrate surveys	Y	N	N

Appendix B: Representative photographs of burrowing owl habitat, burrows with sign, and owls observed during the 230kV survey

Link 8. Representative burrowing owl habitat with one burrowing owl perched on the speed limit sign. This site is located on the southeast side of Van Buren Boulevard, north of Birmingham Avenue, and between Galena Street and Van Buren Boulevard. This photograph was taken on May 30, 2007, facing northwest.

Link 8. Burrow with owl sign. This site is located on the southeast side of Van Buren Boulevard, north of Birmingham Avenue, and between Galena Street and Van Buren Boulevard. This photograph was taken on May 16, 2007, facing northeast.

Link 8. Two individuals at burrow entrance. This site is located on the southeast side of Van Buren Boulevard, north of Birmingham Avenue, and between Galena Street and Van Buren Boulevard. This photograph was taken on May 16, 2007, facing northeast.

APPENDIX D: 45-DAY REPORT; RESULTS OF PRESENCE/ABSENCE SURVEYS FOR LEAST BELL'S VIREO, SOUTHWESTERN WILLOW FLYCATCHER, AND WESTERN YELLOW-BILLED CUCKOO

45–DAY REPORT

RESULTS OF PRESENCE/ABSENCE SURVEYS FOR LEAST BELL'S VIREO, SOUTHWESTERN WILLOW FLYCATCHER, AND WESTERN YELLOW-BILLED CUCKOO FOR THE RIVERSIDE PUBLIC UTILITY'S RIVERSIDE TRANSMISSION RELIABILITY PROJECT

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September 5, 2007

TABLE OF CONTENTS

45–DAY REPORT

RESULTS OF PRESENCE/ABSENCE SURVEYS FOR LEAST BELL'S VIREO, SOUTHWESTERN WILLOW FLYCATCHER, AND WESTERN YELLOW-BILLED CUCKOO FOR THE RIVERSIDE PUBLIC UTILITY'S RIVERSIDE TRANSMISSION RELIABILITY PROJECT

SANTA ANA RIVER RIVERSIDE COUNTY, CALIFORNIA

Pursuant to Section 6.1.2 of the Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Section 10(a)(1)(A) of the federal Endangered Species Act, and Section 1080 of the California Endangered Species Act, focused surveys were conducted on the Santa Ana River in the city of Riverside for the federally endangered least Bell's vireo (*Vireo bellii pusillus*), the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*), and the state endangered western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). This "45-day" report summarizes the results of these presence/absence surveys conducted along a 1.5-mile (2.4 kilometers [km]) (initially 9.5-mile [15.3 km]) riparian corridor in the vicinity of the Van Buren Blvd crossing in the Arlington subdivision of Riverside, Riverside County, California (Figures 1 and 2). The surveys were performed by Peter H. Bloom (Permit No. TE-787376-10), H. Lee Jones (Permit No. TE-829204-1), and Jeff Kidd, for the Riverside Public Utility's proposed Riverside Transmission Reliability Project (RTRP). The project includes the placement of a 230 kV and a 69 kV transmission line and associated support towers, some of which are proposed to extend close to and across the Santa Ana River in the vicinity of Van Buren Boulevard. This survey was conducted on selected survey corridors of the potential alignment that cross and run along the river from 0.25 miles [mi] (0.4 km) west of Van Buren Boulevard to 1.25 miles (2.0 km) east of Van Buren (see Figure 2). The project initially included both the Study Corridor and Alternative routes for the 230kV and 69kV transmission lines along a 9.5-mi (15.3-km) section of the river that extended into San Bernardino County, but the scope of the project was reduced significantly about half way through the survey period, once the Study Corridor was chosen.

The protocol survey effort was conducted at the request of Power Engineers and coordinated with the primary consultant TRC Companies, Inc.

The activities described herein were conducted after providing written notification to the United States Fish and Wildlife Service (USFWS) in a letter addressed to Daniel Marquez, former Permit Coordinator, and dated April 13, 2007 entitled: *Request to Initiate Protocol Surveys for the Least Bell's Vireo and Southwestern Willow Flycatcher Surveys in the Santa Ana River, Riverside County.*

1.0 Survey Locations

Least Bell's vireo (LBV), southwestern willow flycatcher (SWF), and western yellow-billed cuckoo (WYBC) surveys were conducted along the Santa Ana River within Township 2 South, Range 5 West, Section 25 and Township 2 South, Range 6 West, Section 30 as shown on the USGS *Riverside West* 7.5-minute quadrangle map. Approximate geographical coordinates of the western terminus (downstream end) of the riparian corridor (in decimal degrees NAD 83) are 33° 58.1´ North, 117° 28.2´ West (San Bernardino Base and Meridian) or Universal Transverse Meridian (UTM) Zone 11 N 04356398 by 3758712. Approximate geographical coordinates of the eastern

terminus (upstream end) of the riparian corridor are 33° 57.8´ North, 117° 25.8´ West (San Bernardino Base and Meridian) or UTM Zone 11N 0460279 by 3758126. The elevation of the river in this stretch is approximately 865 ft (270 meter [m]).

The original survey area included a 9.5-mi (15.3-km) segment of the Santa Ana River and associated uplands from 2 mi (3.2 km) west of Van Buren Boulevard to a few hundred yards into San Bernardino County. Initial LBV surveys in April and early May covered all suitable habitat within this 9.5-mile stretch of the river but were later reduced to the 1.5-mile (2.4-km) segment described above. Maps of all LBV and SWFL waypoints recorded along both the 1.5-mile and 9.5-mile stretches of river are attached to this report as Figure 1 (Study Corridor survey area) and Figure 2 (Study Corridor and Alternative Routes survey area).

2.0 Santa Ana River Watershed Description

The Santa Ana River watershed extends from the San Bernardino and San Jacinto Mountains, via the San Jacinto River tributary, to the coast in Huntington Beach and Newport Beach. It is the largest river system in southern California with respect to water flow (the Mojave River is actually longer but with much less water flow). The reach of the Santa Ana River from Martha McLean Anza Narrows Park to Van Buren Boulevard, which encompasses the Study Corridors, lies within the "Inland Valley" segment of the watershed which extends from Colton to Yorba Linda. Soils in this segment of the river are fine textured and largely organic, and the water table is high (Clarke et al. 2007).

Much of the Santa Ana River's flow is subsurface, as water quickly percolates to subterranean aquifers; however, perennial surface water flows can be found where the San Jacinto Fault crosses the river in Colton, and at Anza Narrows where a natural granitic dike forces the water to run over the surface year-round for several miles (Clarke et al. 2007). Because natural water flow is now augmented by irrigation water, stormwater runoff, and treated effluent (as at the City of Riverside Water Quality Control Plant within the study reach at Van Buren Boulevard), some perennial water flow can now be found along much of the river's length, even in drought conditions. Because of the augmented surface water flow and year-round soil saturation, a mature cottonwood/willow forest community has developed in many areas. This is especially evident in the stretch of river from Anza Narrows to Prado Basin where significant populations of least Bell's vireo and other riparian bird species can be found.

3.0 Qualitative Description of Plant Communities in the Survey Area

Riparian plant communities along this stretch of the Santa Ana River are predominantly black willow forest and mixed cottonwood–willow forest (southern cottonwood–willow riparian forest (61330) and southern arroyo willow riparian forest (61320) of Holland 1986). These tree communities vary in extent from patchy and degraded to relatively extensive and mature (especially west of Van Buren). Goodding's black willow (*Salix gooddingii*) is dominant in most areas. Fremont cottonwood (*Populus fremontii*) is found in association with black willow in many areas, and in a few places cottonwoods are dominant. Red willow (*Salix laevigata*) is much less prevalent, and arroyo willow (*Salix lasiolepis*) and narrow-leaved willow (*Salix exigua*), which rarely reach tree size, are found on higher ground (sandbars) within the river channel.

Also on higher ground within the channel, and in more disturbed areas, mixed shrub communities other than willows dominate. These consist of a combination of native and non-native invasive species such as mule fat (*Baccharis salicifolia*) and Mexican elderberry (*Sambucus mexicana*), both native, and tree tobacco (*Nicotiana glauca*), giant reed (*Arundo donax*), and tamarisk

(*Tamarix* spp.), all non-native and the latter two highly invasive. In many areas along the river, including within the study area, an active and aggressive giant reed removal program is being implemented by several county, state and federal agencies, with varying degrees of success.

Where river flow is relatively sluggish (roughly less than 3 ft (1 m) per sec), bulrush and mixed bulrush–cattail communities (coast and valley freshwater marsh (52410) of Holland 1982) are prevalent. These often form pure stands, some rather extensive, and support breeding colonies of red-winged blackbirds (*Agelaius phoeniceus*).

Bordering the river in most areas within the city of Riverside (including the project area) are residential and light commercial/industrial neighborhoods. In some areas, such as along the south shore west of Van Buren, these communities are separated from the river by 1:1.5 or more steep embankments. In other areas, such as along the south bank east of Van Buren, the slopes between the upland neighborhoods and river are much more modest, approximately 2:1 and less.

4.0 Methodology

The study methodologies for both the least Bell's vireo and southwestern willow flycatcher are presented below, and pertinent data on survey dates, times, and weather conditions are given in Tables 1 and 2.

4.1 Least Bell's Vireo

A total of eight presence/absence LBV surveys (April 16-20, April 28-30, May 6-8, May 16-18, May 25-27[1], June 7, June 22, and July 5) were conducted by Bloom, Jones, and Kidd in accordance with USFWS protocol (USFWS 2001). All potential LBV habitat and riparian areas within the study site were surveyed eight times during the breeding season (April 10 to July 31) with 10 or more days between survey visits for each site. The surveys were conducted during the morning hours prior to 11:00 a.m. and when the temperature exceeded 52° F (11° C). Less than 2 linear mi (3 linear km) of habitat were surveyed per day. Biologists listened for LBV songs, calls, whisper songs, scolds and looked for adult and juvenile LBV.

LBV observations were recorded, plotted, and/or GPS readings of the locations were taken during the surveys. Presumed LBV territories were derived from waypoints taken in the field with a hand-held E-Trex Vista GPS unit. These waypoints are presented in Appendix 1 and shown in Figures 1 and 2. Numbers and locations of paired or unpaired territorial males, along with the age and sex of encountered LBV, if known, were noted. The biologist also checked for leg bands and if present the color combination of the bands were recorded. Bird locations were mapped on an aerial photo.

For the purposes of this study, all singing males were presumed to be paired. While it is possible that some were not paired, studies have shown that the vast majority of singing passerine birds find a female to pair with early in the breeding season. Since female vireos are often silent, and therefore relatively inconspicuous, singing males were presumed to represent a pair, thus the notation "presumed pair" in Table 1 for singing males heard after April.

Passerine birds are typically highly territorial during the breeding season. Males sing to advertise their territory and seldom venture beyond their established territorial boundaries. As is typical for

[1] April and May surveys covered an area significantly larger than later surveys, which reflected a greatly reduced project size.

most passerines, singing male vireos in this study were predictably heard in the same area, usually no more than 2.5–5.0 acres (1–2 hectares) in size on multiple survey dates. As supported by other studies, it is safe to presume that a bird heard singing repeatedly in the same location on different days was the same individual each time. However, when a singing male vireo was heard in a new area, it was only presumed to represent a new pair if it was heard singing simultaneously with other nearby individuals already documented from the area. For example, if Vireo A was heard on the first three surveys in Location A and Vireo B was heard on the first three surveys in Location B, a vireo heard on the fourth survey in Location C, between Locations A and B, was only presumed to represent a new pair, C, if it was heard singing simultaneously with Vireos A and B. In a few cases, the number of pairs in a given area could not be determined accurately. In these instances, the most conservative estimate of presumed pairs was the one used.

TABLE 1
LEAST BELL'S VIREO SURVEY DATA

Date	Survey	Time	Weather	Obser.	Notes
4/16/07	1	6:00–11:00	15-18° C; overcast; calm	PHB	5 singing ♂s
4/18/07	1	6:20–12:00	13-18° C; PC; calm to mod. wind	HLJ	4 birds together; 3 singing
4/20/07	1	6:10–11:30	11.5–15° C; light rain; calm	HLJ	4 singing ♂s
4/28/07	2	6:00–11:00	14-17° C; overcast; calm	JK	5 singing ♂s
4/29/07	2	6:00–11:00	14-20° C; overcast; calm	JK	3 singing ♂s
4/30/07	2	6:00–11:00	12-15° C; overcast; calm	JK	2 singing ♂s
5/6/07	3	5:40–11:50	17–27° C; clear; gusty winds	HLJ	7 presumed pairs
5/7/07	3	5:50–12:00	11–32° C; clear; calm to mod. wind	HLJ	7 presumed pairs
5/8/07	3	5:45–11:45	12–32.5° C; clear; calm–slight wind	HLJ	17 presumed pairs
5/16/07	4	5:45–12:15	14.5–23.5° C; cloudy to PC; calm	PHB	22 presumed pairs
5/17/07	4	5:50–10:20	15.5–19.5° C; cloudy to clear; calm	PHB	12 presumed pairs
5/18/07	4	5:45–10:20	16.5–18.5° C; cloudy; calm	PHB	14 presumed pairs
5/25/07	5	5:35–11:40	15.5–28.5° C; cloudy to clear; calm	PHB	19 presumed pairs
5/26/07	5	5:30–10:50	16.5–21° C; cloudy to clear; calm	PHB	19 presumed pairs
5/27/07	5	5:30–11:45	15.5–30° C; cloudy to clear; calm	PHB	18 presumed pairs
6/7/07	6	6:00–11:00	no data available	PHB	14 presumed pairs
6/22/07	7	5:25–10:25	13.5–31.5° C; clear; calm	PHB	20 presumed pairs
7/5/07	8	5:35–10:50	18–35° C; clear; calm	PHB	24 presumed pairs

4.2 Southwestern Willow Flycatcher

A total of six SWFL protocol surveys (May 16-18, May 25-27[1], June 7, June 22, July 5, and July 10) were conducted by Bloom according to the revised protocol for project-related surveys (USFWS 2000) and the general guidelines described by Sogge et al. (1997). All potential SWFL habitat and riparian areas within the survey areas were surveyed six times: twice during Period 1 (May 15 to May 31), once during Period 2 (June 1 to June 21), and three times during Period 3 (June 22 to July 17). Surveys were conducted at least 5 days apart, and were conducted during morning hours (prior to 10:00 a.m.) and when the temperature exceeded 55.5° F (13° C). Less than 2 mi (3 km) of habitat were surveyed per day.

Surveys were conducted within potential habitat patches. If a singing SWFL was not heard in an area after 1 to 2 minutes, the permitted biologist played a taped vocalization for 15 to 30 seconds

and observed the area for responding SWFL. This was repeated every 65 to 100 ft (20 to 30 m). If a SWFL was detected, tape playing was discontinued for as long as the bird was present.

SWFL observations were recorded, plotted, and GPS readings of the locations taken during the surveys. Behavior, numbers, and locations of paired or unpaired birds, along with the age and sex of encountered SWFL, if known, were noted. The biologist also checked for leg bands and if present the color combination of the bands were recorded. Bird locations were mapped on an aerial photo.

TABLE 2
SOUTHWESTERN WILLOW FLYCATCHER SURVEY DATA

Date	Survey	Time	Weather	Obser.	Notes
5/16/07	1	5:45–10:00	14.5–23.5° C; cloudy to PC; calm	PB	2 birds; 1 responded to tape
5/17/07	1	5:50–10:00	15.5–19.5° C; cloudy–clear; calm	PB	no birds
5/18/07	1	5:45–10:00	16.5–18.5° C; cloudy; calm	PB	1 bird; responded mildly
5/25/07	2	5:35–10:00	15.5–28.5° C; cloudy–clear; calm	PB	3 birds; 2 responded to tape
5/26/07	2	5:30–10:00	16.5–21° C; cloudy to clear; calm	PB	no birds
5/27/07	2	5:30–10:00	15.5–30° C; cloudy to clear; calm	PB	2 birds; neither responded
6/7/07	3	6:00–10:00	no data available	PB	no birds
6/22/07	4	5:25–10:00	13.5–31.5° C; clear; calm	PB	no birds
7/5/07	5	5:35–10:00	18–35° C; clear; calm	PB	no birds
7/10/07	6	5:30–10:00	19.5–25° C; cloudy to PC; calm	PB	no birds

5.0 Survey Results

The survey area in this study was defined as the sections of the Santa Ana River in the near vicinity of the proposed RTRP transmission lines and towers, including a 500-foot-wide (roughly 150-km-wide) buffer zone corridor (250 feet (76 m) out to either side) along each transmission line route.

5.1 Least Bell's Vireo

For this survey, in 2007, an estimated 67 pairs were detected within the 1.5-mi (2.4 km) section of river channel that includes the Study Corridor alignment (Figure 1), and an additional 13 pairs were detected within the entire 9.5-mi (15.3 km) segment of river channel that includes both the Study Corridor and Alternative routes (Figure 2). However, not all of these vireo pairs had territories that were within or partially within the 250-foot (76 m)-wide buffer zone around the proposed transmission lines and towers. Roughly 39 pairs had territories that were presumed to lie entirely or partially within the 250-foot (76 m)-wide buffer zone around the Study Corridor transmission line route (Figure 1). An additional 7 pairs had territories that were presumed to lie entirely or partially within the 250-foot (76 m)-wide buffer zone around the combined Study Corridor and Alternative transmission line routes (Figure 2).

5.2 Southwestern Willow Flycatcher

Eight presumed migrant willow flycatchers (subspecies unknown) were detected in the survey reach on May 16 (WIFL 01 and 02), 18 (WIFL 03), May 25 (WIFL 04–06), and May 27 (WIFL 07 and 08), but none were detected on the three June surveys. Birds seen in subsequent weeks

were in widely different areas, and none were likely to be duplicates of individuals seen in previous weeks. Although WIFL 01 responded strongly and WIFL 05 and 06 weakly to a taped song of *E. t. extimus*, none of these birds was found on subsequent surveys and they were presumed to be migrants. WIFL 02, 03, 04, and 07 did not respond to taped vocalizations of either *E. t. extimus* or *E. t. brewsteri*. Locations of these individuals are shown in Figure 1 and further details are provided in Appendix 2.

5.3 Western Yellow-billed Cuckoo

The western subspecies of yellow-billed cuckoo is listed by the state of California as an endangered species. The Prado Basin, which is 8–10 mi (13–16 km) downstream of the project site, is one of the few areas remaining in southern California away from the Colorado River where this species still nests. The species is reported occasionally in other areas along the Santa Ana River as well. As California's latest spring migrant, yellow-billed cuckoos do not arrive in the state until early June (rarely in late May). During the course of SWFL surveys in late May and June special attention was devoted to listening for the characteristic vocalizations of this species (cuckoos are adept at staying hidden in the foliage and are much more frequently detected by their vocalizations than by sight). No WYBC were detected during these surveys, and it is not likely that any nested along this stretch of river in 2007.

5.4 Cowbird Occurrences

LBV and SWFL are well known hosts of the brood-parasitic brown-headed cowbird (*Molothrus ater*) (BHCO). The arrival of BHCO in California in the 1900's has been cited as a major factor contributing to the severe range restriction and endangerment of LBV and SWFL. Brown (1993) reported that from one-third to over one-half of all LBV nests monitored in California were parasitized by BHCO. The reproductive effort of songbirds that suffer the presence of a cowbird chick in their nest will be significantly lower than that of unparasitized conspecifics in the same population. Because cowbirds represent a major threat to the reproductive success of LBV and SWFL as well as many other species of passerines, it is important to document the locations and frequency with which they are observed in the field during protocol LBV and SWFL surveys.

BHCOs were not common but were heard or seen on nearly every visit in April and May. Whereas, from 13 to 25 BHCO were observed on surveys in April, 1 to 4 were observed on most surveys in May, and only one bird was observed in June. The relatively high number of cowbirds observed in April is likely due to an influx of migrant birds in the area. An active cowbird removal program was evident in the survey area, as a cowbird trap with trapped cowbirds in it on every survey was present at the City of Riverside Regional Water Quality Control Plant property.

5.5 Special-Interest Birds

Special-interest birds are those that, while not protected under either the federal or state Endangered Species Act, have nevertheless been afforded special recognition by federal, state, or local resource conservation agencies and organizations, including Riverside County's Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP 2004), principally due to declining or limited population sizes resulting in many cases from habitat modification or loss. Sources used to determine which birds in the vicinity of the RTRP project are of special interest included the California Natural Diversity Data Base and California Bird Species of Special Concern, both maintained by the California Department of Fish and Game, the U.S. Fish and Wildlife Service's Birds of Conservation Concern, and additional lists of sensitive species (often referred to as "Watch Lists") maintained by the Bureau of Land Management, the USDA Forest

Service, MSHCP, and various non-governmental organizations such as the National Audubon Society.

Special-interest riparian birds detected during the LBV, SWFL, and WYBC surveys included the migrant willow flycatchers mentioned above, yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*). An average of 8.5 yellow warblers were detected on each April survey, 26.3 on each May survey, and 19.3 on each June survey, making it one of the most common birds in the riparian corridor. Yellow-breasted chats averaged 2.5 birds per survey day in April, 6.4 per survey day in May, and 6.7 per survey day in June.

Other observed special-interest species not restricted to riparian habitat included white-tailed kite (*Elanus leucurus*) and Cooper's hawk (*Accipiter cooperii*). Although single kites were seen on only three dates and no indication of nesting was found, from 1 to 3 Cooper's hawks were found on most surveys, and a suspected nest may have been located in a dense grove of willows near where a main water line crosses the river. Although having no special status, a pair of red-tailed hawks attempted to nest in a large eucalyptus tree on the south shore of the river about 656 feet (200 m) east of Van Buren, but the nest was not successful.

6.0 Discussion

The Santa Ana River is well known as a primary nesting area for the LBV in coastal southern California. The number of nesting pairs has been increasing in recent years through a combination of BHCO trapping and an expansion of habitat in protected portions of the river, for example the Santa Ana River Wildlife Area which extends over most of the area covered in this survey. Approximately 39 LBV pairs had territories that were presumed to lie entirely or partially within the 250-foot (76 m)-wide buffer zone around the Study Corridor transmission line route. An additional 7 pairs had territories that were presumed to lie entirely or partially within the 250-foot (76 m)-wide buffer zone around the combined Study Corridor and Alternative transmission line routes.

Areas where SWFL nest in southern California are much fewer, and where found, they are present in very low densities. There are few recent documented records of SWFL nesting along the Santa Ana River in the Riverside/San Bernardino area, and none were suspected of nesting during the current survey. The eight individuals recorded in May were presumed to be migrants, as none were reported on more than one survey and none were seen after May.

No western yellow-billed cuckoos were detected on any of the surveys, and it is presumed that none bred along this stretch of the Santa Ana River in 2007.

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APPENDIX A
RIVERSIDE TRANSMISSION RELIABIITY PROJECT
LEAST BELL'S VIREO LOCATION COORDINATES
2007

Waypoint	Date/Time	UTM Coordinates (11S)		Substrate/Habitat	Comments
		Northing	Easting		
LBV062	16.IV	0456516	3758594		Singing ♂; also on 28.IV
LBV063	16.IV	0456608	3758544		Singing ♂; also on 28.IV
LBV070	16.IV	0458422	3758582		Singing ♂; also on 28.IV
LBV071	16.IV	0457162	3758049		Singing ♂; also on 28.IV
LBV072	16.IV	0457127	3758024		Singing ♂; also on 28.IV
LBV01	18.IV/	0466237	3764838	willows	4 together; at least 3 singing
LBV05	20.IV/	0466564	3765241	willows	Singing ♂
LBV06	20.IV/	0466624	3765433	willows	Singing ♂; also on 29.IV
LBV07	20.IV/	0463173	3760782	willows	Singing ♂; also on 29.IV
LBV08	20.IV/	0461877	3759532	willow/cottonwood	Singing ♂; also on 29.IV
LBV09	6.V/0547	0456611	3758442	willow/cottonwood	Singing ♂; also on 27.V/0617, 22.VI
LBV10	6.V/06:49	0456070	3758243	willow/cottonwood	Singing ♂
LBV11	6.V/0723	0456577	3758419	willow/cottonwood	Singing ♂
LBV12	6.V/0729	0456398	3758485	willow/cottonwood	Singing ♂; also on 27.V/0608
LBV13	6.V/07:58	0455850	3758590	willow/cottonwood	Singing ♂
LBV14	6.V/11:12	0456024	3758488	willow/cottonwood	Singing ♂
LBV15	7.V/06:17	0464400	3762463	willow/cottonwood	Singing ♂
LBV16	7.V/07:21	0465324	3763622	willow/cottonwood	Singing ♂; also on 30.IV
LBV17	7.V/07:33	0465376	3763676	willow/cottonwood	Singing ♂
LBV18	7.V/08:59	0466358	3764968	willows	Singing ♂; also on 30.IV
LBV19	7.V/09:23	0466546	3765198	willows	Singing ♂; = LBV05
LBV20	7.V/09:30	0466610	3765377	willow/cottonwood	Singing ♂; = LBV06
LBV21	7.V/10:36	0466321	3764700	willow/cottonwood	Singing ♂
LBV22	8.V/0554	0456782	3758059	willows	Singing ♂
LBV23	8.V/0556	0456680	3758054	willow/cottonwood	Singing ♂ (same as LBV33)
LBV25	8.V/0745	0457915	3758445	willow/cottonwood	Singing ♂ & silent bird; also on 17.V/0827
LBV27	8.V/0816	0457283	3758194	willows	Singing ♂ & scolding bird; also on 18.V/0828, 22.VI, 5.VII/0929

LBV28	8.V/0817	0457231	3758198	willows	Singing ♂; also on 5.VII/0902
LBV29	8.V/0819	0457171	3758162	willows	Singing ♂; also on 26.V/0800
LBV30	8.V/0825	0457073	3758138	willow/mulefat	Singing ♂; also on 18.V/0819, 26.V/0757, 22.VI
LBV31	8.V/0828	0456946	3758179	willow/cottonwood	Singing ♂; also on 27.V/1003
LBV32	8.V/0834	0456885	3758363	willows	Singing ♂; also on 18.V/0910, 22.VI
LBV33	8.V/0844	0456678	3758109	willows	Singing ♂; also on 18.V/0639, 27.V/1022, 22.VI, 5.VII/0740
LBV36	8.V/0923	0457857	3758415	willow/cottonwood	Singing ♂; also on 17.V/0836
LBV37	16.V/0557	0456746	3758695	willow/cottonwood	Singing ♂; also on 27.V/0544
LBV38	16.V/0558	0456722	3758703	willow/cottonwood	Singing ♂; also on 27.V/0550, 22.VI, 5.VII/0558
LBV39	16.V/0623	0456995	3758425	willows	Singing ♂
LBV40	16.V/0625	0457035	3758386	willows	Singing ♂; also on 18.V/0859, 22.VI
LBV41	16.V/0633	0457126	3758427	willows	Singing ♂; also on 22.VI
LBV42	16.V/0645	0457218	3758431	willows	Singing ♂
LBV43	16.V/0648	0457277	3758424	willows	Singing ♂ & scolding bird
LBV44	16.V/0725	0457426	3758392	willows	Singing ♂
LBV45	16.V/0738	0457535	3758416	willow/tamarisk	Singing ♂; probably = LBV35
LBV46	16.V/0742	0457708	3758469	willows	Singing ♂
LBV47	16.V/0753	0458017	3758612	willows	Singing ♂
LBV48	16.V/0849	0459039	3758843	willow/cottonwood	Singing ♂ & scolding bird
LBV49	16.V/0908	0459069	3758869	willow/cottonwood	Singing simultaneously w. LBV48
LBV50	16.V/0925	0459321	3758895	willow/cottonwood	Singing ♂
LBV51	16.V/	0459422	3758822	willow scrub	Singing ♂
LBV52	16.V/1043	0457412	3758348	willows	Probably = LBV44 & LBV26
LBV53	16.V/1106	0456496	3758294	willow/cottonwood	Singing ♂; also on 27.V/0814
LBV54	16.V/11:30	0456098	3758246	willows	Same as LBV10
LBV55	16.V/1146	0456596	3758438	willow/cottonwood	Same as LBV9 &/or LBV11
LBV56	16.V/1150	0456660	3758412	willow/cottonwood	Singing ♂; also on 18.V/0959, 27.V/0615, 22.VI, 5.VII/0626
LBV57	17.V/0647	0459590	3758743	will/cotton/tamarisk	Singing ♂ + scolding bird; also on 26.V/0949
LBV58	17.V/0705	0459624	3758724	will/cotton/tamarisk	Singing simultaneously w. LBV57; also on 26.V/0948
LBV59	17.V/0712	0459557	3758743	willow/tamarisk	Singing simultaneously w. LBV57; also on 26.V/1008
LBV60	17.V/0759	0458250	3758549	willow/mulefat	Singing simultaneously w. LBV62 (= LBV25); also on 26.V
LBV61	17.V/0834	0457891	3758429	willow/cottonwood	Singing simultaneously w. LBV61 (= LBV36) ; also on 26.V/0848
LBV62	17.V/0836	0457874	3758424	willow/cottonwood	Singing ♂
LBV63	17.V/0943	0457326	3758172	willows	Silent bird foraging
LBV64	18.V/0644	0456584	3758113	willows	Singing ♂; also on 22.VI

LBV65	18.V/0654	0456499	3758134	willow/*Arundo*	Singing ♂; also on 27.V/1045
LBV66	18.V/0701	0456405	3758135	willow/*Arundo*	Singing ♂
LBV67	18.V/0733	0456512	3758093	willow/*Arundo*	Singing ♂ (= LBV64 or 65?) ; also on 27.V/1028
LBV68	18.V/0740	0456555	3758092	willow/*Arundo*	Singing ♂ (= 64, 65, or 67?)
LBV69	18.V/0803	0456885	3758237	willows	Singing ♂; also on 27.V, 5.VII/0824
LBV70	18.V/0848	0457105	3758155	willows	Singing ♂; also on 22.VI, 5.VII/0939
LBV71	18.V/0849	0457098	3758087	willow/mulefat	Singing ♂; also on 26.V/0824, 22.VI
LBV72	18.V/0923	0456667	3758315	willow/*Arundo*	Singing ♂
LBV73	25.V/0552	0456584	3758558	willows	Singing ♂ (new) ; also on 27.V/0602, 22.VI (♂ & ♀)
LBV74	25.V/0602	0457003	3758392	willow/cottonwood	Same as LBV40
LBV75	25.V/0608	0457121	3758376	willows	Same as LBV41?
LBV76	25.V/0905	0459047	3758802	willow/cottonwood	Singing simultaneously w. LBV48
LBV77	25.V/0925	0459085	3758838	willows	Probably same as LBV49; singing simultaneously w. 48
LBV78	25.V/0942	0459289	3758901	willow/cottonwood	Same as LBV50
LBV79	25.V/0947	0459357	3758881	willow/cottonwood	Same as LBV50
LBV80	25.V/1114	0457340	3758389	willow/cottonwood	Same as LBV52&44; singing simultaneously w. LBV43
LBV81	26.V/0540	0458423	3758576	willow/elderberry	Same as LBV60
LBV82	26.V/0734	0457065	3758310	willow/cottonwood	New?, singing + scolding ♂; also 22.VI (singing + scolding birds), 5.VII/854
LBV83	26.V/0743	0457086	3578227	willows	New? singing ♂ + ♀ scolding nearby
LBV84	26.V/0913	0458915	3758641	willow/mulefat/cotton	Singing ♂
LBV85	26.V/0926	0459191	3758676	mulefat	Scolding (♀?, no response to tape)
LBV86	26.V/1024	0458835	3758651	mulefat	Same as LBV84?
LBV87	26.V/1030	0458857	3758656	mulefat	Same as LBV86
LBV88	27.V/0551	0456679	3758712	willow/cottonwood	Same as LBV38
LBV89	27.V/0632	0456484	3758516	*Pluchea*/*Vitis*/willow	New or LBV12; also on 5.VII/0637
LBV90	27.V/0918	0456769	3758364	*Arundo*	Same as LBV72?; also on 22.VI, 5.VII/0710
LBV91	27.V/0952	0456933	3758276	willows	Singing ♂ (probably new)
LBV92	27.V/0959	0456914	3758252	willows	Same as LBV91
LBV93	27.V/1004	0456863	3758231	willows	Same as LBV69
LBV94	27.V/1105	0456926	3758228	willow/nettle/mulefat	Singing simultaneously with LBV31; also on 5.VII/0841
LBV064	7.VI	0456643	3758598		Singing ♂
LBV065	7.VI	0456622	3758436		Singing ♂
LBV066	7.VI	0456607	3758307		Singing ♂
LBV067	7.VI	0456686	3758959		Singing ♂
LBV068	7.VI	0456838	3758355		Singing ♂

LBV069	7.VI	0457319	3758436		Singing ♂
LBV073	7.VI	0458512	3758548		Singing ♂
LBV074	7.VI	0458879	3758651		Singing ♂
LBV075	7.VI	0459256	3758699		Pair
LBV076	7.VI	0459711	3758709		Singing ♂
LBV95	22.VI/0653	0457082	3758430	willows	Singing; heard simultaneously with LBV40 & 41
LBV96	22.VI/0702	0457179	3758386	willow/cottonwood	Singing ♂
LBV97	22.VI/0714	0457160	3758362	willows	Singing ♂; same as LBV96? (& LBV75?)
LBV98	22.VI/0754	0456709	3758146	willows	Singing ♂; same as LBV 33
LBV99	22.VI/0850	0457159	3758225	willows	Singing ♂; new
LBV100	22.VI/0925	0457152	3758113	willow/mulefat	Singing ♂
LBV101	22.VI/0927	0457142	3758087	willow/mulefat	Singing ♂
LBV102	22.VI/0947	0456848	3758069	willow/cottonwood	Singing ♂
LBV103	22.VI/0952	0456921	3758089	willow/cottonwood	Singing ♂; singing simultaneously with LBV102
LBV104	5.VII/0614	0456795	3758407	willow/*Arundo*	Singing ♂ + scolding ♀ (probably = LBV90)
LBV105	5.VII/0735	0456773	3758215	willow/*Arundo*	Scolding ♀
LBV106	5.VII/0812	0456632	3758114	willow/*Arundo*	Singing ♂
LBV107	5.VII/0847	0456902	3758296	willow/*Arundo*	Singing ♂
LBV108	5.VII/0931	0457219	3758110	mulefat	Singing ♂
LBV109	5.VII/1001	0457045	3758117	willow/mulefat	Singing ♂
LBV110	5.VII/1005	0457029	3758240	willows	Singing ♂
LBV111	5.VII/1011	0456942	3758210	willows	Singing ♂ heard simultaneously with LBV94
LBV112	5.VII/1030	0456923	3758384	pepper/elder/mulefat	2 scolding birds

APPENDIX B
RIVERSIDE TRANSMISSION RELIABIITY PROJECT
WILLOW FLYCATCHER LOCATION COORDINATES
2007

Waypoint	Date/Time	UTM Coordinates (11S)		Substrate/Habitat	Comments
		Northing	Easting		
WIFL01	16.V/09:02	0459023	3758851	willow/cottonwood	Responded to playback
WIFL02	16.V/09:25	0459253	3758874	willow/cottonwood	Silent; did not respond
WIFL03	18.V/0717	0456388	3758133	willow/*Arundo*	Singing ♂ heard (responded mildly?)
WIFL04	25.V/0715	0457698	3758483	willows	Calling; didn't respond to tape
WIFL05 & 06	25.V/0858	0458983	3758788	willow//tamarisk/ *Arundo* scrub	Singing in adjacent shrubs; both responded to tape of *extimus* by initiating singing; both responded to tape of *brewsteri* by flying toward "intruder". Both were giving song dialects of *brewsteri*.
WIFL07 & 08	27.V/0844	0456186	3758219	*Arundo*/willow	2 calling near each other; one occasionally sang *brewsteri* song type; neither responded to tape of either *brewsteri* or *extimus* song types.

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APPENDIX E: 2008 HABITAT ASSESSMENTS AND FOCUSED PLANT SURVEYS

2008 HABITAT ASSESSMENTS AND FOCUSED PLANT SURVEYS FOR THE PROPOSED RIVERSIDE PUBLIC UTILITIES' RIVERSIDE TRANSMISSION RELIABILITY PROJECT

Prepared for:
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Anaheim, CA 92805

Prepared by:

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FEBRUARY 2009

2008 HABITAT ASSESSMENTS AND FOCUSED PLANT SURVEYS FOR THE PROPOSED RIVERSIDE PUBLIC UTILITIES' RIVERSIDE TRANSMISSION RELIABILITY PROJECT

APNs: See Appendix A for full list

Prepared for:
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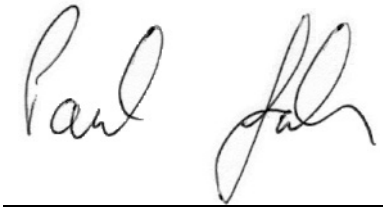
CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



HARMSWORTH ASSOCIATES
Paul Galvin, M.S.
Vice President

FEBRUARY 2009

RIVERSIDE TRANSMISSION RELIABILITY PROJECT

Habitat assessment and focused surveys for special status plant species
Habitat assessment and focused surveys for narrow endemic plant species
General plant surveys

APNs: See Appendix A for full list

PROJECT SITE LOCATION
U.S.G.S. 7.5-minute Fontana, Guasti, Riverside East and Riverside West topographic quadrangles

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Surveys conducted by:
Melissa Lippincott

Surveys conducted on:
April 18, 21, 22, 25, 2008

Report date: February 2009

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose and Need

The proposed Riverside Transmission Reliability Project (RTRP) is a Riverside Public Utilities (RPU) project that would include the construction of a new Southern California Edison (SCE) 230kV transmission line, the construction of a new SCE substation, the construction of a new RPU substation and the expansion of the existing RPU 69kV system. The RTRP site is located in the northwest corner of Riverside County, California. A number of different potential routes, comprised of discreet links are being assessed to determine the most appropriate route for the new transmission line. A variety of environmental and biological studies are being conducted as part of the assessment process, including habitat assessments and vegetation mapping. This report documents results of habitat assessments and focused surveys for narrow endemic plant species and other special status plant species[1] along portions of the potential routes.

The assessments and surveys were conducted in April 2008 and consisted of;

- general plant surveys,
- habitat assessment and focused surveys for special status plant species,
- habitat assessment and focused surveys for the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) narrow endemic plant species Area 3; which includes San Diego Ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*) and San Miguel savory (*Satureja chandleri*).

1.2 Project Location

The RTRP site is located in the northwest corner of Riverside County, California; within portions of the U.S. Geological Survey (USGS) Fontana, Guasti, Riverside East and Riverside West topographic quadrangles (Figure 1). The majority of the project site is located in the City of Riverside, with portions also occurring in the cities of Colton and Rialto and in unincorporated portions of Riverside County. The site extends west to the I-15, north just past Freeway-60, east to the City of Colton and south almost to Riverside Municipal Airport. The Santa Ana River bisects the central portion of the study site (Figure 2).

[1] Special status plant species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, California Native Plant Society Species List (CNPS list 1-4), or otherwise sensitive species.

1.3 Study Area

For purposes of environmental review and assessment the proposed line has been divided into four possible routes each with overlapping segments; I-15 Route, Bain Street Route, Van Buren Route and Eastern Route. The route evaluation includes the analysis of multiple points of connections that are identified as links or segments. These shorter discreet segments will then be selected and combined to make one final route. The following segments were included in the current plant surveys;

- Segments D, H, I, J (I-15 Route)
- Segments K (Bain Street Route)
- Segments L, M, N, P, Q, R, S (Van Buren Street Route)
- Segments A, B, C, E, (Eastern Route)

Other segments were included in the surveys that were initially or had the potential to be evaluated for the project. During and after the survey period these specific segments were eliminated from additional planning consideration. This report, however, includes discussion of these segments as required by the scope of work and to provide supplemental information should the planning phase reinitiate evaluation of these segments.

The remainder of this report will refer only to segments defined in the above listed routes (Figure 2).

The project area is predominately urbanized, consisting of a mixture of residential, industrial and commercial areas, including roads, landfills, golf courses and other landscaped areas. There are also areas of agricultural land, parks, vacant lots and open space areas consisting of non-native disturbed vegetation, non-native grassland, wetland/riparian vegetation and scattered remnant patches of Riversidean sage scrub. The highest quality native vegetation consists of wetlands, marsh and riparian woodland associated with the Santa Ana River and patches of Riversidean sage scrub in upland areas adjacent more natural portions of the Santa Ana River.

The survey limits are within the Santa Ana River Watershed. Most of the surveyed segments traverse the Santa Ana River Valley, with elevations ranging from 580 feet above sea level in the west to approximately 810 feet above sea level in the east. Outside of the river valley the land is gently sloping with little topographical variation, except for a few small hills which were outside the survey areas.

The project area is typified by a Mediterranean-type climate, with hot, dry summers and cool, relatively wet winters. Average annual temperature for the region ranges from 48.6^0 to 79.5^0 F and average annual precipitation is 10.32". Rainfall during the 2007/2008 season was below normal for low-lying parts of western Riverside County, with rainfall totals of 5.39" at Riverside Fire Station in 2007/2008 (rainfall season measured from July 1 2007 through June 30 2008), compared with the 114 year average of 10.32" (Appendix B).

1.4 Study Area Soils

The soils in the project site are primarily from the San Emigdio-Grangeville-Metz association, which are very deep, poorly drained to somewhat excessively drained, nearly level to strongly sloping soils that have a surface layer of calcareous loamy sand to loam; on alluvial fans and flood plains. Given the size of the area a variety of soil types are mapped in the project vicinity (Knecht 1971). The dominant soils in Santa Ana River valley are Dello loamy sand, poorly drained, 0 to 2 percent slopes (DmA), Riverwash (RsC), Grangeville fine sandy loam, poorly drained, saline-alkaline, 0 to 5 percent slopes (GuB), Terrace escarpments (TeG) and Tujunga loamy sand, channeled, 0 to 8 percent slopes (TvC). The dominant soils in the upland areas are Madera fine sandy loam, 2 to 5 percent slopes, eroded (MaB2), Vista coarse sandy loam, 8 to 15 percent slopes, eroded (VsD2), Placentia fine sandy loam, 0 to 5 percent slopes (PIB), Grangeville loamy fine sandy, drained, 0 to 5 percent slopes (GoB), Ramona very fine sandy loam, 0 to 8 percent slopes, eroded (ReC2), Delhi loamy fine sand, 0 to 2 percent slopes (DbA).

None of the soil types mapped in the project area are listed as sensitive for plants in the MSHCP.[2]

[2] Altamont, Auld, Bosanko, Claypit, Domino, Porterville, Traver and Willows soil types are listed as sensitive soils for plants in the MSHCP.

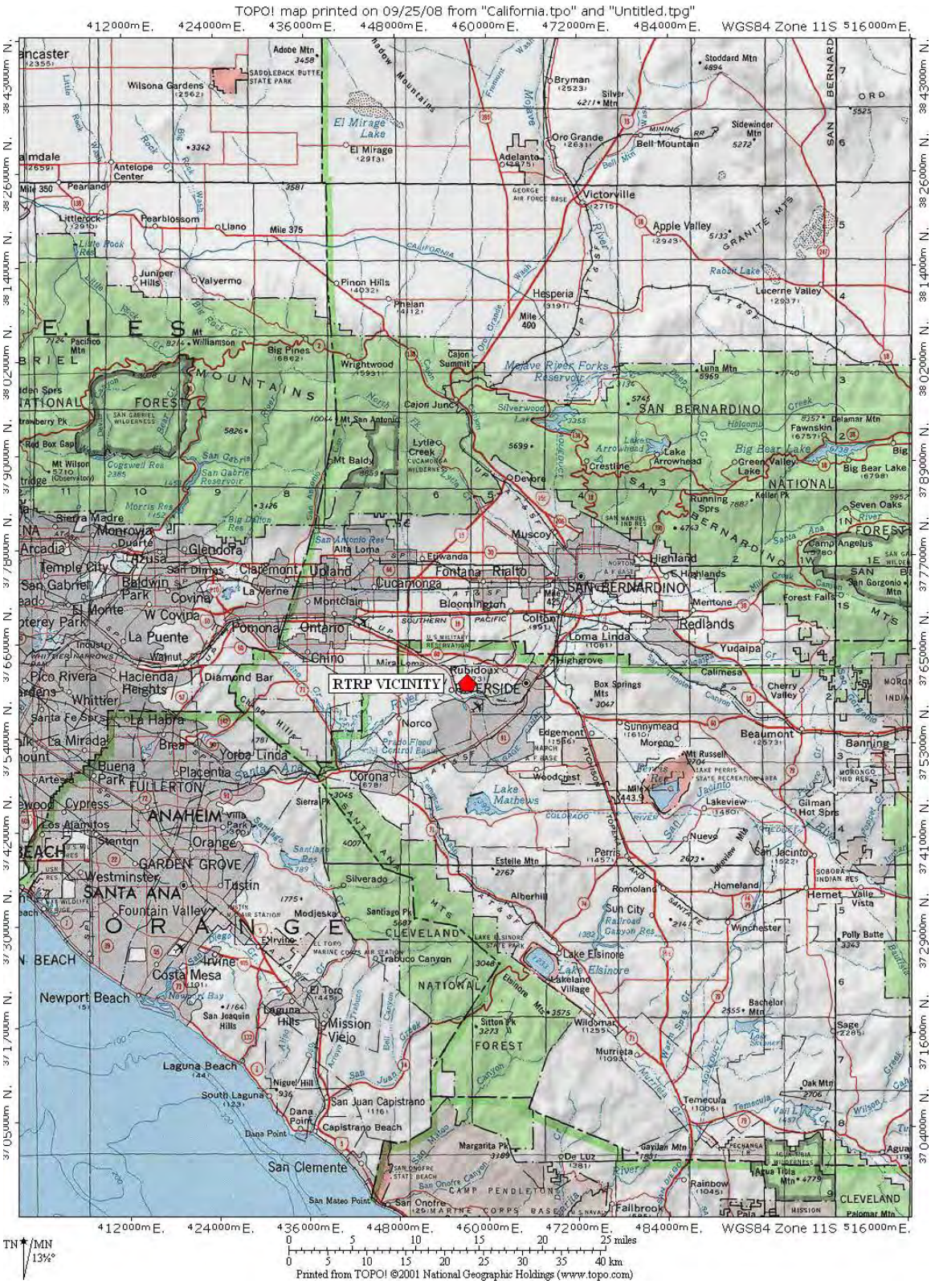

Figure 1: Location of the RTRP site in Riverside County, southern California. Source Fontana, Guasti, Riverside East and Riverside West USGS topographic quadrangles.

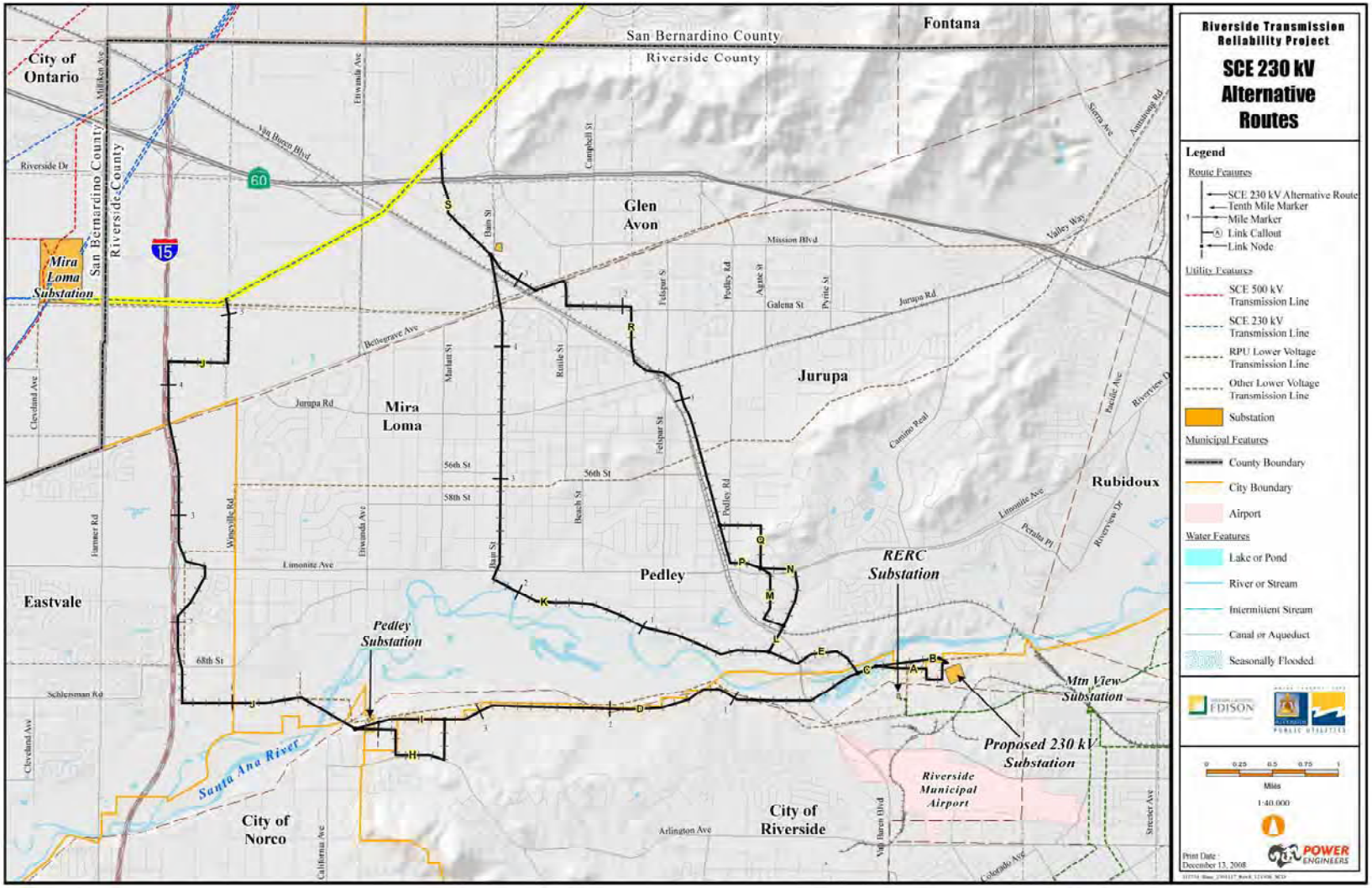

Figure 2: Location of RTRP alternative routes and surveyed segments.

2.0 Western Riverside County Multi-Species Habitat Conservation Plan Regulatory Setting for Narrow Endemic Plants

The RTRP project site is located within the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) area (Dudek and Associates 2003a, Riverside County Integrated Project 2003). The Riverside County Board of Supervisors certified the EIR and approved the Western Riverside MSHCP on June 17, 2003. Riverside County is taking an integrated approach to land use planning. The MSHCP was developed in coordination with an update of the County General Plan and a transportation corridor plan. The MSHCP builds upon the previously approved Stephens' kangaroo rat Habitat Conservation Plan. The MSHCP project area is 1.2 million acres and the proposed conservation area, including public lands, is approximately 500,000 acres. The core area reserves include habitats such as riparian, oak woodland, and 15,000 acres of coastal sage scrub. State and Federal approvals of the MSHCP were issued in June, 2004.

The MSHCP covers 146 sensitive species ('Covered Species'), and of these 130 species are considered to be adequately conserved through the plan implementation. The remaining 16 species will be considered to be adequately conserved when certain conservation requirements are met as identified in the species-specific conservation objectives for those species (Section 9.0 of MSHCP Plan). In addition surveys are required for 40 of the Covered Species, if suitable habitat for those species occur within proposed project sites. Survey requirements are addressed in Appendix E of the MSHCP Plan. The MSHCP provides maps and lists of species by parcel number for survey requirements.

Development of property needed for inclusion in the MSHCP Conservation Area or subject to other MSHCP criteria must go through the Property Owner Initiated Habitat Evaluation and Acquisition Negotiation Strategy (HANS) process or an appropriate alternative process. The HANS process will ensure that an early determination will be made of what properties are needed for the MSHCP Conservation Area. If it is determined that all or a portion of a property is needed for inclusion in the MSHCP Conservation Area, various incentives may be available to the property owner in lieu of or addition to monetary compensation in exchange for the conveyance of a property interest. These incentives may include, but shall not be limited to, the wavier and/or reduction of certain development fees, monetary compensation for entering into an option agreement, fast track processing, density bonuses, clustering, density transfers and property reassessment and tax credits if determined to be feasible. The incentives are intended to provide a form of compensation to property owners who convey their property. As property interest is obtained, it will become part of the MSHCP Conservation Area.

Development of property outside of the MSHCP Conservation Area will receive Take Authorization for Covered Species Adequately Conserved provided payment of a

mitigation fee is made (or any credit for land conveyed is obtained) and compliance with *Section 6.0* of the MSHCP occurs. Payment of the fee and compliance with the requirements of *Section 6.0* are intended to provide full mitigation under the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Federal Endangered Species Act and California Endangered Species Act for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG) and/or any other appropriate participating regulatory agencies as set forth in the Implementing Agreement for the MSHCP. However, the MSHCP cannot provide mitigation for projects regulated by entities or agencies not participating in the MSHCP[3].

The RTRP project site is located within the MSHCP narrow endemic plant species survey area. Based on the MSCHP parcel data, surveys should be conducted for San Diego Ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*) and San Miguel savory (*Satureja chandleri*) where suitable habitat exists (Appendix A).

The RTRP project site is located outside the MSHCP criteria area plant species survey area. Criteria area plants are plant species that potentially occur within MSHCP Criteria Areas but for which current distribution data is insufficient for determining conservation needs. Projects located within Criteria Areas may require surveys for Criteria Area Plants. The RTRP is not located within any MSHCP Criteria Area.

[3] The Army Corps of Engineers 404 program, the California Department of Fish and Game 1602 program and California Regional Water Quality Control Board 401 certification program are not part of the MSHCP.

3.0 METHODS

3.1 Biological Resources Information Sources

In addition to the field surveys data, information on the botanical resources of the project site was obtained by reviewing available data from several sources. Databases including the California Natural Diversity Database (CNDDB 2008), California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001) and the MSHCP (Riverside County 2003) were reviewed regarding the potential occurrence of any special status species or sensitive habitat within or in close proximity of the project site.

The resources used in this archival review included the following;

- California Natural Diversity Data Base (CNDDB) for the USGS 7.5' quadrangles which comprised the study area:, Fontana, Guasti, Riverside East Riverside West, and neighboring quads for pertinent data,
- California Native Plant Society Inventory of rare and endangered vascular plants of California (Tibor 2001; 6th Edition of CNPS Inventory; CNPS 2008),
- Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP). Web page: http://ecoregion.ucr.edu/,
- MSHCP Site Parcels Summary Report,
- Special Vascular Plants, Bryophytes, and Lichens List, CDFG, Natural Heritage Division, July 2008,
- State and Federally Listed Endangered, Threatened and Rare Plants of California, CDFG, Natural Heritage Division, July 2008,
- Review of previous biological assessment reports and species lists for the region and neighboring areas,
- Published literature.

3.2 Habitat Assessment and Focused Special Status Plant Species Surveys

Habitat assessments, focused surveys and general botanical surveys were conducted on April 18, 21, 22, and 25, 2008. Surveys were conducted during the blooming time of the target narrow endemic plant species. Weather conditions were satisfactory for locating narrow endemic plant species and other special status plants. The survey is determined to be satisfactory because plant growth was suitable for an average rainfall season and vegetation features were satisfactorily intact with many species in bloom or with seed heads for identification purposes.

The habitat assessment and focused surveys for narrow endemic plant species and special status plant species followed the methods of CNPS (2001) and Nelson (1984) to satisfy MSHCP survey requirements. The habitat assessments and focused surveys concentrated

on habitats with the highest potential for yielding narrow endemic plant species and special status species. A reconnaissance level pedestrian survey was conducted of all areas of the project site to identify focused survey area locations. Fieldwork focused on native habitats, open barrens, depressions, rock outcrops, alluvial fans and terraces, wetlands, riparian areas and heavy clays where non-native species were limited. Each habitat within the study area was traversed on foot, examining the areas for particular features such as seeps, unique geologic types, exposures, etc., that would indicate the presence of a preferred habitat for narrow endemic plant species and other special status plant species. All areas were checked thoroughly for their potential to support vernal pools, since vernal pools have high potential to support special status plant species.

Field notes recorded the date, location, habitat characteristics, associated plant composition and other information pertinent to the CNDDB field survey data form. A general plant species list was compiled concurrently with the focused surveys (Appendix C). Scientific nomenclature follows Hickman (1993) and common names per Calflora (2008) and Roberts *et. al.* (2004).

4.0 RESULTS

Habitat assessments documented the complete absence of suitable or potential habitat for any narrow endemic plant species or any other special status plant species from a number of segments. The following segments contained no suitable or potential habitat for MSHCP narrow endemic plants or other special status plant species;

- Segment K (Bain Street Route)
- Segments L, M, N, P, Q, R, S (Van Buren Street Route)
- Segments A, B, C, E (Eastern Route)

No focused surveys were conducted along these segments. These areas support residential, commercial, industrial or other urbanization.

The remaining segments did provide some suitable or potential habitat for narrow endemic plant species or other special status plant species. The following segments contained some suitable or potential habitat;

- Segments D, H, I, J (I-15 route)

Two additional areas that were dropped from consideration as potential routes after further environmental review also provided some suitable or potential habitat for narrow endemic plant species or other special status plant species, as follows;

- Segment 1 - from Bain Street Route at the corner of 66th and Etiwanda southeast toward the Santa Ana River,
- Segment 2 - along the Eastern Route from just east of Market Street to west of the county boarder between Riverside and San Bernardino Counties.

As discussed above focused surveys were conducted along Segments D, H, I, and J and on Segments 1 and 2; as these areas provided some suitable or potential habitat for narrow endemic plant species or other special status plant species.

4.1 Observed Flora and Habitat Description by Segment

Habitat assessments and vegetation mapping were completed for the project site during past years (TRC 2007) and no new vegetation mapping was conducted in 2008. Vegetation communities encountered along each segment are documented as per the descriptions and vegetation mapping conducted in 2007 (TRC 2007). Vegetation communities encountered in the surveyed segments consisted of non-native grassland, ruderal areas, Riversidean sage scrub, alluvial scrub, riparian habitats (willow riparian scrub, southern cottonwood willow riparian forest, mulefat scrub and herbaceous

riparian) and freshwater marsh. No vernal pools were present at any of the surveyed segments.

Segment D, I-15 route

Segment D was comprised predominately of non-native grassland but also supported some Riversidean sage scrub and a small area of willow riparian scrub. A small creek, that flowed north towards the Santa Ana River, is located at the east end of Segment D near Van Buren Boulevard. The creek supported willow riparian scrub comprised of alder (*Alnus rhombifolia*), willows (*Salix* spp.), ash (*Fraxinus dipetala*), giant reed (*Arundo donax*), wild grape (*Vitis girdiana*), stinging nettle (*Urtica dioica subsp. holosericea*), hedge nettle (*Stachys ajugoides*), and willow herb (*Epilobium ciliatum*). A landscaped park adjacent the creek supported redbud (*Cercis occidentalis*), coast live oak (*Quercus agrifolia*) and ornamental trees.

Southwest of the creek a steep bank supported Riversidean sage scrub. The bank continued up to a flat largely undeveloped terrace which extended along the river all the way to the City of Norco. A bike path/hiking trail on the terrace lead to a nature canter. Riversidean sage scrub vegetation did not extend beyond the top of the bank. Vegetation along the terrace was non-native annual grassland with some scattered shrubs along the edge of the bank. Dominant species along the bank included bedstraw (*Galium angustifolium*), goldenbush (*Isocoma menziesii*), branching phacelia (*Phacelia distans*), California sagebrush (*Artemisia californica*) and poison oak (*Toxicodendron diversilobum*). Lance-leaved dudleya (*Dudleya lanceolata*) was also observed in the Riversidean sage scrub community on the steep bank of the Santa Ana River.

The upland terrace paralleling the river from the southwest side of Van Buren Boulevard west to Pedley Substation was vegetated by non-native annual grassland. A paved bike path/walking trail extends along the terrace 30-150 feet away from the edge of the riverbank. Non-native grasses including rip-gut brome and wild oats (*Avena fatua*) were the dominant species. Native components included goldenbush, tarweed and spurge (*Chamaesyce* spp.). A small Riversidean sage scrub community occurred at the northern termination of Tyler Street at the west end of a residential community.

Due to the disturbance history (agriculture, cattle grazing) of the land along Segment D and minimal appropriate habitat, potential for narrow endemic plant species or any other special status plant species to occur is low.

Segment H, I-15 route

Segment H was comprised predominately of non-native grassland but also supported some Riversidean sage scrub. Segment H extends over a prominent hillside through non-native grassland with a paved bike path/walking trail at the bottom of the hill. The hilltop on Segment H had small scattered rock outcrops and remnant Riversidean sage scrub species including California buckwheat (*Eriogonum fasciculatum*), California sunflower (*Encelia californica*), and California sagebrush. Dominant species included bromes (*Bromus diandrus, B. tectorum, B. hordeaceus*), tarweed (*Deinandra fasciculatum*) and barley (*Hordeum* spp.).

Due to minimal appropriate habitat along Segment H, potential for narrow endemic plant species or any other special status plant species to occur is low.

Segment I, I-15 route

Segment I was comprised predominately of non-native grassland and cropland but also supported some Riversidean sage scrub and a small area of willow riparian scrub. A small drainage in the southwest portion of Segment I supported willow riparian scrub and consisted of both native and exotic species including wild grape, tree tobacco (*Nicotiana glauca*), cottonwood (*Populus fremontii subsp. fremontii*), willow (*Salix lasiolepis*), castor bean (*Ricinus communis*), fan palm (*Washingtonia robusta*) and Peruvian pepper tree (*Schinus mollis*). A small hill with some scattered Riversidean sage scrub species (California buckwheat and branching phacelia) and some large granite boulders occurred along this segment.

Due to minimal appropriate habitat along Segment I, potential for narrow endemic plant species or any other special status plant species to occur is low.

Segment J, I-15 route

Segment J was comprised of ruderal and agricultural fields and also riparian habitats (willow riparian scrub, southern cottonwood willow riparian forest, mulefat scrub and herbaceous riparian). A few small areas supported Riversidean sage scrub. Segment J extends from the large industrial complexes on the east side of I-15 near Wineville Road south to the Santa Ana River Valley. Old agricultural fields supporting ruderal weeds occurred south of the industrial complexes, while disked fields or crop fields extended south along I-15 to Limonite Avenue. Segment J extends past a new shopping center at Limonite Avenue to Pat's Ranch Road and on to the disked agricultural fields at 68th Street. Vegetation in this area was comprised of ruderal non-native annuals. A small runoff pond exists on the west side of Pat's Ranch Rd, just south of the shopping center. This pond supported wetland species and mature trees. A delineation was not conducted as part of this survey but this pond may be an Army Corps of Engineers jurisdictional wetland based on observed indicator characteristics. West of the wetland along the dirt access road Segment J supports disturbed/ruderal fields and a wooded riparian area, south of the eastward turn of Segment J.

Dominant vegetation in the disked land along I-15 included knotweed (*Polygonum arenastrum*), ragweed (*Ambrosia psilostachya*), pigweed (*Chenopodium album*), London rocket (*Sisymbrium irio*) and white horse-nettle (*Solanum elaegnifolium*). A vegetated drainage began 350 feet from where Segment L turns directly eastward, perpendicular to I-15; Segment J cut through this drainage at a stand of cottonwood trees. Land from I-15 east to the golf course was recently disked and supported only very sparse vegetation including scattered shrubby willows (*Salix exigua, S. lasiolepis*) and wild heliotrope (*Heliotropium curassavicum*). The east/west running drainage cut through the disked land and was dominated by both native and non-native annuals including ragweed, dwarf nettle (*Urtica urens*) and hemlock (*Conium maculatum*). A few scattered patches of mulefat (*Baccharis salicifolia*), willows, cottonwoods and giant reed were also present.

Dense southern cottonwood willow riparian forest began at the south side of the golf course and continued to the river with a few scattered barren or disturbed areas. Vegetation on both sides of the river was dominated by red willow, arroyo willow and scattered cottonwoods with patches of giant reed occurring closer to the water. The rivers edges were dominated by cattails (*Typha domingensis*), willow herb (*Epilobium ciliatum*), willow weed, waterpepper (*Polygonum lapathifolium, P. hydropiperoides*), water speedwell (*Veronica anagallis-aquatica*), spotted monkeyflower (*Mimulus guttatus*), rabbitfoot grass (*Polypogon monspeliensis*) and watercress (*Rorippa nasturtium-aquaticum*). Willow herb, rabbitsfoot grass, spotted monkeyflower and water speedwell occurred on moist, sandy benches along the river. Pennywort (*Hydrocotyle umbellata*), an aquatic species, occurred infrequently along the bank of the river. Sandy, barren patches dominated by native annuals or subshrubs, including California bluebells, short-lobed phacelia, branching phacelia, common phacelia (*Phacelia minor, P. brachyloba, P. ramosissima, P. distans*), whispering bells (*Emmenanthe penduliflora*), suncups (*Camissonia bistorta*), common cryptantha (*Cryptantha intermedia*) and California croton (*Croton Californica*), were scattered within the riparian forest. Habitat quality and species diversity were greatest along the edge of the golf course and on the southeast side of the river. Several large disturbed, open and weedy areas occurred between the river and the dense vegetation along the golf course.

Along the east side of the river Segment J supported a diverse and high quality riparian forest with scattered patches of giant reed. Sandy openings scattered throughout were dominated by native forbs. Several dense patches of wild grape covered vegetation along the access trails. Habitat quality and species diversity were greater on the southeast side of the river then on the northwest side and disturbance was less on the southeast side. Species associated with Riversidean sage scrub occurred on the southeast side of the river toward the junction of Segments J and I.

Due to minimal disturbance history and appropriate, good-quality habitat, potential for narrow endemic plant species and other special status plant species to occur along Segment J is good. Based on the provided project description, this area will be spanned by an aerial crossing of the transmission line. Should special status species occur in this area it is expected that the project would avoid them.

4.2 Observed Flora and Habitat Descriptions of Segment 1 and 2 – No Longer Evaluated

Segment 1, along Bain Street route

Segment 1 was comprised of non-native grassland and also riparian habitats (willow riparian scrub, southern cottonwood willow riparian forest and herbaceous riparian). Segment 1 extends along the Bain Street route from the corner of 66th and Etiwanda south east toward the Santa Ana River, and supported a large network of equestrian trails and disturbed areas due to easy access at 66th Street and Etiwanda Avenue. Narrow-leaved willow (*Salix exigua*) was prevalent and lined the trails to the river. California

evening primrose (*Oenothera californica*), suncups, Thurber's buckwheat (*Eriogonum thurberi*), common cryptantha and California croton were scattered throughout the sandy benches in protected areas.

The southeast side of the river bottom along this Segment was densely wooded with southern cottonwood willow riparian forest and was accessible by several small trails leading to the river bottom. Dominant vegetation included red willow (*Salix laevigata*) with an understory of lizards tail (*Anemopsis californica*), stinging nettle (*Urtica dioica*), wild rose (*Rosa californica*), blackberry (*Rubus ursinus*), celery (*Apium graveolens*) and salt grass (*Distichlis spicata*) along the trails. Habitat quality decreased and giant reed dominance increased closer to the river, where giant reed occurred in scattered patches along alluvial benches. Vegetation along the river was more open, with patches of giant reed.

Vegetation in the upland portion of this Segment, from the equestrian parking lot at Limonite Avenue southwest to the corner of 66th and Etiwanda Avenue, was dominated by non-native grassland with a high concentration of ruderal weeds. Dominant species in the upland areas included barley (*Hordeum murinum*), fiddleneck (*Amsinckia menziesii*), cheeseweed (*Malva parviflora*) and London rocket. The upland portion of this Segment, from the corner of 66th and Etiwanda Street all the way to Limonite Avenue, hugs residential backyards on a terrace along the edge of the riverbank.

Vegetation from the equestrian parking lot along Limonite Avenue toward Bain Street varied from ruderal weeds to willow riparian scrub. The soil was sandy alluvium on an old floodplain. Ruderal weeds lined Limonite Avenue and the equestrian trail to the edge of the river bank. Riverbed vegetation below was dominated by willow species and giant reed. Several scattered patches of native shrubs and trees including red willow, arroyo willow and Mexican elderberry (*Sambucus mexicana*) with a varied understory dominated by stinging nettle, ragweed, poison hemlock and sunflower (*Verbesina encelioides*) lined Limonite Avenue and the equestrian trail. Just west of Bain Street fallow fields were dominated by ruderal species including Russian thistle (*Salsola tragus*) and pigweed (*Chenopodium album*).

Although many areas were disturbed by horses and dominated by patches of giant reed, potential exists for narrow endemic plant species and other special status plant species to occur along Segment 1 because of suitable soil, presence of native habitat in the immediate area and adjacency to additional native habitat.

Segment 2; Eastern route

Segment 2 was comprised of riparian habitats (willow riparian scrub, southern cottonwood willow riparian forest and herbaceous riparian), freshwater marsh, alluvial scrub and Riversidean sage scrub. Segment 2 extends from just east of Market Street to west of the county border between Riverside and San Bernardino Counties. A flood control dike occurs at the east end of Segment 2 at the point where the Segment would cross the river. Vegetation along the dike was disturbed southern cottonwood willow

riparian. A dirt road and crop fields lined the edge of the riparian vegetation west of the dike as far a park campground, which was planted with turf grass to the edge of the forest. Dense, high quality southern cottonwood willow riparian forest occurred along the park and the entire Segment 2. On the westside of the park, vegetation along Segment 2 was of high quality and diversity and included; freshwater marshes, alluvial scrub, riparian forest and Riversidean sage scrub. Giant reed infestations were minimal. Freshwater marshes were heavily forested, boggy, impassible and difficult to survey; a small trail cutting through the marsh was the only way to access it.

Due to minimal disturbance history and good quality appropriate habitat, potential for narrow endemic plant species and other special status plant species to occur along Segment 2 is good.

4.3 Plant inventory

Plant species along the surveyed segments of the RTRP consisted of species associated with non-native grassland, Riversidean sage scrub, ornamental landscaping and wetland/riparian habitats. Non-native grassland and riparian habitats were the two most dominant vegetation types in the survey area. A total of 190 vascular plant species, representing 54 families were detected during the current surveys (Appendix C; Table 1). About 66% (122) were native and the remaining 34 percent (68 species) were exotic. The most predominant plant families were Asteraceae (35 species) and Poaceae (23 species).

Table 1: Plant Inventory

Survey Area	# Species	# Families	# Exotics	*Asteraceae*	*Poaceae*
Segment D	61	31	20	12	9
Segment H	29	12	14	5	5
Segment I	41	18	20	5	5
Segment J	96	30	37	22	9
Segment 1	95	31	40	16	11
Segment 2	84	37	23	9	10
Total	**190**	**54**	**68**	**35**	**23**

4.4 Potential for Narrow Endemic Plant and Special Status Plant Species

4.4.1 Narrow Endemic Plants

The RTRP is located within the MSHCP narrow endemic plant species Area 3; which requires habitat assessments and, focused surveys where suitable habitat is present, for San Diego ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*) and San

Miguel savory (*Satureja chandleri*). Focused surveys were conducted at the appropriate blooming times for each species along Segments D, H, I, J, and Segments 1 and 2. Suitable habitat occurred along some segments for these species (see below); however, no narrow endemic plant species or any other special status plant species were detected in any segment survey area.

San Diego ambrosia (*Ambrosia pumila*)
Family: Asteraceae
San Diego ambrosia is a Federal endangered species and a CNPS list 1B.1 species. It is a covered species under the MSHCP, which requires focused surveys in suitable habitat to detect population locations. San Diego ambrosia occurs in western Riverside County and San Diego County. It is found on open floodplain terraces or in coarse substrates near drainages in clay soils or along the margins of vernal pools (Dudek and Associates 2003b). San Diego ambrosia is associated with chaparral, coastal scrub, non-native grassland, valley and foothill grassland, vernal pools, and disturbed areas, often with alkaline soils. It occurs in gravelly fine sandy loams and Las Posas loam, from 70 to 1,500 feet elevation. San Diego ambrosia is a perennial rhizomatous herb that is believed to bloom from April through October. However, it appears to be primarily a clonal species that does not currently utilize sexual reproduction throughout its range in Riverside County.

Some potential for occurrence of San Diego ambrosia exists in Segments D and 1 on the upland non-native grassland terraces above the river. According to the CNDDB, the closest recorded location of San Diego ambrosia to the RTRP site is approximately 1.4 miles south of the Santa Ana River, near the intersection of Van Buren and Arlington Avenue. However this record is from 1940 and there are no recent records from the project vicinity. San Diego ambrosia was not observed during the current surveys and this species is believed to be absent from the project area.

Brand's phacelia (*Phacelia stellaris*)
Family: Hydrophyllaceae
Brand's phacelia is a Federal species of concern and a CNPS list 1B.1 species. It is a covered species under the MSHCP which requires focused surveys to detect population locations in suitable habitat. This species is known from occurrences in Los Angeles County, San Diego, Baja, and occasionally in the foothills of the Western Transverse Ranges. This species occurs in coastal dunes, open areas, coastal sage scrub and open areas from 1 to 1,250 feet elevation. Brand's phacelia is an herbaceous annual that blooms from March through June, with lavender flowers.

Some potential for occurrence of Brand's phacelia exists on Segment D, in the Riversidean sage scrub above the river. There are no CNDDB records from the project vicinity. Brand's phacelia was not observed during the current surveys and this species is believed to be absent from the project area

San Miguel savory (*Satureja chandleri*)
Family: Lamiaceae
San Miguel savory is a CNPS list 1B.2 species. It is a covered species under the MSHCP, which requires focused surveys in suitable habitat to detect population locations. This species is known from occurrences in the Santa Ana Mountains in Riverside County and the San Miguel Mountains and Jamul Mountain in San Diego County. San Miguel savory is a small shrub occurs in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands in rocky, gabbroic or metavolcanic soils from 400 to 3,500 feet elevation. It blooms from March through July.

Some potential for occurrence of San Miguel savory exists on Segments D and J, and 1 and 2. There are no CNDDB records from the project vicinity. San Miguel savory was not observed during the current surveys and this species is believed to be absent from the project area

4.4.2 Special Status Plant Species
Based on a review of the CNDDB, the CNPS Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001; CNPS 2008), the MSHCP, and field surveys, five Federal and State threatened or endangered species and fourteen additional special status species were identified as potentially occurring in the project vicinity (Table 2). Some of these species are unlikely to occur within the project corridors due to absence of suitable habitat, disturbances, or possible extinction. Nevertheless, focused surveys were conducted for all these species in suitable habitat within the survey area. Focused surveys coincided with blooming periods for the target Narrow Endemic Plant species.

None were observed within any segment during the focused surveys.

Table 2: Special status plant species with the potential to occur within RTRP survey corridors.

Scientific Name and Family	Common Name	Status	MSHCP Status	Occurrence Onsite	Flowering Period	Habitat
Abronia villosa var. aurita *NYCTAGINACEAE*	Chaparral sand-verbena	Fed: None State: None CNPS 1B.1	Not covered	Unlikely, due to disturbance and limited suitable habitat	January-September	Annual herb occurs on sandy soils in desert dunes, coastal scrub and chaparral. Blooms from January-September from 80-1600 meters.
Ambrosia pumila ASTERACEAE	San Diego ambrosia	Fed: FE State: None CNPS 1B.1	Covered, surveys required	Potential, Segments D and 1	April - October	Rhizomatous herb found in chaparral, coastal scrub, valley and foothill grassland, vernal pools and disturbed areas often with alkaline soils from 20-450 meters.
Arenaria paludicola *CARYOPHYLLACEAE*	Marsh sandwort	Fed: FE State: SE CNPS 1B.1	Not covered	Potential, Segment 2	May - August	Stoloniferous herb found in brackish or freshwater swamps and marshes and sandy openings from 3 to 170 meters.
Calochortus plummerae *LILIACEAE*	Plummer's mariposa lily	Fed: None State: None CNPS 1B.2	Conservation requirements	Unlikely, due to disturbance and limited suitable habitat	May- July	Sage scrub, chaparral and yellow pine forest, valley and foothill grasslands from 100-1700 meters.
Carex comosa *CYPERACEAE*	Bristly sedge	Fed: None State: None CNPS 2.1	Not covered	Potential, Segments J, 1 and 2	May-September	Rhizomatous herb occurs in coastal prairie, marshes and swamps; especially lake margins and valley and foothill grasslands from 0 to 625 meters.
Centromadia pungens ssp. laevis *ASTERACEAE*	Smooth tarplant	Fed: None State: CSP CNPS 1B.1	Covered, surveys required	Potential, Segments D, H, I, J; 1 and 2	April - September	Annual herb occurs in chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland, alkali meadow, alkali scrub and disturbed areas with alkaline soils from 0 to 500 meters.
Chorizanthe parryi *POLYGONACEAE*	Parry's spineflower	Fed: None State: None CNPS 3.2	Covered	Potential, Segments D, H, I	April - June	Coastal scrub and chaparral in open gravelly or sandy areas from 40-1075 meters.
Cordylanthus maritimus ssp. maritimus *SCROPHULARIACEAE*	Salt marsh bird's beak	Fed: FE State: SE CNPS 1B.2	Not covered	Unlikely: suitable habitat does not occur.	May - October	Hemiparasitic herb occurs in coastal dunes, coastal salt marshes and swamps near sea level.

Scientific Name and Family	Common Name	Status	MSHCP Status	Occurrence Onsite	Flowering Period	Habitat
Dodecahema leptoceras *POLYGONACEAE*	Slender horned spine flower	Fed: FE State: SE CNPS: 1B.1	Covered, surveys required	Potential, Segments J; 1 and 2	April-June	Sandy places in sage scrub and grassland from 200-760 meters.
Eriastrum densifolium ssp. Sanctorum *POLEMONIACEAE*	Santa Ana River woolystar	Fed: FE State: SE CNPS: 1B.1	Covered	Potential, Segments I, J, 1 and 2	June-September	Alluvial fan scrub, coastal scrub, gravelly riverbeds and sandy soils.
Galium californicum ssp. Primum *RUBIACEAE*	California bedstraw	Fed: None State: None CNPS 1B.2	Covered	Unlikely: survey area outside range of species.	March - July	Perennial herb found in chaparral, lower montane coniferous forest and the lower edge of pine belt in sandy, granitic soils from 1350-1700 meters.
Helianthus nuttallii ssp. parishii *ASTERACEAE*	Los Angeles sunflower	Fed: None State: None CNPS	Not covered	Unlikely: presumed extinct	August - October	Occurs in coastal salt and freshwater marshes and swamps from 300-500 meters.
Horkelia cuneata ssp. Puberula *ROSACEAE*	Mesa horkelia	Fed: None State: None CNPS: 1B.1	Not covered	Unlikely, due to disturbance and limited suitable habitat	February - July	Perennial herb found in dry sandy soils in the outer coast ranges in chaparral, coastal scrub, and cismontane woodland in sandy or gravelly soils. Blooms from February through July from 70- 810 meters.
Lepidium virginicum var. robinsonii *BRASSICACEAE*	Robinson's pepper-grass	Fed: None State: None CNPS: 1B.2	Not covered	Unlikely, due to disturbance and limited suitable habitat	January – July	Annual herb occurs in chaparral and coastal scrub from 1-800 meters.
Lycium parishii *SOLANACEAE*	Parish's desert-thorn	Fed: None State: None CNPS: 2.3	Not covered	Suitable habitat does not exist	March - April	Medium sizes thorny shrub occurs in coastal scrub and Sonoran desert scrub on sandy to rocky slopes and canyons from 300-1000 meters.
Monardella pringlei *LAMIACEAE*	Pringle's monardella	Fed: None State: None CNPS 1A	Not covered	Unlikely: presumed extinct in California	May - June	Annual herb occurs in coastal sage scrub with sandy soils from 300 to 400 meters.
Phacelia stellaris *HYDROPHYLLACEAE*	Brand's phacelia	Fed: FC State: None CNPS: 1B.1	Covered, surveys required	Potential, Segment D	March- June	Coastal dunes, coastal sage scrub and open areas from one to 400 meters.

Scientific Name and Family	Common Name	Status	MSHCP Status	Occurrence Onsite	Flowering Period	Habitat
Ribes divaricatum var. parishii *GROSSULARIACEAE*	Parish's gooseberry	Fed: None State: None CNPS 1B.1	Not covered	Unlikely: presumed extinct in California	February - April	Deciduous shrub occurs in riparian woodland from 65 to 300 meters.
Nasturtium gambelii *BRASSICACEAE*	Gambel's watercress	Fed: FE State: SE CNPS 1B.1	Not covered	Potential, Segments D, J, 1 and 2	August - October	Aquatic herb found in or near streams, springs, freshwater or brackish marshes, swamps and lake margins from 5-1,305 meters
Satureja chandleri *LAMIACEAE*	San Miguel savory	Fed: None State: None CNPS 1B.2	Covered, surveys required	Potential, Segments D, J, 1 and 2	March - July	Small shrub occurs in chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grasslands in rocky, gabbroic or metavolcanic soils from 120 to 1075 meters.
Senecio aphanactis *ASTERACEAE*	Rayless ragwort	Fed: None State: None CNPS 2.2	Not covered	Unlikely, due to disturbance and limited suitable habitat	January - April	Annual herb found in alkaline flats and chaparral, cismontane woodland and coastal scrub with alkaline soils from 15 to 800 meters.
Sidalcea neomexicana *ONAGRACEAE*	Salt Spring checkerbloom	Fed: None State: None CNPS 2.2	Not covered	Unlikely: suitable habitat does not occur.	March - June	Perennial herb found in chaparral, coastal scrub, Mojavean desert scrub, alkaline and mesic playas and lower montane coniferous forest from 15 to 1530 meters.
Symphyotrichum defoliatum *ASTERACEAE*	San Bernardino aster	Fed: None State: None CNPS: 1B.2	Not covered	Potential, Segments J, 1 and 2	July - November	Occurs in vernally mesic places near ditches, streams and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps and valley and foothill grassland. Blooms from July-November from 2-2040 meters.

Definitions - status: Fed = federal, FE = federal endangered, FT = federal threatened, FPE = federally proposed for listing as endangered, FPT = federally proposed for listing as threatened, FC = federal candidate species, FSC = federal special concern species, state = state of California, SE =

state endangered, ST = state threatened, SCE = state candidate for listing as endangered, SCT = state candidate for listing as threatened, SC = state species of concern, FP = fully protected species, none = no federal or state listing
see Appendix D for CNPS Status.
MSHCP Status: Not covered = not covered under MSHCP, Covered = adequately conserved under MSHCP, Covered, surveys required = adequately conserved under MSHCP but focused surveys may be required, Conservation requirements = species not considered adequately conserved under MSHCP until species-specific conservation objectives met.
Occurrence onsite: Occurs = known to occur onsite, potential = could occur due to presence of suitable habitat onsite but not detected, unlikely = probably does not occur due to limited suitable habitat onsite and not detected.

5.0 SUMMARY

Habitat assessments documented the complete absence of suitable or potential habitat for any narrow endemic plant species or any other special status plant species within a number of RTRP segments (Segments A, B, C, E, K, L, M, N, P, Q, R, S).

Focused surveys were conducted within the remaining segments (Segments D, H, I, J, and Segments 1 and 2) for the MSHCP narrow endemic plant species, federal and state threatened or endangered species, and other special status plant species.

Suitable habitat for these species occurred within the survey corridors of some segments; however, no narrow endemic plant species, federal or state threatened or endangered species, or other special status plant species were detected within any survey corridor during the focused surveys.

Surveys were conducted at the appropriate blooming times for three MSHCP narrow endemic plant species; San Diego ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*) and San Miguel savory (*Satureja chandleri*).

Some potential for occurrence of San Diego ambrosia exists in Segments D and 1. However San Diego ambrosia was not observed during the current surveys and this species is believed to be absent from the project area.

Some potential for occurrence of Brand's phacelia exists on Segment D; however, Brand's phacelia was not observed during the current surveys and this species is believed to be absent from the project area

Some potential for occurrence of San Miguel savory exists on Segments D and J, and 1 and 2. However, San Miguel savory was not observed during the current surveys and this species is believed to be absent from the project area

Based on past records, habitat assessments, focused surveys and disturbance history of the site no State or Federal listed threatened or endangered plant species are expected to occur within the RTRP segments.

6.0 REFERENCES

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7.0 APPENDICES

7.1 Appendix A: Site APNs

Eastern Route	Van Buren Route	Bain St. Route	Interstate 15 Route
178050045	163300002	153240028	160040018
178050033	163400002	157020011	160040029
178290007	163400001	157210004	160040015
178290006	163400042	157210018	160050043
179310002	163220008	157210008	160050027
179340003	163220006	157020007	160050023
179340004	163190011	157020006	160050031
207190004	163180016	157020009	152010010
181220016	163400002	157020003	152010007
187080015	163400001	162220002	152010005
187090002	163400042	162220003	152010013
187130002	166210004	162220006	152020012
186270009	163180016	162220010	152020008
186270011	165200008	162220013	152060008
187210006	165140038	162230002	153020003
189110010	165140024	162230003	153020013
189100006	165140023	162240005	157210011
189110010	165160016	162220006	153020003
186270002	165140008	162220010	153020013
186240003	165185005	162220013	157210011
186270004	165200010	162230002	157210012
186270001	165140008	162240011	153020015
181220005	165140007	162240005	153030011
181220006	165140030	163290001	153240016
181220009	165140029	163290009	153240028
	165080005	163290009	153240031
	165080004		153240039
	165080003		153240044
	165091015		153240009
	165091001		153240032
	165050016		153240044
	165050016		153240043
	169300002		154020085

	169290005		153240049
	167110029		154020078
	170340022		154020079
	170350034		154020082
	170340017		154020086
	170320008		154200062
	170320011		154200022
	156210093		163290008
	170350034		
	170340022		
	170340017		
	170320017		
	170320008		
	170320010		
	170320011		
	170320018		
	156210093		
	156360032		

Example of MSHCP requirements for site APNs. All site APNs have the same survey requirements for plants but not all shown.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

APN	Cell	Cell Group	Acres	Area Plan	Sub Unit
165050016	Not A Part	Independent	18.04	Jurupa	Not a Part
165050016	Not A Part	Independent	18.04	Jurupa	Not a Part
165080003	Not A Part	Independent	3.31	Jurupa	Not a Part
165080004	Not A Part	Independent	3.18	Jurupa	Not a Part
165080005	Not A Part	Independent	5.73	Jurupa	Not a Part
165091001	Not A Part	Independent	2.97	Jurupa	Not a Part
165091015	Not A Part	Independent	3.76	Jurupa	Not a Part
165140007	Not A Part	Independent	2.26	Jurupa	Not a Part
165140008	Not A Part	Independent	6.41	Jurupa	Not a Part
165140008	Not A Part	Independent	6.41	Jurupa	Not a Part

165140023	Not A Part	Independent	4.95	Jurupa	Not a Part
165140024	Not A Part	Independent	5	Jurupa	Not a Part
165140029	Not A Part	Independent	4.62	Jurupa	Not a Part
165140030	Not A Part	Independent	2.19	Jurupa	Not a Part
165140038	Not A Part	Independent	10.72	Jurupa	Not a Part
165160016	Not A Part	Independent	5.07	Jurupa	Not a Part
165185005	Not A Part	Independent	4.55	Jurupa	Not a Part
165200010	Not A Part	Independent	0.24	Jurupa	Not a Part
167110029	Not A Valid Parcel Number				
169290005	Not A Part	Independent	6.48	Jurupa	Not a Part
169300002	Not A Valid Parcel Number				

HABITAT ASSESSMENTS

Habitat assessment shall be required and should address at a minimum potential habitat for the following species:

APN	Amphibia Species	Burrowing Owl	Criteria Area Species	Mammalian Species	Narrow Endemic Plant Species	Special Linkage Area
165050016	NO	**YES**	NO	NO	**YES**	NO
165080003	NO	**YES**	NO	NO	**YES**	NO
165080004	NO	**YES**	NO	NO	**YES**	NO
165080005	NO	**YES**	NO	NO	**YES**	NO
165091001	NO	**YES**	NO	NO	**YES**	NO
165091015	NO	**YES**	NO	NO	**YES**	NO
165140007	NO	**YES**	NO	NO	**YES**	NO
165140008	NO	**YES**	NO	NO	**YES**	NO
165140023	NO	**YES**	NO	NO	**YES**	NO
165140024	NO	**YES**	NO	NO	**YES**	NO
165140029	NO	**YES**	NO	NO	**YES**	NO
165140030	NO	**YES**	NO	NO	**YES**	NO
165140038	NO	**YES**	NO	NO	**YES**	NO
165160016	NO	**YES**	NO	NO	**YES**	NO
169290005	NO	**YES**	NO	NO	**YES**	NO

Burrowing Owl

Burrowing owl.

Narrow Endemic Plant Species

7) San Diego ambrosia, Brand's Phacelia, San Miguel savory

If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season.

7.2 Appendix B: Weather data

RIVERSIDE FIRE STN 3, CALIFORNIA (047470)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1893 to 12/31/2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	66.7	68.3	71.3	75.6	80.0	87.0	94.2	94.4	90.9	82.9	74.5	67.7	79.5
Average Min. Temperature (F)	39.0	41.1	43.2	46.7	51.0	54.8	59.4	59.6	56.1	49.9	42.8	39.2	48.6
Average Total Precipitation (in.)	2.05	2.20	1.89	0.79	0.23	0.05	0.04	0.14	0.19	0.44	0.83	1.46	10.32
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 99.4% Min. Temp.: 99.3% Precipitation: 99.5% Snowfall: 97% Snow Depth: 97%
Check Station Metadata or Metadata graphics for more detail about data completeness.

7.3 Appendix C: Plant species detected within survey corridors of the Riverside Transmission Reliability Project, 2008.

SCIENTIFIC NAME	COMMON NAME	D	H	I	J	1	2
CHLOROPHYTA	**GREEN ALGAE**						
Chara sp.	Stonewort	x			x	x	x
PTERIDOPHYTES	**FERNS & ALLIES**						
AZOLLACEAE	**MOSQUITO FERN FAMILY**						
Azolla filiculoides	Pacific Mosquito Fern						x
EQUISETACEAE	**HORSETAIL FAMILY**						
Equisetum hyemale subsp. affine	Tall Scouring-Rush				x		x
SELAGINELLACEAE	**SPIKE-MOSS FAMILY**						
Selaginella bigelovii	Bigelow's Spike-Moss				x		
ANGIOSPERMAE	**FLOWERING PLANTS**						
ANGIOSPERMS - DICOTYLEDONES	**DICOTS**						
ACERACEAE	**MAPLE FAMILY**						
Acer negundo var. californicum	Box Elder	x					x
AMARANTHACEAE	**AMARANTH FAMILY**						
*Amaranthus albus**	Tumbling Pigweed		x	x			x
*Amaranthus blitoides**	Prostrate Pigweed		x	x			
ANACARDIACEAE	**SUMAC or CASHEW FAMILY**						
*Schinus molle**	Peruvian Pepper Tree			x			
*Schinus terebinthifolius**	Brazilian Pepper Tree			x			
Toxicodendron diversilobum	Poison Oak	x					
APIACEAE	**CARROT FAMILY**						
Apiastrum angustifolium	Mock Parsley				x		
*Apium graveolens**	Common Celery					x	x
Conium maculatum	Common Poison Hemlock				x	x	x
*Foeniculum vulgare**	Sweet Fennel				x	x	
Hydrocotyle umbellata	Many-Flowered Marsh-Pennywort				x	x	
ASTERACEAE	**SUNFLOWER FAMILY**						
*Ambrosia artemisiifolia**	Common Ragweed				x	x	x
*Ambrosia confertiflora**	Weak-Leaved Burweed				x		
Ambrosia psilostachya	Western Ragweed				x	x	x
Artemisia californica	Coastal Sagebrush	x	x	x	x		x
Artemisia douglasiana	Douglas or California Mugwort	x			x	x	
Artemisia dracunculus	Dragon Sagewort or Tarragon				x		
Baccharis emoryi	Emory's Baccharis				x		x
Baccharis salicifolia	Mulefat	x			x	x	x
Bidens laevis	Smooth Bur-Marigold				x		
*Carduus pycnocephalus**	Italian Thistle	x					
*Centaurea melitensis**	Tocalote	x				x	
*Chamomilla suaveolens**	Common Pineapple Weed				x	x	x
*Chrysanthemum coronarium**	Garland Chrysanthemum				x		
Conyza canadensis	Common Horseweed	x			x	x	x
*Cotula australis**	Australian Brass-Buttons				x		

Deinandra fasciculata	Fascicled Tarweed	x	x	x			
Encelia californica	California Encelia		x				
Ericameria palmeri var. pachylepis	Grassland Goldenbush	x					
Filago californica	California Filago or Fluffweed	x					
*Filago gallica**	Narrow-Leaved Filago					x	
Gnaphalium californicum	California Everlasting	x			x		
Gnaphalium canescens subsp. microcephalum	White Everlasting				x		
*Gnaphalium luteo-album**	Weedy Cudweed					x	
Helianthus annuus	Western Sunflower				x	x	
Heterotheca grandiflora	Telegraph Weed						x
Isocoma menziesii var. menziesii	Decumbent Goldenbush	x					
*Lactuca serriola**	Prickly or Wild Lettuce				x	x	x
Lasthenia gracilis	Slender Goldfields		x				
Picris echioides	Bristly Ox-Tongue		x	x	x	x	
Rafinesquia californica	California Chicory	x					
Senecio vulgaris	Groundsel, Ragwort					x	
*Silybum marianum**	Milk Thistle			x	x	x	
*Sonchus asper subsp. asper**	Prickly Sow Thistle				x	x	
Verbesina encelioides	Golden Crownbeard				x	x	
Xanthium strumarium	Cocklebur			x	x		
BETULACEAE	**BIRCH FAMILY**						
Alnus rhombifolia	White Alder	x					
BORAGINACEAE	**BORAGE FAMILY**						
Amsinckia menziesii var. intermedia	Common Fiddleneck	x	x	x	x	x	x
Cryptantha intermedia	Common Cryptantha				x	x	
Cryptantha micrantha	Cryptantha				x		x
Cryptantha muricata	Prickly Cryptantha		x	x	x	x	
Heliotropium curassavicum	Salt or Alkali Heliotrope				x	x	x
Pectocarya penicillata	Pectocarya				x		x
BRASSICACEAE	**MUSTARD FAMILY**						
*Capsella bursa-pastoris**	Shepherd's Purse				x	x	
Hirschfeldia incana	Shortpod or Summer Mustard				x	x	x
*Lepidium latifolium**	Broad-Leaved Peppergrass	x			x	x	x
Lepidium nitidum var. nitidum	Shining Peppergrass		x	x			
*Raphanus sativus**	Wild Radish		x	x	x		
*Rorippa nasturtium-aquaticum**	White Water-Cress	x					
*Sisymbrium altissimum**	Tumble Mustard					x	
*Sisymbrium irio**	London Rocket				x	x	x
*Sisymbrium officinale**	Hedge-Mustard		x	x			
CACTACEAE	**CACTUS FAMILY**						
Opuntia littoralis	Mesa Prickly Pear						x
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**						
Sambucus mexicana	Mexican Elderberry	x				x	x
CARYOPHYLLACEAE	**PINK FAMILY**						
*Spergularia bocconei**	Boccone's Sand Spurry					x	
CHENOPODIACEAE	**GOOSEFOOT FAMILY**						
*Beta vulgaris**	Garden Beet					x	
*Chenopodium album**	Lamb's Quarter		x	x	x	x	x

*Salsola tragus**	Russian-Thistle		x	x	x	x	x
CRASSULACEAE	**STONECROP FAMILY**						
Crassula connata	Sand Pygmy-Stonecrop	x					
Dudleya lanceolata	Lanceleaf or Coastal Live-Forever	x					
CUCURBITACEAE	**GOURD FAMILY**						
Cucurbita foetidissima	Calabazilla						x
Marah macrocarpus var. macrocarpus	Man-Root, Wild Cucumber	x					
Cuscuta californica var. californica	California Witch's Hair					x	
EUPHORBIACEAE	**SPURGE FAMILY**						
Chamaesyce albomarginata	Rattlesnake Spurge	x	x	x			
Chamaesyce serpyllifolia	Thyme-leaved spurge	x					
Croton californicus	California Croton		x	x	x	x	x
Eremocarpus setigerus	Doveweed		x	x	x	x	
*Ricinus communis**	Castor-Bean	x		x			
FABACEAE	**LEGUME FAMILY**						
Cercis occidentalis	Western Redbud	x					
Lotus purshianus var. purshianus	Spanish Lotus				x	x	
Lotus scoparius var. scoparius	Coastal Deerweed				x		x
*Medicago polymorpha**	California Burclover		x	x	x	x	x
*Medicago sativa**	Alfalfa, Lucerne		x	x			
*Melilotus albus**	White Sweet-Clover				x		
Parkinsonia aculeata	Mexican Palo Verde						x
FAGACEAE	**OAK FAMILY**						
Quercus agrifolia var. agrifolia	Coast Live Oak	x					
GERANIACEAE	**GERANIUM FAMILY**						
*Erodium botrys**	Long-Beaked Filaree	x			x		
*Erodium cicutarium**	Red-Stemmed Filaree	x			x	x	x
HYDROPHYLLACEAE	**WATERLEAF FAMILY**						
Emmenanthe penduliflora var. penduliflora	Whispering Bells				x	x	
Eriodictyon trichocalyx var. trichocalyx	Hairy Yerba Santa						x
Eucrypta chrysanthemifolia var. chrysanthemifolia	Common Eucrypta						x
Phacelia brachyloba	Short-Lobed Phacelia				x	x	
Phacelia cicutaria var. hispida	Caterpillar Phacelia				x	x	
Phacelia distans	Common Phacelia	x	x	x		x	
Phacelia minor	Wild Canterbury-Bell				x	x	
Phacelia ramosissima var. latifolia	Branching Phacelia		x	x	x	x	
JUGLANDACEAE	**WALNUT FAMILY**						
Carya illinoensis	Pecan						x
LAMIACEAE	**MINT FAMILY**						
*Marrubium vulgare**	Common Horehound			x		x	
Salvia columbariae	Chia				x	x	x
Stachys ajugoides var. rigida	Rigid Hedge-Nettle	x					
Trichostema lanceolatum	Vinegar Weed					x	
LINACEAE	**FLAX FAMILY**						
*Linum usitatissimum**	Common Flax					x	

MALVACEAE	**MALLOW FAMILY**						
*Malva parviflora**	Cheeseweed		x	x	x	x	
MYRTACEAE	**MYRTLE FAMILY**						
*Eucalyptus camaldulensis**	River Red Gum					x	
OLEACEAE	**OLIVE FAMILY**						
Fraxinus dipetala	California Flowering-Ash	x					x
ONAGRACEAE	**EVENING PRIMROSE FAMILY**						
Camissonia bistorta	Southern Sun Cup				x	x	x
Camissonia californica	Mustard-Like Evening Primrose				x	x	x
Camissonia strigulosa	Strigulose Evening Primrose				x	x	
Epilobium ciliatum subsp. ciliatum	Green Willow-Herb	x			x	x	x
Oenothera elata subsp. hookeri	Evening Primrose					x	
PLATANACEAE	**SYCAMORE FAMILY**						
Platanus racemosa	Western Sycamore	x					x
POLEMONIACEAE	**PHLOX FAMILY**						
Gilia capitata subsp. abrotanifolia	Ball Gilia				x		
POLYGONACEAE	**BUCKWHEAT FAMILY**						
Eriogonum fasciculatum var. fasciculatum	California Buckwheat	x	x	x			
Eriogonum gracile var. gracile	Slender Buckwheat		x	x			
Eriogonum thurberi	Thurber's Buckwheat				x	x	x
*Polygonum arenastrum**	Common Knotweed						x
Polygonum lapathifolium	Willow Smartweed				x	x	x
*Rumex crispus**	Curly Dock				x		x
Rumex hymenosepalus	Desert Rhubarb					x	
Rumex salicifolius var. salicifolius	Willow Dock				x	x	
RANUNCULACEAE	**CROWFOOT FAMILY**						
Thalictrum fendleri var. polycarpum	Common Meadow-Rue				x		
ROSACEAE	**ROSE FAMILY**						
Rosa californica	California Wild Rose					x	
*Rubus discolor**	Himalayan Blackberry				x	x	
Rubus ursinus	California Blackberry					x	
RUBIACEAE	**MADDER FAMILY**						
Galium angustifolium subsp. angustifolium	Chaparral Bedstraw	x		x			
Galium aparine	Common Bedstraw	x					
SALICACEAE	**WILLOW FAMILY**						
Populus fremontii subsp. fremontii	Western Cottonwood	x		x	x	x	x
Salix exigua	Narrow-Leaved Willow				x	x	x
Salix gooddingii	Goodding's or Black Willow	x			x	x	x
Salix laevigata	Red Willow			x	x	x	x
Salix lasiolepis	Arroyo Willow	x		x	x	x	x
Salix lucida subsp. lasiandra	Lance-Leaved Willow						x
SAURURACEAE	**LIZARD'S-TAIL FAMILY**						
Anemopsis californica	Yerba Mansa					x	x
SCROPHULARIACEAE	**FIGWORT FAMILY**						
Mimulus guttatus	Seep Monkey-Flower				x	x	x
*Veronica anagallis-aquatica**	Great Water Speedwell				x	x	

SIMAROUBACEAE	**QUASSIA or SIMAROUBA FAMILY**						
*Ailanthus altissima**	Tree of Heaven			x		x	
SOLANACEAE	**NIGHTSHADE FAMILY**						
Datura wrightii	Jimsonweed	x				x	x
Nicotiana attenuata	Coyote Tobacco				x	x	
Nicotiana clevelandii	Cleveland's Tobacco					x	
*Nicotiana glauca**	Tree Tobacco	x		x	x	x	x
*Solanum elaeagnifolium**	Silverleaf Nightshade				x		
Solanum xanti	Chaparral Nightshade						x
TAMARICACEAE	**TAMARISK FAMILY**						
*Tamarix ramosissima**	Mediterranean Tamarix	x			x	x	x
URTICACEAE	**NETTLE FAMILY**						
Urtica dioica subsp. holosericea	Hoary Nettle	x			x	x	
*Urtica urens**	Dwarf Nettle	x			x	x	x
VITACEAE	**GRAPE FAMILY**						
Vitis girdiana	Desert Wild Grape	x		x			x
ANGIOSPERMS - MONOCOTYLENDONES	**MONOCOTS**						
ARACEAE	**ARUM FAMILY**						
Lemna minuta	Least Duckweed						x
ARECACEAE	**PALM FAMILY**						
*Washingtonia robusta**	Mexican Fan Palm	x		x	x		x
CYPERACEAE	**SEDGE FAMILY**						
Carex praegracilis	Clustered Field-Sedge						x
Cyperus eragrostis	Tall Umbrella-Sedge	x			x	x	x
Eleocharis macrostachya	Pale Spike-Rush	x					x
Eleocharis parishii	Spike-Rush	x					x
Scirpus acutus var. occidentalis	Common or Viscid Bulrush				x		x
Scirpus californicus	California Bulrush						x
Scirpus maritimus	Alkali Bulrush						x
JUNCACEAE	**RUSH FAMILY**						
Juncus balticus	Wire Rush				x		x
Juncus bufonius var. bufonius	Common Toad-Rush				x	x	x
Juncus rugulosus	Wrinkled Rush						x
LILIACEAE	**LILY FAMILY**						
Dichelostemma capitatum subsp. capitatum	Wild-Hyacinth	x					
POACEAE	**GRASS FAMILY**						
*Arundo donax**	Giant Reed	x			x	x	x
*Avena fatua**	Wild Oat	x	x	x			
*Bromus catharticus**	Rescue Grass	x			x		
*Bromus diandrus**	Common Ripgut Grass	x	x	x	x	x	x
*Bromus hordeaceus**	Soft Chess	x	x	x		x	
*Bromus madritensis subsp. rubens**	Foxtail Chess or Red Brome				x	x	x
*Bromus tectorum**	Cheat Grass		x	x			
Distichlis spicata	Coastal Salt Grass				x	x	x
*Festuca arundinacea**	Reed Fescue						x
Hordeum murinum subsp. glaucum	Glaucous Barley		x	x		x	x

*Hordeum murinum subsp. leporinum**	Hare Barley or Foxtail Barley				x		
Leptochloa uninervia	Dense-Flowered Sprangletop						x
Leymus triticoides	Beardless Wild-Rye						x
*Lolium multiflorum**	Italian Ryegrass					x	
*Pennisetum clandestinum**	Kikuyu Grass					x	
*Pennisetum setaceum**	African Fountain Grass	x					
*Phalaris aquatica**	Harding Grass	x			x	x	
*Poa annua**	Annual Bluegrass				x		
*Poa bulbosa**	Bulbous bluegrass						x
*Polypogon australis**	Chilean Polypogon						x
*Polypogon monspeliensis**	Rabbitfoot Grass				x	x	
*Schismus barbatus**	Mediterranean Schismus	x				x	
*Vulpia myuros var. myuros**	Rattail Fescue	x					
TYPHACEAE	**CAT-TAIL FAMILY**						
Typha domingensis	Slender Cat-Tail				x	x	x
Typha latifolia	Broad-Leaved Cat-Tail						x

KEY: Asterisk (*) = non-native species; $^{+}$ = sensitive species; Sources: Taxonomy - Hickman (1993), http://ucjeps.berkeley.edu/interchange.html, November 2005; Common names and non-native species designations according to Roberts (1998), then Hickman (1993)

7.4 Appendix D: California Native Plant Society Categories

CNPS Status based on California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Tibor 2001):

List 1A: Plants Presumed Extinct in California
The plants of List 1A are presumed extinct because they have not been seen or collected in the wild for many years. Although most of them are restricted to California, a few are found in other states as well. There is a difference between "extinct" and "extirpated." A plant is extirpated if it has been locally eliminated. It may be doing quite nicely elsewhere in its range. All of the plants constituting List 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 1B: Plants Rare, Threatened or Endangered in California and Elsewhere
The plants of List 1B are rare throughout their range. All but a few are endemic to California. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population (even through they may be wide ranging), or their limited number of populations. All of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 2: Plants Rare, Threatened or Endangered in California, But More Common Elsewhere
Except for being common beyond the boundaries of California, the plants of List 2 would have appeared on List 1B. Based on the "Native Plant Protection Act," plants are considered without regard to their distribution outside the state. All of the plants constituting List 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 3: Plants About Which We Need More Information—A Review List
The plants that comprise List 3 are an assemblage of taxa that have been transferred from other lists or that have been suggested for consideration. The necessary information that would assign most to a sensitivity category is missing.

List 4: Plants of Limited Distribution—A Watch List
The plants in this category are of limited distribution in California and their vulnerability or susceptibility to threat appears low at this time. While these plants cannot be called "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Many of them may be significant locally. Should the degree of endangerment or rarity of a plant change, they will be transferred to a more appropriate list.

New Threat Code extensions and their meanings:

.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 – Fairly endangered in California (20-80% occurrences threatened)

.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

7.5 Appendix E: Site photographs, April 2008.

Photograph 1: East of Segment D on the north side of the bank, looking west.

Photograph 2: Segment D on the north side of the bank near Tyler Street looking southeast.

Photograph 3: Segment J between the river and the golf course looking southeast.

Photograph 4: Segment 1, looking southeast.

Photograph 5: Segment 1 at Limonite Avenue looking southwest.

Photograph 6: Segment 1 on the east side of the river looking northwest.

Photograph 7: Near the west end of Segment 2 looking west.

Photograph 8: Dense riparian forest in the middle of Segment 2.

APPENDIX F: FIRST YEAR FOCUSED SURVEY FOR DELHI SANDS FLOWER-LOVING FLY

FIRST YEAR FOCUSED SURVEY FOR DELHI SANDS FLOWER-LOVING FLY ON THE RIVERSIDE PUBLIC UTILITIES, RIVERSIDE TRANSMISSION RELIABILITY PROJECT, RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

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Prepared by:

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6675 Avenue Juan Diaz
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November 4, 2006

TABLE OF CONTENTS

LIST OF TABLES IN BODY OF DOCUMENT

LIST OF APPENDICES

1. INTRODUCTION

Riverside Public Utilities is planning alternative routes for the Riverside Transmission Reliability Project in order to maintain and improve their quality of service. Alternative routes for the project extend generally from the Grand Terrace and Colton area, southwest along the Santa Ana River through Riverside, then west out through Ontario.

Osborne Biological Consulting was contracted by TRC Essex Environmental, Inc., on behalf of Riverside Public Utilities, in order to undertake presence / absence surveys for the Delhi Sands Flower-loving Fly (DSF, *Rhaphiomidas terminatus abdominalis*). The DSF was listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) on September 23, 1993 (USFWS 1993). Portions of the project centerline areas mapped as having Delhi series sands suggesting potential for DSF. Habitat assessments and evaluations conducted by TRC Essex in spring of 2006, indicated that a focused survey was needed on several portions of the project to meet the requirements of the U.S. Fish and Wildlife Service's (USFWS) Delhi Sands Flower-loving Fly survey protocol (USFWS 1996). This report presents the methods and findings of the habitat assessment and focused survey covering thirteen areas over Riverside and San Bernardino Counties.

2. PROJECT DESCRIPTION

As described above, RPU is investigating alternative routes for the Riverside Transmission Reliability Project. Thirteen areas along the alternative project centerlines were initially identified as being subject to some habitat assessment or survey for the DSF. After intense habitat assessments by Osborne, survey areas were refined, with eleven areas receiving full DSF survey efforts.

Areas surveyed for this project may be found on the San Bernardino South, Fontana, Riverside West, Corona North, and Guasti, USGS 7.5 minute series Quadrangles. Figures 1 through 5 (section 11) present maps depicting the survey areas at 50% scale and figures 6 through 11 present these at a 200% scale. Additional figures 12 through 15 present these surveys on an aerial overlay showing alternative routes for the RPU Riverside Transmission Reliability Project.

3. NATURAL HISTORY OF THE DELHI SANDS FLOWER-LOVING FLY

Delhi Sands Flower-loving fly, belongs to a genus of flies (*Rhaphiomidas*) commonly known as giant flower loving flies. There are more than 30 species of these flies, distributed across the southwestern United States and northern Mexico. These flies are *huge* by the standards set by most flies – with size among the species ranging from ca. 1.5 centimeters up to 3, and even 4 centimeters, usually gray, tan, rust or yellow in color. All species of *Rhaphiomidas* are associated with rather arid, sandy habitats, with most species living on dune systems of inland desert valleys, rivers, deltas, and beach strands. A few species are found in sandy washes, alluvial benches and remnant glacial moraines. Many species of

these flies often hover before flowers in the manner of hummingbirds, using a long, thin, tubular proboscis (mouth-part), with which the flies probe for nectar – hence the name "giant flower-loving flies". Smaller flies of the family Apioceridae, once considered very closely related to *Rhaphiomidas* were traditionally called "flower-loving flies".

The DSF which is only known to occur in association with Delhi sand deposits, presumably occupied the once extensive dune system of the upper Santa Ana River Valley, including portions of what is now the City of Colton, west through portions of the City of Ontario, and south to the Santa Ana River. Today, DSF exists on only a few disjunct sites (USFWS 1997) within a radius of about eight miles in southwestern San Bernardino and northwestern Riverside Counties (Colton, Rialto, Fontana, and Ontario). More than 95 percent of known DSF habitat was considered eliminated by development, agriculture and other land management practices by 1993 (Smith 1993, USFWS 1996 *in* Kingsley 1996), however, this proportion is now nearer 98 to 99% due to these ongoing processes. Many of the last remaining fragments of DSF habitat are currently under pressure by land management efforts such as heavy disking, irrigation, manure dumping, and gravel dumping. There is presently an estimated 1,200 acres of habitat that can support this species (USFWS 1997), however, this estimate likely includes lands needing extensive habitat restoration.

Adult DSF flight period is typically August and September, when individual adults emerge, reproduce and die. The adult life span of an individual DSF lasts for a few days and adults do not live beyond the flight period (Kiyani 1995). DSF, like other *Rhaphiomidas* species, appears to have an annual life cycle (because of the annual flight). However, it is widely believed that the underground larval/pupal stage may persist for additional years, depending upon various environmental factors such as annual rainfall, food availability and weather conditions during the flight season (many desert *Rhaphiomidas* species do not appear after a drought year and often, substantial flights occur only sporadically over the years). It is known that DSF larvae develop underground, however the specific biology (larval biology, habits and food requirements) are not yet known for DSF or any other *Rhaphiomidas* species. Known life histories of all related fly families and genera involve parasitism or predation on other soil dwelling arthropods and it is there for considered highly likely that *Rhaphiomidas* development is dependent on some other endemic insect species in the community.

Adult DSF are highly mobile, agile fliers. Male DSF are frequently seen flying low through habitat, using apparently random, circuitous paths around and between shrubs in search of females. Such "cruising" behavior often covers areas on the scale of 1000 square meters in the time span of a minute. Alternatively, male DSF are often seen flying about an open patch of ground (ca 100 square meters) such as along a dirt path or dune blow-out area. Here, males may repetitively land and rest on one or another object (such as small dried plants) in the area, and such rests are interrupted by periods of patrolling flight (apparently territorial) about the spot. When alarmed, these insects tend to fly rapidly in more or less a straight line – often covering distances of 100 meters in less than 6 seconds. Adult DSF are known to nectar at flowers of California buckwheat (*Eriogonum fasciculatum*) and California croton (*Croton californicus*).

3.1 DSF Habitat Characteristics

DSF is typically found in areas of unconsolidated sandy soils (Delhi series) supporting an open community of native and exotic plant species. Dominant plants are typically California buckwheat, California croton, telegraph weed (*Heterotheca grandiflora*), and deerweed (*Lotus scoparius*) but many exotic species often dominate on DSF habitat as well. DSF have been found in habitats that do not support these dominant plant species, and plant species composition may not be directly relevant to larval development (due to likely predatory or parasitic habit of DSF larvae). Adult DSF are known to nectar at flowers of California buckwheat and California croton. Many other plant species are common, including Thurber's eriogonum (*Eriogonum thurberi*), Autumn vinegar weed (*Lessingia glandulifera*), and sapphire eriastrum (*Eriastrum sapphirinum*). Non-native plant species also occur in DSF habitat (and incidentally, virtually everywhere). DSF habitat also supports other associated insects such as flies and wasps considered as indicator species – *Apiocera convergens, Apiocera chrysolasia, Ligyra gozophylax, Campsomeris tolteca, Trielis alcione,* and *Nemomydas pantherinus.* Over 350 insect species have been found on one DSF site, and DSF habitat is typically marked by high abundance and diversity of predatory and parasitic insect groups including many highly specialized families of flies, wasps, bees, beetles, and antlions. The Delhi Sands community is one of California's unique natural communities containing an array of native plants and animals, some of which are found nowhere else. One plant species, Pringle's monardella, (*Monardella pringlei*) is already presumed extinct, as no living individuals have been observed in many years. Several species of insects and some vertebrates, which inhabit the Delhi Sands dunes system, are as endangered as the DSF, but no one has yet petitioned to have them officially declared Endangered. These include the convergent flower-loving fly *Apiocera convergens*, a newly discovered species of Jerusalem cricket, (*Stenopelmatus* sp.), a new species of camel cricket (*Ceuthophilus* sp.) and an endemic subspecies of butterfly *Apodemia mormo nigrescens* (Emmel and Emmel 1998). The other apiocerid fly (*Apiocera chrysolasia*), although known from approximately six general localities, is only common within the Delhi sands.

3.2 DSF Survey Guidelines

Interim General Survey Guidelines for the DSF have been suggested by the USFWS (1996). By following these guidelines, DSF presence or absence survey results may be deemed acceptable to the USFWS (rejection of survey results is likely to result where the guidelines are not followed). The guidelines indicate that focused DSF surveys should be conducted wherever Delhi sands are present within the presumed range of DSF, twice weekly (two days per week) during the single annual flight period (usually from August 1 to September 20). Recent early season DSF discoveries led the USFWS to recommend a survey season from July 15 to September 20 for 2003 and a survey season from July 1 to September 20 from the year 2004. Surveys must be conducted for two flight periods (two years). Furthermore, weather conditions must be suitable for DSF activity at the times survey work is pursued. The DSF is generally active when daytime temperatures exceed

80 degrees Fahrenheit (°F), but may fly with slightly cooler temperatures in bright sunlight.

4. METHODOLOGY

4.1 Habitat Assessment

Initially, thirteen sites of interest were identified by Roger Overstreet of TRC Essex, based on the intersection of RPU project centerlines with areas mapped as having Delhi sand soils. These locations were assigned numbers in order to facilitate the logistics of survey scheduling. Upon additional investigation by Osborne, survey areas were refined by addition of previously unrecognized DSF habitat, by subtraction of unsuitable or developed habitats, and elimination of site number 7 due to lack of DSF habitat. Site number 13 was also later dropped after it was learned that the RPU project in that location would only impact previously developed (paved) areas. Some survey areas were further subdivided for similar reasons. Area number 1 for example was subdivided with area 1a in order to accommodate a restricted schedule of access on the Agua Mansa Cemetery. These numeric site identifiers appear on the maps provided in figures one through eleven, appear in the field notes, and are used generally for this reporting of survey results.

Habitat suitability for DSF was evaluated using indicators of potential DSF habitat noted during the field visits, including: presence and abundance of loose, unconsolidated Delhi sands with low organic contamination; and, degree of habitat disturbance indicated by plant species composition and disposition of soil surface, presence and abundance of native sand associated plants such as *Croton californicus, Heterotheca grandiflora, Eriogonum thurberi* and *Eriogonum fasciculatum*. These plants are actually more an indication of relative disturbance regimen – conditions with lesser disturbance being of higher quality for DSF. Additional DSF habitat indicators considered were presence and abundance of Delhi sands associated insects such as *Apiocera convergens, Apiocera chrysolasia* and (to a lesser extent) *Nemomydas pantherinus*. Potential DSF habitat was further evaluated on the basis of overall insect diversity and abundance, particularly with respect to sand associated predators and parasitoids.

In the course of previous work, Osborne and Ballmer (Osborne et al. 2003, Osborne 2003) have developed a means of rating habitat on sites for potential to support DSF, on a scale of 1 to 5, with 5 being the best quality and most suitable habitat based on the following scheme:

1. Developed areas, non-Delhi sands soils with high clay, silt, and/or gravel content. Delhi sands extensively and deeply covered by dumping of exotic soils, rubble, trash or organic debris. *Unsuitable.*

2. Delhi sands are present but the soil characteristics include a predominance of exotic soils such as alluvial materials, or predominance of other foreign

contamination. Severe and frequent disturbance (such as a maintenance yard or high use roadbed). *Very Low Quality.*

3. Moderately contaminated Delhi sands. Delhi sands with moderate to high disturbance (such as annual disking). Sufficient Delhi Sands are present to prevent soil compaction (related to contamination by foreign soils). Some sandy soils exposed on the surface due to fossorial animal activity. *Low Quality.*

4. Abundant clean Delhi Sands with little or no foreign soils (such as alluvial material) present. Moderate abundance of exposed sands on the soil surface. Low vegetative cover. Evidence of moderate degree of fossorial animal activity by vertebrates and invertebrates. May represent high quality habitat with mild or superficial disturbance. *Moderate Quality*

5. Sand dune habitat with clean Delhi Sands. High abundance of exposed sands on the soil surface. Low vegetative cover. Evidence (soil surface often gives under foot) of high degree of fossorial animal activity by vertebrates and invertebrates. Sand associated plant and arthropod species may be abundant. *High Quality*

It should be noted that habitat qualities often vary spatially within a site so that conditions on a site fall within a range of qualities. Further, overall habitat quality is affected by the overall habitat area on a site, such that very small areas diminish the overall habitat value of a site. Use of this habitat rating system is somewhat subjective and best undertaken by a biologist who has extensive experience with *Rhaphiomidas* species. While investigating the various survey areas on this project, I subjected each site to an analysis of this kind so as to give a general estimate of overall DSF habitat conditions through the project (see Table 12, results section).

4.2 Focused Surveys

The surveyed areas were visited from July 1, to September 20, 2006, following the USFWS Interim General Survey Guidelines. We surveyed the subject sites at least twice a week, generally between the hours of 1000 and 1400 (Tables 1 through 11). The survey protocol, as set forth in the Interim General Guidelines for the Delhi Sands flower-loving fly survey, is designed to maximize the validity of a presence/absence determination. Table 1 below provides a list of the biologists that conducted surveys and their USFWS permit.

The survey areas included any suitable DSF habitat within 300 feet of the project centerline. However, habitats occurring on the opposite side of any substantial paved roadway were not included in the survey as being outside the scope of potential biological impacts from the project.

Table 1: Focused Survey Biologists

Biologist	U. S. Fish and Wildlife Service Permit Number
Kendall H. Osborne	TE-837760-5
Rick Rogers	Under Kendall Osborne's permit
Matthew Van Dam	Under Kendall Osborne's permit
Alex Van Dam	Under Kendall Osborne's permit
Brian M. Drake	TE-006328
Ellen K. Shafhouser	TE-084-254-0
Mike D. Wilcox	TE-836491-4
Nathan T. Moorhatch	TE-029414-1

The project was artificially divided into 13 areas to facilitate scheduling and these areas were designated as shown in Table 2.

Table 2: Survey areas, location, approximate acreages and relevant commentary

Area	Location	Acreage	Comments
Area 1		15.94	Divided to include Area 1a - Agua Manza Cemetery with limited access separates this from area 1
Area 2		15.79	Survey ends mid season on northern portion after we learn of HCP
Area 3		0.496	
Area 4		3.07	
Area 5		3.79	Southern portion of this area excluded due to elimination of habitat and denied access
Area 6		13.90	Northern portion area 6N, includes fenced area. Southern portion area 6S
Area 7		24.77	Dense, wet, Riparian woodland Not DSF habitat, Not surveyed
Area 8		11.62	
Area 9		45.68	Small portions of this are excluded as unsuitable for DSF. Area 9a is small eastern disjunct part.
Area 10		63.84	10W (western half) 10E (eastern half) large area divided for scheduling
Area 11		2.73	
Area 12		4.84	

Osborne photographed the survey sites from several perspectives to document existing conditions. Representative photographs of sites are found in Appendix C. Notes were taken on vegetative cover and plant species composition, abundance and diversity and species composition of insects and other animals, soil types, degree and nature of

disturbance, surface cover, organic content, compaction, current land management practices, existing development, conditions of surrounding vicinity, and proximity of other DSF populations.

5. Existing Environments and Communities

5.1 Adjacent lands

In general, DSF habitats are more or less surrounded by developed lands. With respect to this study, Survey Areas 1, 2, 3, 4, 5, 8, 9, and 10 occurred in the context of surrounding undeveloped lands similar to the survey areas themselves. Survey Areas 6, 11, 12, and 13 occurred as islands in the context of developed commercial and or residential areas. Areas 7 (not surveyed) and 8 occurred within the Santa Ana River bottom or immediately adjacent areas. Undeveloped lands supporting DSF are known only in the immediate vicinity of areas 1, 2, and 3.

5.2 Topography

Survey areas 1, 5, and 6 occur over Delhi sands deposits which cap a terrace above the Santa Ana River flood plain, thus have generally flat or rolling topography with a steep slope against the river plain. Areas 2 and 3 are generally rolling or flat, but associated with sand formations similar to those on the terrace areas. Areas 4 and northern portions of 6 may be derived both from terrace and secondary blow sands against hillsides. Areas 7 and 8 are generally flat, may have alluvially derived elements mixed (in the case of Area 8) with blown sands against slopes above the Santa Ana River. Areas 9, 10, 11, 12, and 13 all occur on flatlands (often agricultural) in the southern Ontario area.

5.3 Soils

Woodruff (1980) and Knecht (1971) indicated soils over all survey areas to consist of Delhi fine sands and field observations confirm Delhi sands throughout on these sites to varying degrees.

5.4 Vegetation

The survey areas are generally characterized as disturbed due to histories of disking, mowing, farming, and other activities. These areas generally support low vegetative diversity of an early successional type – mostly exotic grasses. Portions of some survey areas (Areas 1, 2, 4, 5, and 6) have remained relatively undisturbed and support either coastal sage scrub, or vegetation communities of low to intermediate disturbance with such species as *Heterotheca grandiflora, Croton californica,* and *Encelia farinosa.* Appendix A provides a list of plant species encountered on the survey areas.

5.5 Insect Communities

During site visits for 2006, at least 160 insect species (counting only large and conspicuous insects) were either casually observed or collected across all of the survey areas. A list of most insect species observed during the course of year 2006 focused survey work is presented in the appendix (Appendix A). The insect communities encountered on the survey areas 1, 2 (northern portions), 4, 5, and 6 (northern portions), had high abundance and diversity reflecting relatively more mature ecological communities associated with Delhi sands, including Mydidae (and DSF – Areas 1 and 2), Asilidae, Apioceridae, Sphecidae, Scoliidae, Mutilidae, Pompillidae, and Mymerliontidae. Survey Areas 3, 9, 10, 11, and 12, generally supported low arthropod diversity, due to extremely disturbed conditions. Survey Area 8 had unusually high arthropod diversity, and many species not previously seen on DSF surveys, due to close association with extensive riparian habitats.

6. RESULTS

6.1 Habitat Assessment

As mentioned above, habitat as defined by presence of Delhi sands was used to identify survey areas subject to potential DSF occurrence. Through the project areas generally, habitat conditions for DSF ranged from High quality to Very Low Quality (with Unsuitable areas not being surveyed). In general, the highest quality DSF habitat conditions were found on the far eastern portions of the project as with Areas 1 through 6. The lowest quality habitats occurred through Areas 7 (not surveyed) and 8 – due to marginal conditions associated with the River bottom and abundant riparian vegetation – and through Areas 10 (disturbed agricultural), and Area 11 (disturbed, small site, and surrounded by development). Areas 9 and 12 were found to be of intermediate habitat quality due either to more extensive lands not currently in agriculture, or presence of indicator plants with open sands.

The table below provides Osborne's rating habitats on sites for potential to support DSF, along with brief explanation of conditions driving the rating.

Table 3: Rating of DSF habitat quality on Survey areas

Survey Area	Habitat for DSF	Explanation
1	Moderate to High Quality	Some disturbed areas such as irrigated portion of cemetery, but extensive undisturbed Delhi sands with intact ecological communities
2	Moderate to High Quality	Some disturbed areas heavily disked, but northern portions with extensive undisturbed Delhi sands and intact ecological communities
3	Low Quality	Heavily disked, admixed with other soils
4	Moderate to High Quality	Low sand abundance, often compacted partially developed to railway, but slopes with long

		undisturbed and intact ecological communities
5	High Quality	Northern portions with relatively undisturbed Delhi sands and intact ecological communities
6	Low to High Quality	Variable from disturbed, graded, disked, landscaped, ranging up to slopes with long undisturbed and intact ecological communities
7	Unsuitable	Deep, dense, wet, riparian woodland on alluvial sands – River bottom.
8	Unsuitable to Moderate	High disturbance due both to paved roadway and fluvial processes (river). However, some areas with blow sands and open sandy areas with indicator plant species. Much riparian influence.
9	Very Low to Moderate	Mainly disturbed by a history of disking, some portions not disked so often.
10	Very Low to Low	Intense active agriculture, dairies, where currently fallow – overgrown with exotic shrubs such as *Kochia*. Sands seem overly fine and semi alkaline.
11	Very Low to Moderate	Very small, disturbed and contaminated site west of railroad, relatively undisturbed clean sands to east of rail, but site is surrounded by large developed areas
12	Very Low to Moderate	Very long narrow strip bounded by road and flood channel. Much disturbance, equestrian and vehicular use, but many areas with open sands and indicator vegetation.

6.2 Focused Surveys

Delhi Sands Flower-loving Fly found on Survey Areas 1 and 2.

A total of two female and three male Delhi Sands Flower-Loving Flies were observed on Survey Areas 1 and 2 during the course of this year 2006 field season. These DSF locations are shown in figure 16, Appendix B. DSF was not observed on any other survey area during the course of this field season.

On August 11, 2006, a male DSF was followed by Ken Osborne for several minutes on the western margin of Area 1, just outside (west of) the northwestern Cemetery fence. This male was observed to locate a female DSF and mate. The initial observation of a cruising male DSF was made at 1150 hours. This male was seen at a distance of approximately 20 meters (just outside of our survey area). Osborne followed this cruising male around while it made random flights through vegetation in a searching mode. During approximately 5 minutes, the DSF traveled through an area of some 40 meters by 40 meters (all just outside of the survey area). Finally, the male landed on the top of a dry *Heterotheca* stalk and it was observed to have found a teneral female (1154

am), quickly manipulated its abdomen to begin copulation. Copulation lasted approximately 3 minutes. The unmolested pair broke up, the male flying two to three meters to the north and the female flying approximately 10 meters to the southeast (ending up approximately 8 meters from the northern fence line of the Agua Mansa Cemetery. The observations lasted to approximately noon. Photographs were taken throughout the observations. The coordinates of this observation are approximately 34° 02' 34.2" N latitude, 117° 21' 49.8" W longitude. This sighting is in close proximity to other known sightings (a little farther west) from the previous year by Rick Rogers (pers. comm.).

On August 14, 2006, between approximately 1115 and 1130 hours, Alex Van Dam made observations of approximately two male and one female DSF on a small remaining strip of undisked habitat on the southern portion of Area 2. These DSF were too active to be photographed. The coordinates of these observations are approximately 34° 01' 42" N latitude and 117° 22' 31" W longitude.

6.3 Other Species of Special Interest

One "Special Animal" as defined California Department of Fish and Game Natural Diversity DataBase (CNDDB 2005) was incidentally detected within some of the survey areas during the course of field surveys. Burrowing Owl (*Athene cunicularia*) is listed as a "California Special Concern Species" (CSC) and Federal "Bird of Conservation Concern" species (BCC). The Burrowing Owl has been proposed as a candidate for listing as endangered under the State Endangered Species Act.

Burrowing Owl was observed on western portions of survey Area 9 (around a catch basin and associated spillways), and on the eastern, disjunct part of Area 9 (referenced in notes as Area 9a) on piles of introduced soils and waste materials, and at various locations along the channel sides adjacent to survey Area 12.

7.0 DISCUSSION

The best habitat conditions for DSF were observed on the northern portion of survey Area 2. When we were informed that a Habitat Conservation Plan (HCP) for this area has been approved by the USFWS, and after receiving information that RPU project activities would be covered by this HCP, we discontinued the survey on this northern portion of Area 2 around the end of July. Although DSF was not observed on the northern portion of Area 2 during the course of our survey, we believe that this high quality habitat is very likely occupied by a population of DSF.

A further discussion and analysis considering the implications of DSF findings on this survey will be undertaken upon completion of the full survey (after the second protocol survey season).

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APPENDIX

Appendix A: Data Tables

Table 1. Area 1: Dates, personnel, times and conditions for DSF survey work

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1016-1050	clear, calm, 97-105°*F* for day
July 2, 2006	M. Van Dam	1100-1158	clear, winds 0-2 mph, 87- 101°*F*
July 4, 2006	M. Van Dam	1303-1400	clear, calm, 94°*F*
July 6, 2006	M. Van Dam	1210-1246	clear, winds 0-5 mph, 93°*F*
July 9, 2006	A. Van Dam	1320-1410	clear, wind 2-3 mph, 92-104°*F* for day
July 10, 2006	A. Van Dam	1000-1100	clear, wind 1-6, 94-104°*F* for day
July 12, 2006	A. Van Dam	1024-1059	clear, wind 2-4 mph, 97-105°*F*
July 14, 2006	A. Van Dam	1058-1140	15% clouds, calm, 90-100°*F*
July 15, 2006	A. Van Dam	1305-1400	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1000-1100	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 19, 2006	A. Van Dam	1045-1120	clear, calm, 95°*F*
July 21, 2006	A. Van Dam	1054-1130	clear, winds 0-5 mph, 92°*F*
July 22, 2006	A. Van Dam	1000-1100	0-10% clouds, calm, 100-102°*F*
July 23, 2006	A. Van Dam	1045-1121	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 24, 2006	A. Van Dam	1000-1100	0-30% clouds, calm, 100°*F*
July 27, 2006	K. Osborne	1030-1130	clear, calm, 90°*F*
July 29, 2006	A. Van Dam and R. Rogers	1126-1156	clouds 40-90%, 85-90°*F*, winds 0-12 mph
July 29, 2006	K. Osborne	1252-1344	25% clouds, winds 0-5 mph, 87°*F*
August 1, 2006	A. Van Dam and R. Rogers	1220-1253	50% clouds, wind 0-2 mph, 85-90 °*F* for day
August 3, 2006	K. Osborne	1338-1420	clear, calm, 82-85°*F*
August 5, 2006	A. Van Dam	1157-1257	clear, calm, 87-95°*F*
August 7, 2006	A. Van Dam	1335-1400	clear, wind 0-2, 90-91°*F*
August 9, 2006	A. Van Dam and R. Rogers	1300-1320	clear, calm, 89-101°*F*
August 11, 2006	K. Osborne	1115-1210	clear, calm, 92-93°*F*
August 12, 2006	A. Van Dam	1000-1100	clear, wind 0-2 mph, 81-100°*F*
August 13, 2006	A. Van Dam	1130-1206	clear, calm, 87°*F*
August 14, 2006	A. Van Dam	1000-1100	clear, wind 0-2 mph, 87-95°*F*
August 17, 2006	K. Osborne	1115-1155	clear, calm, 85°*F*
August 19, 2006	A. Van Dam	1000-1100	clear, calm, 89-95°*F* for day
August 20, 2006	A. Van Dam	1047-1128	clear, calm, 85-103°*F* for day
August 21, 2006	A. Van Dam	1000-1100	clear, calm, 86-100°*F* for day
August 23, 2006	A. Van Dam	1000-1036	clear, wind 0-2, 95-100°*F* for day
August 26, 2006	A. Van Dam	1250-1350	clear, wind 0-2 mph, 87-98°*F* for day
August 27, 2006	A. Van Dam	1000-1036	clear, calm, 90-103°*F* for day

August 28, 2006	A. Van Dam	1230-1330	clear, calm, 98-100°*F*
August 31, 2006	K. Osborne	1100-1139	clear, calm, 94°*F*
September 2, 2006	A. Van Dam	1045-1145	clear, wind 0-2 mph, 100-104°*F* for day
September 3, 2006	A. Van Dam	1050-1126	clear, calm, 99-107°*F* for day
September 4, 2006	A. Van Dam	1000-1100	clear, calm, 96-107°*F* for day
September 7, 2006	K. Osborne	1047-1133	clear, calm, 87-90°*F*
September 10, 2006	K. Osborne	1029-1230	clear, calm, 82-85°*F*
September 14, 2006	A. Van Dam	1044-1230	overcast, calm, 80°*F*
September 16, 2006	R. Rogers	1220-1400	clear, wind 0-2 mph, 84-89°*F*
September 18, 2006	A. Van Dam	1229-1400	clear, calm, 97°*F*

Table 2. Area 2: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1102-1121	clear, calm, 97-105°*F* for day
July 2, 2006	M. Van Dam	1210-1332	clear, wind 0-2 mph, 101°*F*
July 4, 2006	K. Osborne	1046-1112	clear, calm, 89-90°*F*
July 4, 2006	M. Van Dam	1140-1300	clear, calm, 92°*F*
July 9, 2006	A. Van Dam	1226-1315	clear, wind 2-3 mph, 92-104°*F* for day
July 10, 2006	A. Van Dam	1115-1240	clear, wind 1-6, 94-104°*F* for day
July 15, 2006	A. Van Dam	1141-1300	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1107-1237	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 22, 2006	A. Van Dam	1106-1236	0-10% clouds, calm, 100-102°*F*
July 24, 2006	A. Van Dam	1105-1235	0-30% clouds, calm, 100°*F*
July 29, 2006	A. Van Dam and R. Rogers	1032-1112	clouds 40-90%, 85-90°*F*, winds 0-12 mph
August 1, 2006	A. Van Dam and R. Rogers	1123-1203	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 5, 2006	A. Van Dam	1105-1150	clear, calm, 87-95°*F*
August 7, 2006	A. Van Dam	1107-1152	overcast, calm, 80°*F*
August 12, 2006	A. Van Dam	1110-1155	clear, wind 0-2 mph, 100°*F*
August 12, 2006	K. Osborne	1148-1159	clear, calm, 87°*F*
August 14, 2006	A. Van Dam	1104-1149	clear, wind 0-2 mph, 95°*F*
August 19, 2006	A. Van Dam	1105-1150	clear, calm, 89-95°*F* for day
August 21, 2006	A. Van Dam	1105-1150	clear, calm, 86-100°*F* for day
August 26, 2006	A. Van Dam	1147-1232	clear, wind 0-2 mph, 87-98°*F* for day
August 28, 2006	A. Van Dam	1140-1225	clear, calm, 96-98°*F*

Table 3. Area 3: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1123-1126	clear, calm, 97-105°*F* for day
July 2, 2006	M. Van Dam	1334-1337	clear, wind 0-2 mph, 102°*F*
July 4, 2006	M. Van Dam	1130-1133	clear, calm, 90°*F*
July 9, 2006	A. Van Dam	1217-1224	clear, wind 2-3 mph, 92-104°*F* for day
July 10, 2006	A. Van Dam	1242-1248	clear, wind 1-6, 94-104°*F* for day
July 15, 2006	A. Van Dam	1136-1140	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1238-1242	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 22, 2006	A. Van Dam	1239-1244	0-10% clouds, calm, 100-102°*F*
July 24, 2006	A. Van Dam	1240-1245	0-30% clouds, calm, 100°*F*
July 29, 2006	A. Van Dam and R. Rogers	1114-1119	clouds 40-90%, 85-90°*F*, winds 0-12 mph
August 1, 2006	A. Van Dam and R. Rogers	1113-1116	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 5, 2006	A. Van Dam	1057-1102	clear, calm, 87-90°*F*
August 7, 2006	A. Van Dam	1159-1202	clear, wind 0-2, 90-91°*F*
August 12, 2006	A. Van Dam	1334-1339	clear, wind 0-2 mph, 100°*F*
August 14, 2006	A. Van Dam	1158-1203	clear, wind 0-2 mph, 95°*F*
August 19, 2006	A. Van Dam	1200-1205	clear, calm, 89-95°*F* for day
August 21, 2006	A. Van Dam	1155-1200	clear, calm, 86-100°*F* for day
August 26, 2006	A. Van Dam	1137-1144	clear, wind 0-2 mph, 87-98°*F* for day
August 28, 2006	A. Van Dam	1132-1137	clear, calm, 96°*F*
September 2, 2006	A. Van Dam	1150-1155	clear, wind 0-2 mph, 100-104°*F* for day
September 4, 2006	A. Van Dam	1108-1113	clear, calm, 96-107°*F* for day
September 11, 2006	A. Van Dam	1228-1233	clear, calm, 87-95°*F* for day
September 14, 2006	A. Van Dam	1234-1239	overcast, wind 0-2, 83°*F*
September 16, 2006	K. Osborne	1010-1018	clear, calm, 80°*F*
September 18, 2006	A. Van Dam	1219-1224	clear, calm, 97°*F*

Table 4. Area 4: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1129-1139	clear, calm, 97-105°*F* for day
July 2, 2006	M. Van Dam	1340-1400	clear, wind 0-2 mph, 103°*F*
July 4, 2006	M. Van Dam	1025-1045	clear, calm, 84°*F*
July 9, 2006	A. Van Dam	1151-1213	clear, wind 2-3 mph, 92-104°*F* for day
July 10, 2006	A. Van Dam	1250-1310	clear, wind 1-6, 94-104°*F* for day
July 15, 2006	A. Van Dam	1107-1127	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1248-1309	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 22, 2006	A. Van Dam	1247-1307	0-10% clouds, calm, 100-102°*F*
July 24, 2006	A. Van Dam	1247-1307	0-30% clouds, calm, 100°*F*
July 29, 2006	A. Van Dam and R. Rogers	1205-1216	clouds 40-90%, 85-90°*F*, winds 0-12 mph
August 1, 2006	A. Van Dam and R. Rogers	1051-1058	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 5, 2006	A. Van Dam	1035-1055	clear, calm, 87-90°*F*
August 7, 2006	A. Van Dam	1207-1227	clear, wind 0-2, 90-91°*F*
August 12, 2006	A. Van Dam	1244-1306	clear, wind 0-2 mph, 100°*F*
August 14, 2006	A. Van Dam	1209-1229	clear, wind 0-2 mph, 95°*F*
August 19, 2006	A. Van Dam	1208-1228	clear, calm, 89-95°*F* for day
August 21, 2006	A. Van Dam	1204-1224	clear, calm, 86-100°*F* for day
August 26, 2006	A. Van Dam	1113-1133	clear, wind 0-2 mph, 87-98°*F* for day
August 28, 2006	A. Van Dam	1108-1128	clear, calm, 90-96°*F*
September 2, 2006	A. Van Dam	1200-1220	clear, wind 0-2 mph, 100-104°*F* for day
September 4, 2006	A. Van Dam	1118-1138	clear, calm, 96-107°*F* for day
September 11, 2006	A. Van Dam	1200-1220	clear, calm, 87-95°*F* for day
September 13, 2006	A. Van Dam	1117-1137	clear, calm, 87-93°*F*
September 16, 2006	K. Osborne and R. Rogers	1157-1202	clear, winds 0-2 mph, 84°*F*
September 18, 2006	A. Van Dam	1110-1130	clear, calm, 97°*F*
September 20, 2006	K. Osborne	1213-1233	clear, calm, 86°*F*

Table 5. Area 5: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1147-1204	clear, calm, 97-105°*F* for day
July 4, 2006	M. Van Dam	1050-1120	clear, calm, 86°*F*
July 9, 2006	A. Van Dam	1108-1138	clear, wind 2-3 mph, 92-104°*F* for day
July 10, 2006	A. Van Dam	1312-1342	clear, wind 1-6, 94-104°*F* for day
July 15, 2006	A. Van Dam	1028-1058	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1312-1342	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 22, 2006	A. Van Dam	1310-1340	0-10% clouds, calm, 100-102°*F*
July 24, 2006	A. Van Dam	1312-1342	0-30% clouds, calm, 100°*F*
July 29, 2006	A. Van Dam and R. Rogers	1229-1244	clouds 40-90%, 85-90°*F*, winds 0-12 mph
August 1, 2006	A. Van Dam and R. Rogers	1036-1048	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 2, 2006	K. Osborne	1154-1230	partial clouds to clear, wind 0-5 mph, 82-85°*F*
August 5, 2006	K. Osborne	1134-1215	clear, calm, 86°*F*
August 7, 2006	A. Van Dam	1232-1302	clear, wind 0-2, 90-91°*F*
August 12, 2006	A. Van Dam	1202-1232	clear, wind 0-2 mph, 100°*F*
August 14, 2006	A. Van Dam	1236-1306	clear, wind 0-2 mph, 95°*F*
August 19, 2006	A. Van Dam	1230-1300	clear, calm, 89-95°*F* for day
August 21, 2006	A. Van Dam	1230-1300	clear, calm, 86-100°*F* for day
August 26, 2006	A. Van Dam	1027-1057	clear, wind 0-2 mph, 87-98°*F* for day
August 28, 2006	A. Van Dam	1028-1058	clear, calm, 90°*F*
September 2, 2006	A. Van Dam	1230-1300	clear, wind 0-2 mph, 100-104°*F* for day
September 4, 2006	A. Van Dam	1143-1217	clear, calm, 96-107°*F* for day
September 11, 2006	A. Van Dam	1126-1156	clear, calm, 87-95°*F* for day
September 14, 2006	A. Van Dam	1242-1313	overcast, wind 0-2, 83°*F*
September 16, 2006	K. Osborne and R. Rogers	1028-1050	clear, calm, 80°*F*
September 18, 2006	A. Van Dam	1140-1210	clear, calm, 97°*F*

Table 6. Area 6: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
1 July 2006	K. H. Osborne	1300 - 1330	93°*F*, calm
July 1, 2006	K. Osborne	1208-1258	clear, calm, 97-105°*F* for day
July 4, 2006	M. Van Dam	1000-1020	clear, wind 0-2 mph, 82°*F*
July 4, 2006	K. Osborne	1117-1205	clear, calm, 89-90°*F*
July 9, 2006	A. Van Dam	1032-1058	clear, wind 2-3 mph, 92-104°*F* for day
July 9, 2006	K. Osborne	1214-1256	clear, winds 0-5 mph, 105°*F*
July 10, 2006	A. Van Dam	1344-1400	clear, wind 1-6, 94-104°*F* for day
July 14, 2006	A. Van Dam	1000-1040	15% clouds, calm, 90-100°*F*
July 15, 2006	A. Van Dam	1000-1020	clear, wind 2-6, 95-108°*F*
July 17, 2006	A. Van Dam	1343-1400	20-80% clouds, wind 1-8 mph, 91-104°*F*
July 21, 2006	A. Van Dam	1000-1040	clear, winds 0-5 mph, 92°*F*
July 22, 2006	A. Van Dam	1341-1400	0-10% clouds, calm, 100-102°*F*
July 23, 2006	A. Van Dam	1000-1040	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 24, 2006	A. Van Dam	1345-1400	0-30% clouds, calm, 100°*F*
July 27, 2006	K. Osborne	1134-1222	clear, calm, 90°*F*
July 29, 2006	A. Van Dam and R. Rogers	1253-1327	clouds 40-90%, 85-90°*F*, winds 0-12 mph
August 1, 2006	A. Van Dam and R. Rogers	1016-1026	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 1, 2006	K. Osborne	1205-1245	clear, calm, 84°*F*
August 5, 2006	A. Van Dam	1010-1030	clear, calm, 75-79°*F*
August 6, 2006	A. Van Dam and R. Rogers	1340-1400	clear, wind 0-8, 95°*F*
August 7, 2006	A. Van Dam	1310-1330	clear, wind 0-2, 90-91°*F*
August 9, 2006	A. Van Dam and R. Rogers	1230-1250	clear, calm, 89-101°*F*
August 12, 2006	K. Osborne	1207-1255	clear, calm, 87°*F*
August 12, 2006	A. Van Dam	1312-1332	clear, wind 0-2 mph, 100°*F*
August 14, 2006	A. Van Dam	1319-1339	clear, wind 0-2 mph, 95°*F*
August 16, 2006	A. Van Dam and R. Rogers	1008-1048	clear, wind 0-2 mph, 84-94°*F*
August 19, 2006	A. Van Dam	1308-1328	clear, calm, 89-95°*F* for day
August 20, 2006	A. Van Dam	1000-1040	clear, calm, 85-103°*F* for day
August 21, 2006	A. Van Dam	1306-1326	clear, calm, 86-100°*F* for day
August 23, 2006	A. Van Dam	1045-1125	clear, wind 0-2, 95-100°*F* for day
August 26, 2006	A. Van Dam	1000-1020	clear, wind 0-2 mph, 87-98°*F* for day
August 27, 2006	A. Van Dam	1046-1126	clear, wind 0-2 mph, 90-103°*F* for day
August 28, 2006	A. Van Dam	1000-1020	clear, calm, 80-85°*F*
August 30, 2006	A. Van Dam	1000-1040	clear, calm, 89-100°*F*
September 2, 2006	A. Van Dam	1305-1325	clear, wind 0-2 mph, 100-104°*F* for day

September 3, 2006	A. Van Dam	1000-1040	clear, calm, 99-107°*F* for day
September 4, 2006	A. Van Dam	1225-1245	clear, calm, 96-107°*F* for day
September 7, 2006	K. Osborne	1138-1220	clear, calm, 90-93°*F*
September 8, 2006	K. Osborne	1116-1136	clear, wind 0-5 mph, 82°*F*
September 11, 2006	A. Van Dam	1015-1117	clear, calm, 87-95°*F* for day
September 13, 2006	A. Van Dam	1010-1030, 1036-1116	clear, calm, 87°*F*
September 16, 2006	K. Osborne	1102-1130	clear, calm, 80-84°*F*
September 16, 2006	R. Rogers	1102-1136	clear, calm, 80°*F*
September 16, 2006	K. Osborne and R. Rogers	1136-1150	clear, calm, 80-84°*F*
September 18, 2006	A. Van Dam	1000-1106	clear, calm, 85-95°*F*

Table 7. Area 8: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 2, 2006	K. Osborne	1215-1345	clear, calm, 96°*F*
July 4, 2006	K. Osborne	1220-1445	clear, calm, 89-90°*F*
July 10, 2006	K. Osborne	1301-1400	clear, wind 0-2 mph, 102°*F*
July 19, 2006	K. Osborne	1310-1400	clear, 0-2 mph, 100°*F*
July 23, 2006	A. Van Dam	1145-1245	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 27, 2006	K. Osborne	1240-1330	clear, calm, 90°*F*
July 29, 2006	B. Drake	1230-1330	90% clouds, wind 0-5 mph, 88-92°*F*
August 5, 2006	B. Drake	1230-1330	clear, wind 0-2 mph, 89-94°*F*
August 8, 2006	B. Drake	1030-1130	10% clouds, wind 0-4 mph, 83-90°*F*
August 10, 2006	B. Drake	1030-1130	65% clouds, wind 0-2 mph, 73-80°*F*
August 12, 2006	B. Drake	1230-1330	clear, calm, 92-98°*F*
August 14, 2006	K. Osborne	1130-1230	clear, calm, humid, 85-90°*F*
August 19, 2006	B. Drake	1230-1330	clear, calm. 86-91°*F*
August 22, 2006	B. Drake	1030-1130	10% clouds, winds 0-5 mph, 90-95°*F*
August 26, 2006	B. Drake	1230-1330	clear, winds 0-5 mph, 89-92°*F*
August 29, 2006	B. Drake	1030-1130	10% clouds, winds 0-4 mph, 89-98°*F*
September 2, 2006	B. Drake	1230-1330	20% clouds, wind 0-4 mph, 98-102°*F*
September 5, 2006	B. Drake	1030-1130	20% clouds, calm, 93-101°*F*
September 10, 2006	K. Osborne	1300-1400	clear, wind 0-5 mph, 85°*F*
September 11, 2006	K. Osborne	1204-1304	clear, winds 0-5 mph, 92°*F*
September 16, 2006	B. Drake	1230-1330	clear, winds 0-6 mph, gusts to 11, 87-89°*F*
September 19, 2006	K. Osborne	1230-1330	clear, winds 0-2 mph,, 91°*F*

Table 8. Area 9: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1340-1440	clear, calm, 97-105°*F* for day
July 3, 2006	M. Van Dam	1000-1400	clear to overcast, 2-10 mph, 87-94°*F*
July 3, 2006	K. Osborne	1118-1148	high overcast, calm, 98-102°*F*
July 5, 2006	M. Van Dam	1000-1400	clear, mostly calm (gusts to 10 mph), 81-99°*F*
July 6, 2006	M. Van Dam	1050-1100	clear, winds 0-5 mph, to 90°*F*
July 9, 2006	K. Osborne	1314-1324	clear, winds 0-5 mph, to 106°*F*
July 12, 2006	E. Shafhauser	1000-1400	clear, wind 0-3 mph, 86-101°*F*
July 12, 2006	A. Van Dam	1158-1208	clear, wind 2-4 mph, 97-105°*F*
July 14, 2006	E. Shafhauser	1000-1400	50% patchy clouds, wind 0-3 mph, 90-107°*F*
July 19, 2006	E. Shafhauser	1000-1400	40-50% high cirrus, wind 0-6 mph, 88-101°*F*
July 19, 2006	A. Van Dam	1150-1200	clear, calm, 95°*F*
July 21, 2006	E. Shafhauser	1000-1400	clear, 20% high cirrus, wind 0-4 mph, gusts to 9 mph, 87-106°*F*
July 23, 2006	A. Van Dam	1255-1305	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 24, 2006	E. Shafhauser	1000-1400	40% patchy clouds, wind 0-3 mph, 89-103°*F*
July 25, 2006	A. Van Dam	1000-1400	clear, 95-106°*F*, winds 3-10 mph
July 27, 2006	K. Osborne	1340-1400	clear, calm, 90°*F*
July 28, 2006	K. Osborne	1052-1134	clearing, calm,
July 28, 2006	K. Osborne	1052-1134	25% clouds, calm, 87°*F*
July 28, 2006	K. Osborne and R. Rogers	1134-1315	clear, calm, 84-90°*F*
July 28, 2006	K. Osborne and R. Rogers	1134-1316	25% clouds, calm, 87-90°*F*
July 28, 2006	R. Rogers	1316-1400	25% clouds, calm, 90°*F*
July 29, 2006	A. Van Dam and R. Rogers	1355-1400	clouds 40-90%, 85-90°*F*, winds 0-12 mph
July 30, 2006	A. Van Dam and R. Rogers	1054-1154	clouds 70-100%, 82-85°*F*, wind 2 mph
August 1, 2006	A. Van Dam and R. Rogers	1337-1342	50% clouds, wind 0-2 mph, 85-90°*F* for day
August 3, 2006	A. Van Dam and R. Rogers	1000-1100	overcast, calm, 73-79°*F*
August 4, 2006	K. Osborne	1045-1250	clear, calm, 88-96°*F*
August 6, 2006	A. Van Dam and R. Rogers	1000-1210	clear, wind 0-2 mph, 82-95°*F*
August 9, 2006	A. Van Dam and R. Rogers	1000-1200	clear, calm, 89-101°*F*
August 13, 2006	A. Van Dam	1030-1330	clear, calm, 82 °*F*

	and R. Rogers		
August 14, 2006	R. Rogers	1205-1215	clear, calm, 88 °*F*
August 16, 2006	R. Rogers	1015-1245	clear, wind 1-3, 84-94°*F*
August 16, 2006	A. Van Dam and R. Rogers	1108-1245	clear, wind 2-4 mph, 94°*F*
August 20, 2006	R. Rogers	1030-1040	clear, calm, 85°*F*
August 20, 2006	A. Van Dam and R. Rogers	1145-1345	clear, wind 2-3 mph, 103°*F*
August 20, 2006	A. Van Dam and R. Rogers	1145-1345	clear, calm, 85-103°*F* for day
August 23, 2006	R. Rogers	1045-1055	clear, calm, 100°*F*
August 23, 2006	A. Van Dam and R. Rogers	1100-1300	clear, calm, 100°*F*
August 23, 2006	A. Van Dam and R. Rogers	1145-1315	clear, wind 0-2, 95-100°*F* for day
August 27, 2006	R. Rogers	1115-1330	clear, wind 1-2 mph, 103°*F*
August 27, 2006	A. Van Dam and R. Rogers	1143-1330	clear, wind 1-2 mph, 103°*F*
August 27, 2006	R. Rogers	1330-1350	clear, wind 1-2 mph, 103°*F*
August 30, 2006	R. Rogers	1120-1335	clear, wind 0-2 mph, 100-105°*F*
August 30, 2006	A. Van Dam	1135-1335	clear, wind 1-2 mph, 105°*F*
September 2, 2006	R. Rogers	1320-1330	clear, wind 1-2 mph, 102°*F*
September 3, 2006	A. Van Dam and R. Rogers	1000-1255	5% patchy clouds, calm, 99-107°*F*
September 3, 2006	A. Van Dam and R. Rogers	1145-1255	clear, calm, 99-107°*F* for day
September 4, 2006	R. Rogers	1250-1300	clear to patchy clouds, calm, 100°*F*
September 6, 2006	A. Van Dam and R. Rogers	1015-1215	clear, winds 0-2, 94-100°*F*
September 6, 2006	A. Van Dam and R. Rogers	1030-1230	clear, calm, 100-108°*F*
September 10, 2006	R. Rogers	1000-1400	clear, wind 0-2, 84-92°*F*
September 11, 2006	R. Rogers	1225-1235	clear, wind 2-3 mph, 92 °*F*
September 12, 2006	R. Rogers	1000-1400	clear, calm, 92-101°*F*
September 14, 2006	R. Rogers	1215-1225	overcast, calm, 81°*F*
September 17, 2006	R. Rogers	1110-1120	clear, wind 0-7, 88-95°*F* for day
September 17, 2006	A. Van Dam	1000-1400	clear, winds 0-3, later 5-10 mph, 88-99°*F*
September 19, 2006	R. Rogers	1000-1400	clear, winds 0-2, 85-92°*F*
September 20, 2006	R. Rogers	1045-1055	clear, winds 0-4, 89 to 90°*F*

Table 9. Area 10: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 1, 2006	K. Osborne	1314-1334	clear, calm, 97-105°*F* for day
July 5, 2006	N. Moorhatch and M. Wilcox	1000-1400	clear-hazy, winds 0-3, 78-87°*F*
July 7, 2006	N. Moorhatch and M. Wilcox	1000-1130	clear, winds 0-2 mph, 86-88°*F*
July 9, 2006	A. Van Dam	1000-1400	clear, wind 0-5, 94-105°*F*
July 11, 2006	E. Shafhauser	1000-1400	clear, wind 1-3 mph, 87-101°*F*
July 11, 2006	A. Van Dam	1000-1400	clear, calm, 93-102°*F*
July 13, 2006	E. Shafhauser	1000-1400	clear, wind 0-5 mph, 83-103°*F*
July 16, 2006	A. Van Dam	1000-1400	30-40% clouds, wind 0-2 mph, 92+°*F*
July 18, 2006	A. Van Dam	1000-1400	clear, wind 1-10, 94-98°*F*
July 20, 2006	E. Shafhauser	1000-1400	clear, winds 0-5 mph, 82-96°*F*
July 21, 2006	B. Drake	1030-1200	20-30% clouds, winds 0-2, gusts to 6 mph, 91-99°*F*
July 22, 2006	E. Shafhauser	1000-1400	40% patchy cumulonimbus, wind 0-3 mph, 96-111°*F*
July 23, 2006	E. Shafhauser	1000-1400	overcast to 80% patchy, wind 0-5 mph, 87-111°*F*
July 26, 2006	A. Van Dam	1000-1400	80% marine layer to 1130, then clear, 97-102°*F*, winds 2-5 mph
July 27, 2006	A. Van Dam	1000-1400	clear, 91-100°*F*, winds 0-8 mph
August 2, 2006	A. Van Dam and R. Rogers	1000-1400	hazy, clearing, wind 0-4 mph, 91-96°*F*
August 4, 2006	A. Van Dam and R. Rogers	1000-1400	clear, wind 0-3 mph, 92-95°*F*
August 4, 2006	K. Osborne	1020-1040	10% clouds, clearing, calm, 85°*F*
August 6, 2006	A. Van Dam and R. Rogers	1230-1320	clear, wind 0-8, 95°*F*
August 8, 2006	A. Van Dam and R. Rogers	1000-1310	clear, calm, 92-103°*F*
August 10, 2006	A. Van Dam and R. Rogers	1000-1400	clear, wind 0-4 mph, 96-100°*F*
August 13, 2006	A. Van Dam and R. Rogers	1335-1400	clear, calm, 93°*F*
August 15, 2006	A. Van Dam and R. Rogers	1000-1335	50% overcast, clearing, calm, 90-93°*F*
August 17, 2006	A. Van Dam and R. Rogers	1000-1400	clear, calm, 94-98°*F*
August 22, 2006	A. Van Dam and R. Rogers	1000-1400	clear, calm, 101-103°*F*
August 24, 2006	A. Van Dam and R. Rogers	1000-1400	clear, wind 0-2, 94-100°*F*
August 29, 2006	A. Van Dam	1000-1400	clear, calm, 94-104°*F*

	and R. Rogers		
August 31, 2006	A. Van Dam and R. Rogers	1000-1400	clear, wind 0-2 mph, 90-99°*F*
September 3, 2006	A. Van Dam	1300-1400	clear, calm, 99-107°*F* for day
September 3, 2006	R. Rogers	1300-1400	5% patchy clouds, calm, 107°*F*
September 4, 2006	R. Rogers	1125-1155	clear, calm, 90-100°*F*
September 5, 2006	A. Van Dam and R. Rogers	1000-1400	clear, calm, 102-103°*F*
September 7, 2006	A. Van Dam and R. Rogers	1000-1200	clear, calm, 94-96°*F*
September 8, 2006	A. Van Dam and R. Rogers	1000-1200	clear, calm, 93-94°*F*
September 13, 2006	K. Osborne and A. Van Dam	1210-1408	clear, wind 2 mph, 93°*F*
September 17, 2006	R. Rogers	1130-1330	clear, wind 0-7, 88-95°*F* for day
September 18, 2006	R. Rogers	1000-1400	clear, wind 0-3 mph, 87-96°*F*
September 19, 2006	B. Drake	1300-1400	clear, winds 0-6 mph, 90-94°*F*
September 20, 2006	R. Rogers	1130-1400	clear, winds 0-4, 89 to 90°*F*

Table 10. Area 11: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 3, 2006	K. Osborne	1319-1345	high overcast, calm, 105°*F*
July 6, 2006	M. Van Dam	1000-1020	clear, winds 0-5 mph, 81°*F*
July 8, 2006	K. Osborne	1200-1220	clear, calm, 100°*F*
July 12, 2006	A. Van Dam	1318-1338	clear, wind 2-4 mph, 97-105°*F*
July 19, 2006	A. Van Dam	1311-1331	clear, calm, 95°*F*
July 23, 2006	A. Van Dam	1345-1400	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 28, 2006	K. Osborne and R. Rogers	1022-1032	50% clouds, calm, 84°*F*
July 30, 2006	A. Van Dam and R. Rogers	1000-1010	clouds 70-100%, 79-82°*F*, wind 2 mph
August 3, 2006	A. Van Dam and R. Rogers	1240-1250	overcast, calm, 79°*F*
August 5, 2006	R. Rogers	1245-1305	clear, calm, 85°*F*
August 7, 2006	R. Rogers	1330-1350	clear, calm, 88-89°*F*
August 14, 2006	R. Rogers	1015-1035	clear, wind 1-2, 87°*F*
August 19, 2006	R. Rogers	1250-1310	clear, wind 3-4 mph, 90-95°*F*
August 21, 2006	R. Rogers	1255-1315	clear, calm, 96-97°*F*
August 26, 2006	R. Rogers	1250-1315	clear, wind 0-3 mph, 95°*F*
August 28, 2006	R. Rogers	1250-1310	clear, calm, 98-100°*F*
September 2, 2006	R. Rogers	1200-1220	clear, wind 1-2 mph, 100°*F*
September 4, 2006	R. Rogers	1100-1120	clear, calm, 90°*F*

September 11, 2006	R. Rogers	1115-1135	clear, wind 2-3 mph, 90°*F*
September 14, 2006	R. Rogers	1100-1120	overcast, wind 0-3, 80-81°*F*
September 17, 2006	R. Rogers	1000-1020	clear, wind 8-10, 88°*F*
September 20, 2006	R. Rogers	1100-1120	clear, winds 0-4, 89 to 90°*F*

Table 11. Area 12: Dates, personnel, times and conditions for DSF survey work.

Date	Biologists	Hours	Weather Conditions
July 3, 2006	K. Osborne	1217-1242	high overcast, calm, 103°*F*
July 6, 2006	M. Van Dam	1105-1150	clear, winds 0-5 mph, to 93°*F*
July 9, 2006	K. Osborne	1324-1400	clear, winds 0-5 mph, to 106°*F*
July 12, 2006	A. Van Dam	1218-1240	clear, wind 2-4 mph, 97-105°*F*
July 19, 2006	A. Van Dam	1220-1305	clear, calm, 95°*F*
July 23, 2006	A. Van Dam	1310-1340	clouds 50-100%, wind 2-8 mph, 92-97°*F*
July 28, 2006	R. Rogers	1049-1134	25% clouds, calm, 87-90°*F*
July 28, 2006	R. Rogers	1049-1134	25% clouds, calm, 87°*F*
July 30, 2006	A. Van Dam and R. Rogers	1025-1047	clouds 70-100%, 82-85°*F*, wind 2 mph
August 3, 2006	A. Van Dam and R. Rogers	1205-1228	overcast, calm, 73-79°*F*
August 5, 2006	R. Rogers	1310-1400	clear, calm, 97 °*F*
August 8, 2006	A. Van Dam and R. Rogers	1325-1346	clear, calm, 92-103°*F*
August 14, 2006	R. Rogers	1040-1205	clear, calm, 88 °*F*
August 20, 2006	R. Rogers	1040-1125	clear, wind 2-3 mph, 103°*F*
August 23, 2006	R. Rogers	1000-1045	clear, calm, 98°*F*
August 27, 2006	R. Rogers	1030-1115	clear, calm, 92°*F*
August 30, 2006	R. Rogers	1035-1120	clear, calm, 90-105°*F*
September 2, 2006	R. Rogers	1230-1320	clear, wind 1-2 mph, 100-102°*F*
September 4, 2006	R. Rogers	1200-1245	clear, calm, 90-100°*F*
September 11, 2006	R. Rogers	1140-1225	clear, wind 2-3 mph, 90-92°*F*
September 14, 2006	R. Rogers	1125-1210	overcast, wind 0-3, 80-81°*F*
September 17, 2006	R. Rogers	1025-1110	clear, wind 0-7, 88-95°*F* for day
September 20, 2006	R. Rogers	1000-1045	clear, winds 0-4, 89 to 90°*F*

Table 12. Plant species encountered on the survey areas (2006)

Family/common name	Species	Area	1	2	3	4	5	6	7	8	9	10	11	12
ADOXACEAE														
Mexican elderberry	*Sambucus mexicana*		x	x				x						
AMERANTHACEAE														
white tumbleweed	*Amaranthus albus*		x	x	x			x		x	x	x	x	x
ANACARDIACEAE														
Peruvian Peppertree	*Schinus molle*		x	x				x						
ARECACEAE														
fan palm	*Washingtonia*							x			x			
ASTERACEAE														
Annual bur-weed	*Ambrosia acanthicarpa*		x	x	x	x	x	x		x	x		x	x
California sage	*Artemisia californica*					x		x		x				
tarragon	*Artemisia dracunculus*									x				
mule fat	*Baccharis salicifolia*				x			x		x	x		x	
Tocalote	*Centaurea melitensis*					x	x	x						x
common pineapple weed	*Chamomilla suaveolens*							x						
bull thistle	*Ciricium vulgare*		x						x					
flax-leaved horseweed	*Conyza bonariensis*		x				x	x					x	x
brittlebush	*Encelia farinosa*		x		x	x	x	x						
sunflower	*Helianthus annua*		x	x	x	x	x	x		x	x	x	x	x
telegraphweed	*Heterotheca grandiflora*		x	x		x	x	x		x			x	x
prickly lettuce	*Lactuca serriola*							x				x		x
cudweed aster	*Lessingia filaginifolia*									x				
common sow-thistle	*Sonchus oleraceus*							x				x	x	
	Verbesina encelioides							x		x	x	x	x	x
BORAGINACEAE														
ranchers fiddleneck	*Amsinkia menziesii*		x				x	x						
heliotrope	*Heliotropium crassavicum*									x	x			
BRASSICACEAE														
shortpod mustard	*Hirschfeldia incana*		x		x	x	x	x			x		x	x
London rocket	*Sisymbrium irio*		x								x	x	x	x
wild radish	*Raphanus sativus*						x							
CACTACEAE														
prickly pear	*Opuntia littoralis*		x					x						
valley cholla	*Opuntia parryi*		x					x						
CHENOPODIACEAE														
Saltbush	*Atriplex canescens*							x						
pitseed goosefoot	*Chenopodium berlandieri*											x		
Kochia	*Kochia scoparia*										x	x		x
russion thistle	*Salsola tragus*		x								x	x	x	x
CUSCUTACEAE														
Dove weed	*Eremocarpus setigerus*		x											
EUPHORBIACEAE														
California croton	*Croton californicus*		x			x	x			x				
castor-bean	*Ricinus communis*		x		x	x	x							
FABACEAE														
Palo verde	*Cercidium floridum*									x				
deer weed	*Lotus scoparius*		x											

mesquite	*Prosopis glandulosa*	x									
GERANIACEAE											
red-stem filaree	*Erodium cicutarium*	x		x	x			x		x	x
GROSSULARIACEAE											
hillside gooseberry	*Ribes californicum*										
HYDROPHYLLACEAE											
common phacelia	*Phacelia distans*						x				
LAMINACEAE											
Horehound	*Marubium vulgare*	x									
black sage	*Salvia mellifera*			x							
MYRTACEAE											
Eucalyptus	*Eucalyptus*	x	x		x	x		x	x		
ONAGRACEAE											
California sun cup	*Camissonia bistorta*	x									
PINACEAE											
Pine	*Pinus*					x					
POLYGONACEAE											
slender buchwheat	*Eriogonum gracile*	x									
Cal buckwheat	*Eriogonum fasciculatum*	x		x		x		x			
curly dock	*Rumex crispus*							x			
SALICACEAE											
cottonwood	*Populus femontii*						x	x			
Black willow	*Salix gooddingii*						x	x	x		
arroyo willow	*Salix lasiolepis*						x	x	x		
sandbar willow	*Salix exigua*						x				
SIMAROUBACEAE											
tree of heaven	*Ailanthus altissima*					x			x		x	
SOLANACEAE											
Jimson weed	*Datura wrightii*	x							x			x
tree tobacco	*Nicotiana glauca*	x		x	x	x			x		x	
TAMARICACEAE											
Mediterranean tamarisk	*Tamarix ramosissima*	x					x	x	x			
VITACEAE											
Grape	*Vitis vinifera*						x	x				
ZYGOPHYLLACEAE											
Puncture vine	*Tribulus terrestris*	x										x
POACEAE											
Giant cane	*Arundo donax*						x	x			
slender oat	*Avena barbata*		x			x						x
ripgut	*Bromus diandrus*	x	x			x			x	x		x
Foxtail chess/red brome	*Bromus madritensis*	x		x	x	x			x			x
Bermuda grass	*Cynodon dactylon*	x				x				x	x	
Schismus	*Schismus barbatus*	x		x		x			x			x
TYPHACEAE											
cat-tail	*Typha*						x					

Table 13. Insects encountered on the survey areas (2006).

Diptera

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Mydidae (DSF)	*Rhaphiomidas terminatus*		x	x									
Mydidae	*Nemomydas pantherinus*		x					x		x			
Apioceridae	*Apiocera convergens*		x										
Apioceridae	*Apiocera crysolasia*		x			x		x					
Asilidae	*Efferia albibarbis*		x	x				x	x	x	x	x	x
Asilidae	*Mallophora fautrix*		x					x	x	x			
Asilidae	*Promachus aldrichii*		x	x		x		x					
Asilidae	*Saropogon luteus*					x		x		x	x		
Asilidae	*Stenopogon brevisculus*		x					x	x	x	x	x	x
Asilidae	*Stenopogon rufibarbis*		x										
Bombyliidae	*Exoprosopa butleri*		x			x	x						
Bombyliidae	*Exoprosopa divisa*					x	x	x					
Bombyliidae	*Neodiplocampta mira*									x			
Bombyliidae	*Neodiplocampta mira*					x							
Bombyliidae	*Poecilanthrax arethusa*								x				
Bombyliidae	*Poecilognathus*							x					
Bombyliidae	*Thyridanthrax atrata*		x	x		x	x	x	x	x	x	x	x
Bombyliidae	*Thyridanthrax nugator*					x		x					
Bombyliidae	*Toxophora pellucida*		x										
Bombyliidae	*Villa lateralis*		x							x			
Bombyliidae	*Villa miscella*					x							
Bombyliidae	*Villa moliter*		x	x		x	x	x	x	x	x	x	x
Calliphoridae	*Phaenicia sericata*		x						x	x			
Conopidae	*Physocephala texana*					x		x	x	x			
Dolichopodidae	*Condylostylus pilicornis*							x	x	x			
Muscidae	*Musca domestica*		x	x	x	x	x	x	x	x	x	x	x
Sarcophagidae	*Sarcophaga sp*		x						x	x			
Syrphidae	*Eristalis tenax*								x	x			
Syrphidae	*Eristlis aenea*								x				x
Syrphidae	*Eupeodes volucris*					x							
Syrphidae	*Syritta pipiens*								x				
Syrphidae	*Volucella mexicana*							x	x	x			
Tabanidae	*Tabanus punctifer*		x						x	x		x	
Tachinidae	*Archytas apicifer*									x			
Tachinidae	*Gymnosoma fuliginosum*					x		x		x			
Tachinidae	*Peleteria ?*									x			
Therividae	*Thereva semitaria*		x										

Hymenoptera

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Anthophoridae	*Anthophora urbana*								x				x
Anthophoridae	*Diadasia*					x							
Anthophoridae	*Melissodes*							x	x				
Anthophoridae	*Nomada*			x		x							

Andrenidae	*Nomadopsis*								x			
Apidae	*Apis mellifera*	x	x	x	x	x	x	x	x	x	x	x
Formicidae	*Iridomyrmex humilis*	x						x		x		x
Formicidae	*Liometopum*							x				
Formicidae	*Pogonomyrmex californicus*	x	x	x	x	x	x	x	x	x	x	x
Halictidae	*Agapostemon*	x			x	x		x	x	x	x	x
Megachilidae	*Megachile*							x				x
Mutilidae	*Dasymutilla californica*	x						x	x	x		
Mutilidae	*Dasymutilla coccineohirta*							x				
Mutilidae	*Dasymutilla sackeni*							x				
Pompilidae	*Ageniella*				x							
Pompilidae	*Pepsis chrysothemis*				x		x	x	x	x	x	
Pompilidae	*Pepsis thysbe*							x				
Pompilidae	*unidentified*				x				x			
Scoliidae	*Campsomeris tolteca*				x			x				
Scoliidae	*Trielis alcione*				x							
Sphecidae	*Ammophila*		x									
Sphecidae	*Ammophila aberti*	x			x		x	x	x	x	x	x
Sphecidae	*Ammophila azteca*				x		x		x	x		
Sphecidae	*Bembis melanaspsis*				x				x	x	x	x
Sphecidae	*Bembix americana*	x	x		x	x	x	x	x	x	x	x
Sphecidae	*Bembix melenopsis*		x									
Sphecidae	*Bicyrtes ventralis*				x			x				
Sphecidae	*cerceris*							x				
Sphecidae	*Cerceris*								x			
Sphecidae	*Cerceris femorrumbrum*				x		x					
Sphecidae	*Cerceris femurrubrum*							x	x			x
Sphecidae	*Cerceris sextoides*						x					
Sphecidae	*Chlorion aerarium*	x			x			x	x	x		x
Sphecidae	*Hapalomellinus*				x				x			
Sphecidae	*Hoplisoides diversus*				x				x			
Sphecidae	*Liris*				x							
Sphecidae	*Philanthus multimaculatus*	x	x		x	x	x	x	x	x	x	
Sphecidae	*Philanthus ventilabris*		x									
Sphecidae	*Prionyx foxi*	x	x		x		x	x	x	x	x	x
Sphecidae	*Prionyx thomae*	x						x			x	x
Sphecidae	*Scellphron caementarium*	x			x	x	x	x	x	x	x	x
Sphecidae	*Tachysphex*				x							
Sphecidae	*Tachysphex*						x					
Sphecidae	*Tachysphex*						x					
Sphecidae	*Tachysphex*											x
Sphecidae	*Taschytes elongatus*	x			x		x	x	x	x		
Sphecidae	*unidentified*							x	x	x	x	
Sphecidae	*unidentified*							x				
Tiphiidae	*Myzinum maculatum*				x		x					
Vespidae	*Eumenes bollii*							x				
Vespidae	*Eumenes crucifera*				x							
Vespidae	*Euodynerus annulatum*				x			x	x	x		
Vespidae	*Polistes apachus*	x			x		x	x	x	x	x	x
Vespidae	*Polistes dorsalis*							x				

Vespidae	*Polistes exclamens*			x			x				
Vespidae	*Polistes fuscatus*						x	x	x		
Vespidae	*Xylocopa veripuncta*			x			x				x
Andrenidae	*Nomadopsis*							x			

Neuroptera

Family	**Species**	**Area**	1	2	3	4	5	6	8	9	10	11	12
Mymerliontidae			x	x	x	x	x	x	x	x	x	x	x

Coleoptera

Family	**Species**	**Area**	1	2	3	4	5	6	8	9	10	11	12
Chrysomelidae	*Diabrotica balteata*								x				
Chrysomelidae	*Diabrotica unedecimpunctata*							x					
Chrysomelidae	*Lema trilineata*								x				
Coccinellidae	*Hippodamia convergens*								x				
Meloidae	*Nemognatha lurida apicalis*									x			
Scarabaeidae	*Cotinus texana*		x	x	x	x	x	x	x	x	x	x	x
Scarabaeidae	*Polyphylla decimlineata*									x			
Tenebrionidae	*Elodes gracilis*		x					x					

Lepidoptera

Family	**Species**	**Area**	1	2	3	4	5	6	8	9	10	11	12
Danaidae	*Danaus gillipus*								x				
Danaidae	*Danaus plexippus*								x				
Hesperiidae	*Hylephila phyleus*		x	x		x	x	x	x	x		x	x
Hesperiidae	*Lerodia eufala*										x		
Hesperiidae	*Pyrgus albescens*							x	x		x		x
Lycaenidae	*Atlides halesus*								x				
Lycaenidae	*Brephidium exilis*							x	x	x			
Lycaenidae	*Leptotes marina*								x				
Lycaenidae	*Plebejus acmon*								x				
Lycaenidae	*Strymon melinus*		x			x		x	x				
Noctuidae	*Schinia sexplagiata*		x										
Nymphalidae	*Agraulis vanillae*		x					x	x				x
Nymphalidae	*Junonia coenia*						x		x	x	x		x
Nymphalidae	*Limenitis lorquini*								x				
Nymphalidae	*Nymphalis antiopa*								x				
Nymphalidae	*Vanessa cardui*							x	x				
Papilionidae	*Papilio cresphontes*		x					x					
Papilionidae	*Papilio rutulus*								x				
Pieridae	*Colias eurytheme*							x	x				
Pieridae	*Pieris rapae*		x					x	x				x
Pieridae	*Pontia protodice*		x	x	x	x	x	x	x	x	x	x	x

Heteroptera

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Lygaeidae	*Lygaeus kalmii*					x		x	x				
Nabidae	*Nabis*							x	x	x		x	x
Pentatomidae	*Chlorochroa uhleri*		x			x			x	x	x	x	x
Rhopalidae	*Arhyssus*								x				

Orthoptera

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Acrididae	*Derotmema saussuraenum*		x	x			x	x					
Acrididae	*Melanoplus*		x			x		x	x				
Acrididae	*Melanoplus*						x						
Acrididae	*Melanoplus yarrowii*								x				
Acrididae	*Psoloessa thamnogaea*							x					
Acrididae	*Schistocerca*								x				
Acrididae	*Schistocerca nitens*		x			x		x	x				
Acrididae	*Trimerotropis californica*		x	x		x	x	x	x	x		x	x
Acrididae	*Trimerotropis fontana*					x		x	x				
Acrididae	*Trimerotropis pallidipennis*		x	x	x	x	x	x	x	x	x	x	x
Acrididae									x				
Gryllidae	*Oecanthus*								x				
Tettigoniidae	*Microcentrum rhombifolium*							x					

Mantodea

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Mantidae	*Iris oratoria*		x			x	x	x	x	x	x		x

Odonata

Family	Species	Area	1	2	3	4	5	6	8	9	10	11	12
Aeshnidae	*Aeshna multicolor*		x	x			x		x	x	x		x
Aeshnidae	*Anax junius*		x	x			x		x	x	x	x	x
Calopterygidae	*Hetaerina americana*								x				
Coenagrionidae	*Argia*		x						x				
Libellulidae	*Brechmorhoga mendax*		x			x			x				
Libellulidae	*Libellula croceipennis*								x				
Libellulidae	*Libellula saturata*								x	x			
Libellulidae	*Pantala flavescens*		x	x	x	x	x	x	x	x	x	x	x
Libellulidae	*Pantala hymenaea*		x				x	x	x	x	x		
Libellulidae	*Perithemis intensa*								x				
Libellulidae	*Sympetrum corruptum*		x	x	x		x	x	x	x	x		x
Libellulidae	*Sympetrum illotum*												

Libellulidae	*Tramea lacerata*	x			x	x	x	x	x
Libellulidae	*Tramea onusta*	x	x		x	x	x	x	x

Appendix D: Field Notes

Appendix E: Notification Letters to the U. S. Fish and Wildlife Service

Osborne Biological Consulting
6675 Avenue Juan Diaz
Riverside, CA 92509

July 23, 2007

Attn: H. Ceri Williams-Dodd, Ph.D.
Senior Project Biologist
TRC Companies, Inc.
21 Technology Drive
Irvine, CA 92618

DSF documentation on the Riverside Transmission Reliability Project

To Whom It May Concern:

It is my understanding that Power Engineers, proponent for the Riverside Transmission Reliability Project, has requested some additional comments following the report "FIRST YEAR FOCUSED SURVEY FOR DELHI SANDS FLOWER-LOVING FLY ON THE RIVERSIDE PUBLIC UTILITIES, RIVERSIDE TRANSMISSION RELIABILITY PROJECT, RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA" that I prepared last summer. Below, I will take each of the comments in turn, providing my response as it relates to the year 2006 survey report for Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*, DSF). It should be understood that this report was submitted to the USFWS in its final draft within forty five days after the end of the season survey - pursuant to permit conditions.

Comment: "*This report does not reference the CNDDB. It would be helpful to have information on previously reported locations and the proximity to the project limits. This will be important for yard selection and cumulative impacts. Can this be included?*"

It is incumbent on all consulting biologists, as a condition of the USFWS 10(a) permits under which surveys for DSF are undertaken, that all DSF observations must be reported to the USFWS, Carlsbad office within 24 hours of the observation. All known DSF records are accordingly held by the USFWS. Collection records made prior to DSF listing reside primarily within the U.C. Riverside Museum of Entomology, and within the private collection of Mr. Rick Rogers. Observations made after listing reside with the USFWS. I am very familiar with these records. A large proportion of the records are from my observations. The CNDDB on the other hand, relies on biologists (the same as those 10(A) permitted by USFWS) to fill out the non-required forms to report observations (rarely done). Most CNDDB listings are derived secondarily from citations in reports made for DSF surveys. In short, the CNDDB records are woefully incomplete and misleading.

DSF are known from areas beginning immediately north and west of survey area 1 (see report), continuing on areas to the northwest along Riverside Avenue. A very large DSF

population occurs beginning approximately 3000 feet to the northeast of the Agua Mansa Cemetery, continuing as one of the largest remaining DSF population complexes all the way up to the north up to Hwy 10. Survey area 2 was determined occupied by DSF as a result of the surveys and DSF are known from the Agua Mansa industrial center area.

No DSF is known from the vicinity of survey areas 5, 6, 7, or 8. Relative to survey areas 9 through 13, the nearest DSF observation occurred as a single male on the north side of Hwy 60, near the Etiwanda channel, about a mile north of Survey Area 11. To my knowledge, no DSF have been recorded south of Hwy 60.

Comment: *"We need to include discussion of the Riverside MSHCP and any other HCP areas affected by the project for DSFLF. Does the project cross any conservation lands? If so what zone or quadrangles?"*

Survey area 1 is in San Bernardino County. All other survey areas (2 through 13 occur in Riverside County). Survey areas 2, 3, and 4 appear to fall within Criteria cell 55. There are conservation objectives within this cell specific to the DSF and survey area 2 will be likely subject to conservation following MSHCP objectives. USGS topographic quadrangles for these survey areas are identified in the DSF survey report. Survey area 8 appears to occur within criteria cell number 621 (which will not have associated DSF issues). Survey areas 9 through 13, in the Mira Loma area, do not fall within criteria cells or areas identified for MSHCP conservation.

Comment: *"Also, report uses first person pronoun a couple of times but it is not clear who "I" is. Please revise to all third person or named biologists."*

Throughout the report, the first person pronoun "I" refers to Ken H. Osborne.

Sincerely,

Ken H. Osborne