

**SOUTHERN CALIFORNIA EDISON  
TEHACHAPI RENEWABLE TRANSMISSION  
PROJECT COMPONENT**

**FINAL HABITAT MITIGATION AND MONITORING  
PLAN**

**SEGMENT 9 VINCENT AND WHIRLWIND  
SUBSTATIONS  
MITIGATION MEASURE B-1A**

**VERSION 2.0**

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# Contents

List of Tables .....	ii
List of Acronyms and Abbreviations .....	iv

	<b>Page</b>
<b>Chapter 1 Introduction .....</b>	<b>1-1</b>
1.1 Project Background .....	1-3
1.1.1 Project Component Location .....	1-4
1.1.2 Segment 9 Component of the TRTP .....	1-5
1.1.3 Project Activities .....	1-5
<b>Chapter 2 Existing Conditions .....</b>	<b>2-1</b>
2.1 Topography .....	2-1
2.2 Land Use .....	2-1
2.3 Soil Series .....	2-1
2.3.1 Hanford .....	2-2
2.3.2 Hesperia .....	2-2
2.3.3 Terrace Escarpments .....	2-2
2.4 Hydrology .....	2-2
2.4.1 Antelope .....	2-2
2.4.2 Santa Clara-Calleguas .....	2-3
2.5 Biological Resources .....	2-3
2.5.1 Listed Special-Status Species .....	2-3
2.5.2 Native Trees .....	2-6
2.5.3 Vegetation Communities .....	2-6
<b>Chapter 3 Mitigation for Impacts to Special-Status/Listed Species .....</b>	<b>3-1</b>
3.1 Anticipated Impacts and Mitigation Required .....	3-1
3.1.1 Plant Species .....	3-1
3.1.2 Wildlife Species .....	3-2
3.2 Avoidance and Minimization Measures .....	3-3
3.2.1 Applicant-Proposed Measures .....	3-3
3.2.2 Mitigation Measures from the FEIR and FEIS .....	3-3
3.2.3 Onsite Mitigation .....	3-4
3.2.4 Offsite Mitigation Site Description .....	3-4
<b>Chapter 4 Mitigation for Impacts to Regulated Trees .....</b>	<b>4-1</b>

Anticipated Impacts and Mitigation Required .....	4-1
4.1.1 Affected Tree Species .....	4-1
4.1.2 Mitigation Requirements .....	4-1
4.2 Avoidance and Minimization Measures .....	4-2
<b>Chapter 5 Mitigation for Impacts to Vegetation Communities .....</b>	<b>5-1</b>
5.1 Anticipated Impacts and Mitigation Requirements.....	5-1
5.1.1 Onsite Mitigation .....	5-3
5.1.2 Offsite Mitigation.....	5-4
<b>Chapter 6 Mitigation for Impacts to Jurisdictional Areas.....</b>	<b>6-1</b>
6.1 Anticipated Impacts to USACE, SWRCB, and CDFW Jurisdictional Areas and the Mitigation Required.....	6-1
6.1.1 Onsite Mitigation .....	6-2
6.1.2 Off Site Mitigation.....	6-3
<b>Chapter 7 Responsible Parties .....</b>	<b>7-1</b>
7.1 Southern California Edison .....	7-1
7.1.1 California Public Utilities Commission .....	7-1
7.1.2 Regulatory Agencies .....	7-1
<b>Chapter 8 Preservation and Management of Compensatory Mitigation Sites .....</b>	<b>8-1</b>
8.1 Overview of Compensatory Mitigation Sites .....	8-1
8.2 Management Responsibilities.....	8-1
8.3 Management Goals.....	8-1
8.4 Management Constraints .....	8-2
8.5 Management Activities and Costs .....	8-2
8.6 Reporting Measures.....	8-2
8.7 Public Use.....	8-2
8.8 Regulatory Agreements .....	8-2
<b>Chapter 9 References .....</b>	<b>9-1</b>

**Attachment A Figures**

- 1 Regional Vicinity
- 2 Project Location
- 3 Vegetation Communities and Project Impacts

**Attachment B Vincent Substation Short-Joint Beavertail Translocation Memos**

**Attachment C Fremont Valley Ecological Reserve Mitigation Package (To be inserted pending Final Agency Approval)**

# Tables

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<b>Table</b>		<b>Page</b>
3-1	Summary of Listed Species Impacts and Mitigation Required .....	3-3
5-1	Summary of Vegetation Community Impacts and Mitigation Required .....	5-2
5-2	Mitigation Ratios for Vegetation Community Impacts .....	5-3
6-1	Summary of Jurisdictional Impacts and Mitigation Required.....	6-1

# Acronyms and Abbreviations

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AMSL	above median sea level
ANF	Angeles National Forest
APMs	applicant-proposed measures
BO	Biological Opinion
CDFW	California Department of Fish and Wildlife (formerly California Department of Fish and Game)
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CPUC	California Public Utilities Commission
CSSC	California Species of Special Concern
CWA	Clean Water Act
DBH	diameter at breast height
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
HMMP	Habitat Mitigation and Monitoring Plan
HU	hydrologic units
ITP	Incidental Take Permit
JD	Jurisdictional Delineation
kV	Kilovolt
MM	Mitigation Measure
O&M	operations and maintenance
Plan	Habitat and Restoration and Revegetation Plan
ROW	right(s)-of-way
SCE	Southern California Edison

SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TRTP	Tehachapi Renewable Transmission Project
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements

# Restoration Glossary

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**Enhancement**—Restoration in which the quality of an existing native community is improved by removing non-native species and/or installing additional native species. By preventing the spread of non-native and typically invasive species, competition for resources is reduced, and native vegetation is better able to regain dominance within a community.

**Exotic**—Any nonnative species deliberately or accidentally introduced into a new habitat or ecosystem.

**Impact**—To affect or influence in a significant or undesirable manner.

**Invasive**—Any species that is nonnative to the ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

**Invasive Exotic**—Any exotic species that is deliberately or accidentally introduced to a habitat or ecosystem that is likely to cause economic or environmental harm or harm to human health.

**Mitigation**—The process of creating, restoring, reclaiming, or enhancing habitat to compensate for impacts to an existing habitat.

**Monitoring**—Qualitative and quantitative monitoring that is conducted at regular intervals to evaluate the development of habitat and progress within the restoration/ mitigation site. Biological monitoring includes, but is not limited to, collection of cover data, plant density, photo-documentation, species diversity, and survival.

**Nonnative**—A species that is found outside of its native distributional range.

**Offsite Mitigation**—The process of creating or restoring habitat at a location other than the site impacted by project construction.

**Onsite Mitigation**—The restoration/revegetation of areas disturbed by project construction.

**Photo-documentation**—A technique utilizing photographs or other imagery to monitor, or document changes over time within a restoration/mitigation site or of pre and post project impacts.

**Restoration**—Intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity, and sustainability.

**Revegetate**—Process of re-establishing plants in a disturbed area by planting seedlings and/or mature plants, or by application of seed.



# Chapter 1

## Introduction

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The Habitat Mitigation and Monitoring Plan (HMMP) for Segment 9, Whirlwind and Vincent Substations (substation construction and expansion, hereinafter collectively referred as “Project Component”) of Southern California Edison’s (SCE) Tehachapi Renewable Transmission Project (TRTP) has been drafted to meet the requirements of the TRTP Final Environmental Impact Report (FEIR) Mitigation Measure B-1a; USFWS’s Biological Opinion (FWS-10B0117-10F0215), issued by USFWS in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.); the California Endangered Species Act (CESA) Incidental Take Permit (ITP) No. 2081-2010-028-05, issued by the California Department Fish and Wildlife (CDFW) pursuant to the Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. for the Tehachapi Renewable Transmission Project Segments 4-11; Sections 401 and 404 of the Clean Water Act (CWA); and Section 1602 of the California Fish and Game Code (Section 1602). The Project Component is shown in Figure 1 (all figures are included in Attachment A). The Vincent substation portion of the Project Component is located near the City of Acton, Los Angeles County, California. The Whirlwind substation portion of the Project Component is located near the intersection of 170<sup>th</sup> Street and West Rosamond Boulevard, northwest of the City of Lancaster in Kern County, California.

The TRTP transverses several geographical and ecological zones, ranging from coastal sage scrub to Mojave pinion woodland to chaparral vegetation communities. SCE is required to mitigate for impacts to biological resources resulting from the installation of new transmission lines, the removal or upgrading of existing lines, as well as other construction activities necessary to support the TRTP. Mitigation measures (MM) for project-related impacts are outlined in Chapter 3, Section 4 of the FEIR (Aspen 2009). MM B-1a, Provide Restoration/Compensation for Impacts to Native Vegetation Communities, specifies the preparation of a Habitat Restoration and Revegetation Plan (HRRP). SCE has drafted this HMMP in lieu of a HRRP which to fulfill the requirements of the MM and serves to guide the required restoration and compensation for impacts, including impacts to regulated trees, and is summarized below.

A draft HMMP was prepared in September 2010 for submittal to the regulatory agencies. The HMMP was updated in December 2012 to incorporate applicable permit conditions and on-site and off-site mitigation approach. This HMMP has been updated to address comments received from California Public Utilities Commission/Aspen Environmental on February 26, 2013. Construction was initiated at Vincent Substation on March 2010 and completed on May 2012. Construction was initiated at Whirlwind Substation on January 2011 and completed on February 2012.

**Mitigation Measure B-1a—Provide Restoration/Compensation for Impacts to Native Vegetation Communities.** SCE shall have a qualified restoration biologist prepare a Habitat and Restoration and Revegetation Plan (Plan). The Plan will include, at a minimum, (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for topsoil storage; (c) the plant species to be used; (d) seed and cutting collection guidelines; (e) a schematic depicting the mitigation area; (f) time of year the planting will occur and the methodology for planting; (g) a description of the irrigation methodology for container, bare-root, or other plantings needing

irrigation; (h) measures to control exotic vegetation onsite; (i) success criteria; (j) a detailed monitoring program; and (k) locations and descriptions of impacts to all oak and native trees (diameter at breast height [DBH] of more than three feet).

Permanent and temporary impacts to biological resources resulting from construction activities associated with the TRTP will be mitigated according to the mitigation ratios provided in the FEIR (Aspen 2009), Jurisdictional Delineation (JD) reports (for each segment), USFWS Section 7 Biological Opinion (BO), and CESA Section 2081 Permit, as referenced in this document in Table 3-1 and Table 5-2. Restoration of all impacted native habitats will use native plant species from the local area. Impacts to Anthropogenic Vegetation communities, including ruderal grassland, agricultural, and developed, areas, will be mitigated through revegetation with native species in compliance with SWPPP and other applicable mitigation measures. Barren areas will be mitigated at a 1:1 ratio only if these areas have been determined to support sensitive wildlife species (Aspen 2009). A post-construction impact analysis will document the final conditions and impacts. This HMMP is based on current estimates of potential impacts but provides the flexibility, as required, to adapt to actual, final Project Component impacts.

This HMMP also fully satisfies the on-site habitat restoration and off-site compensation requirements of several other MMs outlined in Chapter 3, Section 4 of the FEIR (Aspen 2009) and final environmental impact statement (FEIS) (Aspen 2010) that are linked to Mitigation B-1a, including: Desert Tortoise (MM B-10), Swainson's Hawk (MM B-19), Mohave Ground Squirrel (MM B-22c), and Special-Status Plant Species (MM B-23). Applicable survey and monitoring requirements prior to and during construction specified in these MMs are not addressed the HMMP. In addition the HMMP complies with the following conditions and measures specified in the USFWS BO and the CESA ITP for the TRTP including the Project Component:

#### CESA ITP Conditions:

CDFG has determined that permanent protection and management of compensatory habitat is necessary and required pursuant CESA to fully mitigate project-related of the taking of the Covered Species that will result with implementation of the Covered Activities. This determination is based on factors including an assessment of the importance of the habitat at the Project site, the extent to which the Covered Activities will impact the habitat, and CDFG's estimate of the acreage required to provide for adequate compensation. To meet this requirement, the Permittee shall provide for permanent protection and perpetual management of no less than approximately 1,265 total acres, or approximately 1,600 total acres of Habitat Management Lands (HM Lands), depending upon the type of HM Lands acquired for Swainson's hawk, by completing the transfer of fee title, the recordation of the conservation easement, and calculation and deposit of the management funds before starting Covered Activities, or within 18 months of the effective date of the ITP if Security is provided pursuant to Condition 10 of the ITP. HM Lands shall include 1,016 acres of desert tortoise and Mohave ground squirrel habitat, and 570 acres of Swainson's hawk habitat that includes both foraging and nesting habitat. If alfalfa (or other habitat with similar foraging benefits) and adequate nesting habitat is approved by CDFG in writing and acquired for Swainson's hawk, then 235 acres will be sufficient to fully mitigate the Project's impacts of the taking on Swainson's hawk.

#### Section 7 BO Conditions:

To mitigate potential permanent impacts to potentially occupied desert tortoise habitat from project construction, SCE will acquire habitat occupied by desert tortoises. Disturbance occurring along Segment 10 will be mitigated through acquisition of occupied habitat at a ratio of 3:1 (acreage of habitat acquired: acreage of land permanently disturbed). Mitigation acquisition will occur at a

location approved by the Service and California Department of Fish and Game and will be coordinated through an entity approved by these agencies. SCE will enter into a binding legal agreement with the Desert Tortoise Preserve Committee or a similar organization regarding the preservation of offsite lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by the Service and California Department of Fish and Game, along with funding for enhancement of the land and an endowment for permanent management of the lands. The amount of funding will be determined on a per acre basis for associated acquisition or restoration of mitigation lands identified by the Desert Tortoise Preserve Committee or similar organization. SCE will provide verification to the California Public Utilities Commission that mitigation lands have been acquired within 60 days of their acquisition (Leung 2010).

## 1.1 Project Background

The TRTP consists of new/upgraded substations and a total of 175 miles of transmission line segments (Figure 1 [all figures are included in Attachment A]). Project work will include transmission tower component and substation installation, road construction, and line-pulling and vehicle parking and will involve the use of cranes, transport trailers, helicopters, and miscellaneous vehicles.

The TRTP passes through the cities of Lancaster and Palmdale, crosses the Antelope Valley in the western Mojave Desert, spans the Sierra Pelona and San Gabriel mountains within the Angeles National Forest (ANF), and extends through the San Gabriel Valley to the City of Ontario.

The TRTP will assist in meeting the State of California's Renewable Portfolio Standards requirements. It will provide transmission infrastructure in Kern, Los Angeles, and San Bernardino Counties for the distribution of generated electricity from new and upgraded wind and solar energy facilities and other forms of renewable and non-renewable energy in the Tehachapi Wind Resource Area of California. With the development of the TRTP, additional wind and solar energy development in southeastern Kern County will provide a substantial amount of renewable energy for California, as well as improved system reliability and the resolution of certain existing transmission constraints. When completed, the TRTP will include a series of new and upgraded high-voltage transmission lines capable of delivering 4,500 megawatts of electricity from wind and solar farms and other generating companies that are proposed for northern Los Angeles and eastern Kern Counties. Additionally, the TRTP is designed to address the reliability needs of the California Independent System Operator-controlled grid due to projected load growth in the Antelope Valley and to address the transmission constraints south of Lugo, an ongoing source of concern for the Los Angeles Basin.

Of the 175-mile TRTP, approximately 42 miles of the TRTP alignment will be located on National Forest Service lands in the ANF (Segments 6 and 11). In addition, approximately 5 miles of the TRTP will be located on land owned by the Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority), and approximately 6.4 miles within U.S. Army Corps of Engineers (USACE) owned land, of which approximately 2.4 miles is within the vicinity of the Santa Fe Dam (portion of Segment 7) and approximately 4 miles is within Whittier Narrows (portions of Segments 7 and 8) in Los Angeles County.

This HMMP provides restoration/compensation for impacts on listed species, native trees, vegetation communities, and jurisdictional areas that are directly impacted (e.g., damaged or removed) as a result of construction. Post-construction impact analysis will document the final condition of impacts within all segments of the TRTP, and any deviation from this initial assessment will be documented at that time. During construction, biological monitoring will assist with avoidance and minimization of impacts to native species when possible.

A majority of impacts associated with construction activities for the entire TRTP Segments 4-11 are classified as temporary. Temporary impacts include the construction of new towers, landing zones, temporary access roads, shoo-fly structures (temporary line relocation structures), guard poles, wire setup sites, crane pads, and other activities. Permanent impacts are associated with the installation /expansion of substations and the installation of footings for new towers, and creation of permanent access/spur roads to towers. Some impacts are within USACE property and the ANF. Combined, all TRTP segments will potentially affect 1,389.45 acres of vegetation. Of these impacts, temporary impacts will affect 894.46 acres. Permanent impacts will affect 494.99 acres. Temporary impacts will be mitigated onsite at the point of disturbance within the project right-of-way (ROW) at a 1:1 ratio (some temporary impacts on federal lands will be mitigated at a 2:1 ratio), and permanent impacts will be mitigated at the ratios provided in Table 5-2 and 6-2. Temporary impacts associated with construction of Segments 4, 5, and 10, Vincent and Whirlwind Substations in Segment 9 will be regarded as permanent impacts and mitigated at offsite locations. Areas temporarily impacted by construction in these Segments will be seeded to stabilize disturbed soils and prevent erosion in accordance to the SWPPP. All other TRTP temporary impacts for the remaining Segments will be mitigated onsite within the Project ROW at the point of disturbance.

For a more detailed description of mitigation requirements, refer to the biological resources (Chapter 3, Section 4) of the FEIR, the USFWS BO, the CDFW's ITP, CDFW SAA, and the CWA permit. The exact acreage of impacts cannot be determined until construction activities are completed. If impacts occur on other types of habitat not identified in the FEIR or FEIS, other restoration ratios may be required, as determined in coordination with the appropriate agencies. Impacts within construction areas in developed/barren areas will not be counted as temporary impacts. Non-native habitats will be reseeded with native seed mix. Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (i.e. burrowing owls, etc.).

### 1.1.1 Project Component Location

Throughout this report, the Segment 9 Project Component refers to the Project Component footprint (i.e., the actual impact area for all structures and associated sites). The Project Component and the 500 foot surrounding buffer area are referred to as the biological survey area.

The Vincent substation portion of the Project Component is an existing SCE facility at the junction of Segments 5, 6, and 11 of the TRTP (Figure 2). The substation is located along the Angeles Forest Highway south of East Soledad Pass Road in unincorporated Los Angeles County near the city of Acton and is located in the Pacifico Mountain (USGS 1999) U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.

The Whirlwind substation portion of the Project Component is located at the northern terminus of Segment 4 near the intersection of 170th Street and West Rosamond Boulevard, northwest of the city of Lancaster in Kern County, California (Figure 2). On a regional scale, the proposed Whirlwind

substation site is located in the Antelope Valley, at the western tip of the Mojave desert. The Antelope Valley is surrounded by the steep hillsides of the San Gabriel mountains to the south and the Tehachapi mountains to the north, northeast, and west. The general gradient of the entire Antelope Valley watershed is toward Rosamond Dry Lake, located near the center of the valley. The Whirlwind substation is located in the Fairmont Butte (USGS 1995) USGS 7.5-minute topographic quadrangle.

## 1.1.2 Segment 9 Component of the TRTP

In order to accommodate the TRTP transmission connections, SCE proposes to expand and update the existing Vincent Substation to accommodate new 500 kilovolts (kV) and 220 kV equipment. This would include two separate extensions of existing switchyards. The first expansion would be located at the 500 kV switchyard, which would be extended to the west approximately 1,100 feet; extensive new grading would be required in this area. The second expansion area would occur in a small area located in the southwestern corner of the facility, where the 220 kV bus extension would require an addition to the existing limits of the graded pad. In addition, a chain link fence would be installed on the northeastern corner of the property. The 500 kV substation expansion would be on existing SCE fee-owned property. The 220 kV switchyard expansion would require new property acquisition (Aspen 2009). The areas that would be permanently affected as a result of expansion activities include approximately 54.5 acres to the west of the existing facility to accommodate 500 kV equipment and 0.3 acre in the southwest corner to accommodate new fencing.

Construction of the Whirlwind substation would result in temporary and/or permanent impacts on approximately 123 acres of land, including construction of the substation (e.g., the substation pad) and its associated facilities (e.g., staging areas, access roads) within the TRTP alignment. Total permanent ground disturbance associated with the substation's construction would be approximately 118 acres.

## 1.1.3 Project Activities

### 1.1.3.1 Access Roads—New

New access roads will be constructed to provide access from 170<sup>th</sup> Street West and from the transmission rights-of-way to the new Whirlwind substation. The standard width of access roads is 14 feet to accommodate the necessary vehicles and equipment turning radii and vehicle turnouts during construction. Berms or swales approximately 2 to 3 feet wide will be created on each side of the roadway (a total width of 18 to 20 feet) where necessary, and in compliance with applicable mitigation measures. Additionally, some roads may be capped to protect archaeological resources. Impacts associated with construction of new permanent access roads are considered permanent as access roads will be continually maintained for construction access as well as operation and maintenance (O&M) activities.

### 1.1.3.2 Access Roads—Existing

Existing access roads occur throughout the Project Component. These roads are predominantly in a functional state that allows maintenance vehicles to pass through, but may require improvements (e.g., grading, blading and vegetation clearing or removal) to accommodate the necessary vehicles

and equipment turning radii and vehicle turnouts during construction. The standard width of access roads is 14 feet. Berms or swales approximately 2 to 3 feet wide will be created on each side of the roadway (a total width of 18 to 20 feet) where necessary and in compliance with applicable mitigation measures. Drainages currently cross existing access roads at grade and in some cases, riparian vegetation adjacent to roadways may encroach, or the canopy cover may be too low for vehicles with higher clearance, requiring trimming. Impacts associated with improvements to existing access roads are typically considered to be temporary because vegetation will re-establish after the roadways are graded to their original width.

### **1.1.3.3 Site Preparation and Grading**

Construction of the Whirlwind substation pad and expansion of the Vincent substation will include clearing and removal of weeds, brush, and trees, grading to create a level surface, and soil compaction. High traffic areas of the substation, such as the entrance, exit, and parking areas, will be stabilized with asphalt concrete paving or roadbase. Below grade activities such as excavation, drilling and foundation construction will also be necessary for structure construction.

Impacts resulting from site preparation and grading activities associated with substation expansion and construction will include both permanent and temporary impacts, with only the final footprint of the substation constituting a permanent impact.

### **1.1.3.4 Vegetation Trimming**

Vegetation trimming will occur within the construction areas where vegetation impedes the ingress and egress of vehicles and construction equipment. Trimming will be the minimum amount necessary to accommodate passage of the required construction vehicles and to safely accomplish the required construction activities in the area. Such trimming activities are considered temporary as the trimmed vegetation will be able to re-establish. As with grading activities, the vegetation trimming considered in this report is only for the duration of construction; long-term O&M trimming will require separate permits, as applicable.

### **1.1.3.5 Drainage Modifications**

A trapezoidal riprap channel will be constructed at the Whirlwind substation to accommodate 100-year floods. The trapezoidal riprap channel will be placed around the entire boundary of the substation pad, with dissipating riprap outlets on the western boundary and on the southeastern corner. An existing unnamed desert dry wash that enters the substation site from the north will flow into the trapezoidal riprap channel through a low-flow zone along the northern boundary of the substation pad. These drainage improvements will allow for the unnamed desert dry wash to continue flowing uninterrupted from north of the site to south of the site.

The sites will also be graded to prevent stormwater from entering the facilities. Impacts associated with construction of the new channel are considered permanent.

## **2.1 Topography**

The Project Component is primarily located within Antelope Valley, which includes the western tip of the Mojave Desert, and is surrounded by the rugged and steep hillsides of the San Gabriel Mountains to the south, the Tehachapi Mountains to the north, northeast, and west, and the Liebre and Sierra Pelona Mountains to the southwest. At the base of each of the surrounding mountain ranges are several alluvial fans that deposit faulted bedrock and other sediments onto the high desert floor of Antelope Valley. The alluvial deposits direct surface water and groundwater flow that eventually lead to several dry lakes. The low point (2,300 feet above mean sea level [AMSL]) of Antelope Valley's watershed appears to occur at Rosamond Lake within Edwards Air Force Base, southeast of the Community of Rosamond.

The Vincent substation portion of the Project Component is approximately 3,200 feet AMSL near the northern foothills of the Sierra Pelona Mountains.

The Whirlwind substation portion of the Project Component is approximately 2,500 feet AMSL near the lower southern foothills of the Tehachapi Mountains.

## **2.2 Land Use**

The majority of the Project Component is located on undeveloped land. The developed portions include rural residential land uses and existing electrical corridor ROW. Grids of existing access roads run throughout the Project Component. Active and fallow or abandoned agricultural lands were observed in the survey area in Antelope Valley. Other land uses in the Project Component include low-density residential areas (especially within the outer city limits of Lancaster and Palmdale), electricity generation, transmission, and distribution, water conveyance (California and Los Angeles aqueducts intersect the survey area), and recreational resources (open space, off-highway vehicle activity, and hiking trails intersect the survey area).

## **2.3 Soil Series**

A description of all major soil series data occurring in the Project Component is provided below based on the Official Soil Descriptions provided by USDA (Natural Resources Conservation Service 2009).

### 2.3.1 Hanford

The Hanford soil series consists of very deep, well-drained soils formed in coarse-textured alluvium primarily from granite. These soils are on stream bottoms, floodplains, and alluvial fans, with slopes of 0 percent to 15 percent at elevations of 150 to 3,500 feet. Textures are coarse loams, especially fine sandy loam, with coarse fragments ranging from 0 percent to 35 percent. Hanford soils have negligible-to-low runoff and moderately rapid permeability. They are found in the valleys of central and southern California.

### 2.3.2 Hesperia

The Hesperia soil series consists of very deep, well-drained soils that are primarily fine sandy loam with calcareous layers at depth. These soils are formed in alluvium derived primarily from granite. Hesperia soils are typically found on alluvial fans, valley plains, and stream terraces and have slopes of 0 percent to 9 percent. The soils have negligible-to-low runoff and moderately rapid permeability. These soils are found mainly in the lower San Joaquin Valley and in the high desert of southern California plus adjoining areas of the southwest.

### 2.3.3 Terrace Escarpments

Terrace escarpments consist of steep-to-very-steep escarpments and escarpment-like landscapes. The terrace escarpments occur on the nearly even fronts of terraces or alluvial fans. These landscapes occur between narrow floodplains and adjoining uplands and the very steep sides of drainageways that entrench into fairly level uplands. In most places, 4 to 10 inches of loamy or gravelly soil overlays soft marine sandstone, shale, or gravelly sediments. The vegetation ranges from a sparse cover of brush, annual forbs, and annual grasses on south-facing slopes, to a fairly dense cover on north-facing slopes.

## 2.4 Hydrology

In general, an area's hydrology is described according to its ability to retain water and direct surface flow. The observed local hydrology within the survey area varied from flat areas with low gradients and wide meandering channels to gently or steeply sloping areas with shallow or deeply incised confined channels.

The survey area crosses the Antelope and Santa Clara-Calleguas hydrologic units (HUs). General information on these major watersheds is provided below.

### 2.4.1 Antelope

The Antelope HU is a closed watershed, which means that precipitation falling within this watershed never reaches any ocean or other watershed. The topography of Antelope Valley is a flat desert floor between 2,300 to 3,500 feet AMSL that is cut by numerous small, mostly dry creeks and washes that drain generally in an easterly direction toward several dry lakebeds. Within the Antelope HU, the Project Component crosses five hydrologic areas, including Chafee, Willow Springs, Neenach, Lancaster, and Rock Creek. (Aspen 2009.)

The Whirlwind substation portion of the Project Component is located within this watershed.



## 2.4.2 Santa Clara-Calleguas

The Santa Clara-Calleguas HU drains into the Santa Clara River and eventually into the Pacific Ocean. The topography of this area is composed of mostly undeveloped foothills that form the headwaters of the Upper Santa Clara River (Aspen 2009).

The Vincent substation portion of the Project Component is located within this watershed.

## 2.5 Biological Resources

Several biological studies have been performed for the TRTP, including studies of the Project Component. The information is included in the Biological Resources chapter of the FEIR (Chapter 3.4) (Aspen 2009), the Biological Specialist Report (Aspen and H. T. Harvey & Associates 2009), focused survey reports from 2009 (AMEC 2009a–c), and current, completed surveys from 2010 (ICF 2010a–f) for the Project Component. The information from these studies is summarized below.

### 2.5.1 Listed Special-Status Species

A literature review of the biological resources occurring within the Project Component was conducted by ICF International. Suitable habitat for nesting birds is present throughout the entire survey area. To avoid and protect resources, preconstruction surveys will be completed within 30 days prior to construction, clearance sweeps will be completed within three days prior to construction and monitors will perform daily morning sweeps prior to construction each day.

Special-status species are defined as plants and animals that are legally protected under the federal ESA, CESA, or other regulations, are CDFW California Species of Special Concern (CSSC), included on one of the California Native Plant Society (CNPS) lists, or are considered sufficiently rare by the scientific Regulatory community to qualify for such listing. These species are typically the focus of avoidance, minimization, and mitigation requirements under the California Environmental Quality Act (CEQA). Additionally, some species are considered special-status species due to their local and/or regional significance.

#### 2.5.1.1 Plant Species

An initial list of special-status plants with the potential to occur in the TRTP project area was compiled during the environmental review process. Based on a search of the California Natural Diversity Database (CNDDDB), the CNPS Inventory, and ANF and USFWS sensitive plant lists an initial list of 520 plants was produced. The probability of these plants occurring within the project area was evaluated based on several factors including: known distribution, habitat requirements, elevation range, and specific soil requirements. In addition, plants that were listed only on CNPS List 4 (considered a “watch list”) were removed from the list if they occur within two or more counties within the state. However, List 4 species with restricted distributions and those potentially occurring in the central region of the project and given special status by the U.S. Forest Service were retained for further analysis. A total of 84 special-status plants were retained for further analysis (Aspen 2009).

A number of special-status plant surveys were conducted 2007, 2008, and 2009 to support preparation of the FEIR (AMEC 2009d; Aspen 2009). In 2007, vegetation mapping and focused surveys for special-status plants were completed at the Whirlwind, Vincent, and Antelope Substation sites in Segment 9 (Aspen 2009). Vegetation mapping and focused special-status plant surveys were also conducted in 2008 and 2009 at these sites, as summarized in the Biological Resources Specialist Report (Aspen 2009) and the Special Status Plant Species Survey Report for Segment 9 (AMEC 2009c). No special-status plant species were recorded at the Whirlwind Substation during these surveys. Within the Vincent Substation survey area, 2 special-status plant species: Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) and short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*) were recorded in 2009 (AMEC 2010). An additional special-status plant species, Clokey's cryptantha (*Cryptantha clokeyi*) (CNPS List 1.B.1), is known to occur within 5 miles of the Project Component; however, none were observed within the site during prior focused surveys (AMEC 2009a–d).

Lemmon's syntrichopappus is a CNPS List 4.3 (plants with limited distribution) annual herb in the sunflower family (Asteraceae) that blooms in April and May. This species occurs in chaparral, Joshua tree woodland, and pinyon and juniper woodlands in sandy or gravelly soils at elevations between 1,640 and 6,004 feet. It is found in Kern, Los Angeles, Monterey, Riverside, and San Bernardino Counties. One population of this species was identified southwest of the Vincent substation, outside the Project Component disturbance area.

Short-joint beavertail cactus is a CNPS List 1B.2 (rare and endangered in California and elsewhere) perennial herb in the cactus family (Cactaceae) that blooms from May to June. It occurs in open chaparral, juniper woodland, or similar woodland communities from 1,394 to 5,900 feet (CNPS 2009). This species typically occurs in association with the common variety of beavertail cactus (*Opuntia basilaris* var. *basilaris*) and some rare populations are reported to have intermediate morphology and are reported to hybridize with the common beavertail cactus. Short-joint beavertail cactus is restricted to the Transverse Ranges of southern California and documented from Los Angeles and San Bernardino Counties. Threats include urbanization, mining, horticultural collection, grazing, and off-road vehicles (CNPS 2009).

One population of short-joint beavertail was identified along the boundary of the existing Vincent substation facility, and several populations were identified in Mojave juniper woodland and scrub, and Mojave pinyon woodland communities. These specimens were relocated and replanted by restoration ecologists and contractors in March 2010, in accordance with the Draft Habitat Restoration and Revegetation Plan for the Vincent Substation Expansion (AMEC 2010) (Appendix B).

As required by MM B-7 and MM B-23, preconstruction focused special-status plant surveys were conducted by within the Project Component on April 16 and 17, and May 8 and 17, 2010. No special-status plant species were located within Project Component during these surveys. The surveys did confirm several mapped populations of the rare short-joint beavertail cactus within portions of Segment 5, but not within or adjacent to the Vincent Substation impact area and biological study area; all occurrences of short-joint beavertail that were previously mapped in the Vincent Substation survey area were confirmed to be the common beavertail cactus (ICF 2010b).

No federally or state-listed special-status plant species were observed within the special-status plant survey area.

### 2.5.1.2 Wildlife Species

Prior to conducting reconnaissance-level surveys of the TRTP project area to support the environmental review process, an initial list of special-status wildlife species with the potential to occur in the area was compiled based on a search of the CNDDDB, information available from USFWS and CDFW, and the results of surveys conducted by SCE in conjunction with preparation of the Preliminary Environmental Assessment. The probability of these species occurring within the project area was evaluated based on specific habitat requirements and the locations of known occurrences of each special-status wildlife species. A total of 99 special-status wildlife species were retained for further analysis (Aspen 2009).

Reconnaissance-level and focused surveys were conducted in 2007, 2008, and 2009 to support preparation of the FEIR (Aspen 2009). Based on the results of these surveys 13 state and federally listed wildlife species or species proposed for listing with the potential to occur in the TRTP project area were identified (Aspen 2009). These species included:

- California red-legged frog  
(*Rana draytonii*, Federal Threatened CSSC)
- Desert tortoise  
(*Gopherus agassizii*, Federal and State Threatened)
- Mohave ground squirrel  
(*Spermophilus mohavensis*, State Protected)
- Mountain yellow-legged frog  
(*Rana muscosa*, Federal Endangered, CSSC)
- Arroyo toad  
(*Bufo californicus*, Federal Endangered, CSSC)
- Swainson's hawk  
(*Buteo swainsoni*, State Threatened)
- Santa Ana sucker  
(*Catostomus santaanae*, Federal Threatened CSSC)
- Southwestern willow flycatcher  
(*Empidonax traillii extimus*, Federal and State Endangered)
- Least Bell's vireo  
(*Vireo bellii pusillus*, Federal and State Endangered)
- Yellow-billed cuckoo  
(*Coccyzus americanus*, State Endangered)
- Coastal California gnatcatcher  
(*Poliptilia californica californica*, Federal Threatened CSSC)
- Unarmored threespine stickleback  
(*Gasterosteus aculeatus williamsoni*, Federal and State Threatened CDFW FP)
- California condor  
(*Gymnogyps californianus*, Federal and State Endangered)

Of the species listed above, the proposed Project Component is known to provide foraging and nesting habitat for Swainson's hawk, and to support low-density populations of desert tortoise and Mohave ground squirrel. Habitat assessments and focused surveys for Swainson's hawk were conducted on Segments 4, 5, and 10 from March 12 and July 19, 2009 (AMEC 2009a). A portion of the Whirlwind Substation survey area was included in these surveys. Based on the results of the habitat assessment, focused surveys were conducted within Segment 4, 5, and 10 where identified potentially suitable nesting and foraging habitat occurred. In 2009, evidence of nesting was not observed within this portion of the Whirlwind Substation survey area (AMEC 2009a). Habitat assessments and focused surveys for desert tortoise were conducted on TRTP Segment 9 by AMEC in April 2009, but the species was not detected within the Segment 9 Whirlwind Substation survey area (AMEC 2009a).

As required by MM B-10 and, MM B-18, preconstruction focused surveys were conducted for Swainson's hawk and desert tortoise in 2010. Focused surveys for Swainson's hawk were conducted within 5 miles of Segment 9 between March 25 and July 20, 2010. No Swainson's hawks were detected nesting within the Whirlwind Substation survey area. Swainson's hawks were observed

foraging in the alfalfa fields in the southeast portion of the Segment 9 survey area, and in the Mojave creosote bush scrub and Joshua tree woodland to the west of Whirlwind Substation within the Segment 9 Survey Area. (ICF 2010d, 2010f). Based on the results of the 2009 and 2010 habitat assessments, desert tortoise focused surveys were conducted in one area identified to contain suitable habitat: the proposed Whirlwind Substation. USFWS action area for the Project Component was defined as the proposed substation grading limits plus a 150-meter (500-foot) buffer. No desert tortoise or sign of the species were detected in the USFWS action area during the 2010 focused surveys. Preconstruction focused surveys were not conducted in 2011 for these species, as the project was in the construction phase.

## 2.5.2 Native Trees

Native trees occur throughout the survey area. The Vincent substation portion of the Project Component occurs within unincorporated Los Angeles County, the Whirlwind substation portion of the Project Component occurs within the city of Lancaster, Kern County. Oak trees occurring within these portions of the Project Component are protected under the Kern County and Los Angeles County Oak Tree Ordinances and are considered regulated trees. Therefore, mitigation for oak trees impacted within the Project Component will be consistent with these ordinances.

Native tree surveys were conducted to inventory regulated trees and to record the species, locations, and DBH of all the protected tree species within the Project Component (ICF 2010c). An evaluation of the potential impacts to individual trees was also completed, although actual tree impacts will be determined during the post-construction impact analysis.

## 2.5.3 Vegetation Communities

The majority of the vegetation within the Project Component is native Mojavean scrub and grassland, although there are also some developed areas. Some of the native communities observed in this segment are sensitive natural communities. Sensitive natural communities include those designated as “high priority for inventory” in the CDFW’s List of Terrestrial Natural Communities (CDFG 2003); contain a rarity rank of G3 (globally vulnerable or vulnerable across its entire range) or S3 (vulnerable at the state level even though it may be more secure elsewhere); and in either CDFW’s List of California Vegetation Alliances (CDFG 2009) or the CNDDDB (CDFG 2010a). In addition, regulated habitats are considered sensitive natural communities, if regulated by USACE, or State Water Resources Control Board (SWRCB). Vegetation communities named in the Biological Specialist Report and observed within the Project Component are discussed below (Aspen 2009).

Figure 3 shows the vegetation communities and land covers described below for the Project Component.

### 2.5.3.1 Big Sagebrush Scrub

Big sagebrush is a widely distributed species in the western United States that is associated with many vegetation types throughout its range. It occurs both as an important understory shrub in forest and woodland communities and as an emergent shrub in grassland communities (Sawyer and Keeler-Wolf 1995). In stands mapped as big sagebrush shrub within the TRTP area, basin sagebrush (*Artemisia tridentata*) is the sole or dominant shrub, with California juniper (*Juniperus californica*) sometimes occurring as an emergent tree. Associated shrubs may include rubber rabbitbrush

(*Ericameria nauseosa* [= *Chrysothamnus nauseosus*]) and California buckwheat (*Eriogonum fasciculatum*), and the herbaceous layer may contain nonnative annual grasses such as cheat grass (*Bromus tectorum*). While this vegetation type can occur on a wide variety of substrates throughout its range, within the TRTP area, it is most commonly found in sandy or gravely alluvium in the vicinity of creeks or desert wash habitat.

Big sagebrush scrub occurs adjacent to a number of small washes, Anaverde Creek and the Vincent substation.

### 2.5.3.2 Desert Saltbush Scrub

Stands of desert saltbush scrub are typically strongly dominated by a single saltbush species (*Atriplex* spp.; Holland 1986), and total vegetation cover is often low. Within the TRTP area, cattle saltbush (*Atriplex polycarpa*), four-winged saltbush (*Atriplex canescens*), and shadscale (*Atriplex confertifolia*) are often dominant, with big sagebrush, Cooper's ericameria (*Ericameria cooperi*), and rubber rabbitbrush occurring as associated species. Desert saltbush scrub occurs on fine-textured, poorly drained soils with higher salinity and/or alkalinity than surrounding areas (Holland 1986). In some stands, cracking soils are evident where temporarily ponded water has dried.

Stands of desert saltbush scrub were identified near the Whirlwind substation.

### 2.5.3.3 Mojave Creosote Bush Scrub

Mojave creosote scrub is dominated by creosote bush (*Larrea tridentata*) and may contain scattered emergent Joshua trees at low density (< 10 percent absolute cover). Associated shrubs in this community are widely spaced and include California buckwheat, rubber rabbitbrush, white burrobush (*Ambrosia salsola*), Nevada ephedra (*Ephedra nevadensis*), four-winged saltbush, rancher's fireweed (*Amsinckia menziesii*), and Devil's lettuce (*Amsinckia tessellata*). The herbaceous layer may contain annual grasses such as downy brome (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and one-sided bluegrass (*Poa secunda* var. *secunda*).

Mojave creosote bush scrub is abundant at the Whirlwind substation.

### 2.5.3.4 Mojavean Juniper Woodland and Scrub

Mojavean juniper woodland and scrub is an open vegetation type dominated by California juniper. Although this vegetation classification is described as a woodland, California juniper can be considered either a shrub or low tree with a maximum height of approximately 13 feet (Hickman 1993). Commonly associated shrubs within Mojavean juniper woodland and scrub include California buckwheat, rubber rabbitbrush, Cooper's ericameria, interior goldenbush (*Ericameria lineafolia*), desert needlegrass (*Achnatherum speciosum*), Acton bush sunflower (*Encelia actoni*), Joshua tree (*Hesperoyucca brevifolia*), and Nevada ephedra. The herbaceous layer is dominated by annual grasses such as red brome, and downy brome and annual spring wildflowers, such as rayless goldenhead (*Acamptopappus sphaerocephalus*), Bigelow's coreopsis (*Leptosyne bigelovii*), white layia (*Layia glandulosa*), and Fremont's pincushion (*Chaenactis fremontii*).

Scattered Mojavean juniper woodland and scrub is at found at both substations.

### 2.5.3.5 Mojave Mixed Woody Scrub

Mojave mixed woody scrub may contain several shrub species that also occur in other nearby communities (Holland 1986). It contains the highest diversity of shrub species of all vegetation communities observed within the Project Component. Typical dominant or co-dominant shrubs include Cooper's ericameria, cattle saltbush, four-winged saltbush, Acton bush sunflower, California buckwheat, big-berry manzanita, Nevada ephedra, rubber rabbitbrush, and interior goldenbush. Scattered Joshua tree and California juniper are also common, although at very low cover. The herbaceous layer commonly contains annual grasses such as downy brome and red brome, and may contain several species of ephemeral annual wildflowers following spring rains. These include white layia and Devil's lettuce. Desert needlegrass is also documented as occurring within Mojave mixed woody scrub.

Scattered Mojave mixed woody scrub is found at both substations.

### 2.5.3.6 California Annual Grassland

California annual grasslands consist of vegetation dominated primarily by nonnative annual grasses. Although floristic composition is variable among stands of this vegetation type, typical dominants include soft ches ( *Bromus hordeaceus* ), cheat grass, ripgut brome ( *Bromus diandrus* ), foxtail ches ( *Bromus madritensis* ssp. *madritensis* ), and red brome. Other dominant or abundant species may include wild oats ( *Avena* spp. ) and filarees ( *Erodium botrys*, *E. cicutarium* ).

California annual grassland occurs at both substations.

### 2.5.3.7 Mojave Desert Wash Scrub

The Mojave desert wash scrub areas within the TRTP area frequently contain little vegetation due to the scouring associated with rainfall events. Shrubs occurring within areas of desert wash include California buckwheat, California sagebrush ( *Artemisia californica* ), cheesebush ( *Ambrosia salsola* ), and rubber rabbitbrush. Mojave desert wash scrub areas within the TRTP vary from narrow, incised single channels with eroded banks to broadly eroded braided washes with many sub-channels. Although this unique hydrogeomorphic landform is relatively common in parts of the Antelope Valley, much of this habitat has been lost over the last several decades due to development and agricultural practices.

Mojave desert wash scrub was not considered a high priority for inventory by the CDFW (CDFG 2003) and is not a listed community within the newly revised List of California Vegetation Alliances (CDFG 2009). However, the CNDDDB (CDFG 2010a) lists this as a G3, S3.2 community, indicating that it is vulnerable—at moderate risk of extinction or elimination. Therefore, this community would be considered high priority for inventory by the CDFW and is a sensitive natural community.

Typically, these areas also correspond to the location of ephemeral stream channels, which are regulated by the USACE and the SWRCB as waters of the United States and/or waters of the State. However, dry washes observed within the survey area typically do not support hydrophytic vegetation and are therefore not considered riparian vegetation, and were not classified as jurisdictional features. They are nominally similar to the adjacent upland communities but typically exhibit much lower percent cover of vegetation due to more frequent scour than the adjacent upland areas.

Mojave desert wash scrub occurs near the both substations.

### **2.5.3.8 Barren/Developed**

Barren/developed land in the TRTP area includes urban lands, buildings and other infrastructures, and paved roads. Landscaped lands associated with development, container nurseries, bare ground, lands supporting a very sparse cover of non-native plant species as a result of repeated ground disturbance, and lands with heavily compacted soil, such as graded areas, and unpaved or gravel roads, were mapped as barren/developed. All areas receiving this designation have a very low probability of supporting native plant or wildlife species.

Areas described as barren/developed occur intermittently throughout the Project Component. This designation was used to characterize numerous paved and unpaved roads, residential developments, and other existing development within the TRTP study area.

### **2.5.3.9 Ruderal Grassland**

Ruderal grassland areas include lands that are subject to repeated ground disturbance and those dominated by nonnative species adapted to such disturbance conditions. Dominant species in this community include London rocket (*Sisymbrium irio*), prickly Russian thistle (*Salsola tragus*), filaree, red brome, and glaucous foxtail barley (*Hordeum murinum*),

Ruderal grassland is scattered at both substations.

## Mitigation for Impacts to Special-Status/Listed Species

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### 3.1 Anticipated Impacts and Mitigation Required

Potential impacts of the Project Component on special-status wildlife species include permanent impacts associated with expansion of existing graded pads, construction of the new substation pad and structures, access roads, and drainage modifications, and temporary impacts associated with construction of temporary access roads and work areas (e.g., staging areas, yards), and maintenance or modification of existing access roads that might be needed by construction vehicles accessing work sites. Descriptions of these activities are provided in Chapter 1, *Introduction* of this HMMP.

Impacts to special-status/sensitive and listed species as a result of construction activities associated with the Project Component may occur in a variety of ways, including direct and indirect removal of habitat, alteration of soil conditions, including the loss of native seed banks, and changes to the topography and drainage of the site so that the ability of the habitat to support native species is impaired or diminished. Impacts to sensitive/special-status and listed species are expected to be minimal with the implementation of the appropriate mitigation measures onsite. Figure 4 illustrates the locations of sensitive/special-status species. Measures include the requirements of all TRTP permits, including and not limited to, the mitigations measures described in Chapter 3. (Section 4) of the FEIR, the USFWS biological opinion (FWS-10B0117-10F0215), issued by the USFWS in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and CESA ITP No. 2081-2010-028-05, issued by CDFW pursuant to the Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 *et seq.* for the Tehachapi Renewable Transmission Project Segments 4-11. Any revision to mitigation requirements pursuant of the CESA ITP or USFWS biological opinion is incorporated herein by reference. Documentation of any such revision will be included as an attachment to this HMMP.

#### 3.1.1 Plant Species

As described previously, a number of special-status plant surveys have been conducted to support preparation of the FEIR and FEIS and compliance with the mitigation measures specified in those documents. Focused preconstruction rare plant surveys conducted on April 16 and 17, and May 8 and 17, 2010, in compliance with MM B-7 and MM B-23. No special-status plant species were observed within the Project Component during these surveys, and all occurrences of short-joint beavertail that were previously mapped in the Vincent survey area were confirmed to be the common beavertail cactus (ICF 2010b). Beavertail cactus transplanted from the Vincent Substation expansion area under the Final Habitat Restoration and Revegetation Plan Vincent Substation Expansion Project (AMEC 2010), were confirmed to be the common variety of beavertail cactus (*Opuntia basilaris* var. *basilaris*) during the 2010 TRTP special status plant surveys (ICF 2010b); therefore, monitoring and reporting of these individuals will be discontinued and no further mitigation requirements will be performed (SCE 2012).



## 3.1.2 Wildlife Species

As described previously, a number of special-status wildlife surveys have been conducted to support preparation of the FEIR and in support of compliance with the mitigation measures specified in that document. Three federal- or state-listed as threatened or endangered species are known to occur within the Project Component. These species include: Swainson's hawk, Mohave ground squirrel, and desert tortoise. Table 3-1 summarizes impacts to state-listed species and mitigation requirements for all of the TRTP segments for the indicated species. For the Mohave ground squirrel and desert tortoise, all permanent and temporary impacts to habitat will be mitigated at a ratio of 1:1 for temporary impacts and 3:1 for permanent impacts. As described in the ITP, temporary and permanent impacts to Mohave ground squirrel, desert tortoise, and Swainson's hawk habitat will be mitigated at offsite locations.

Consultation has been completed with the USFWS in accordance with section 7 of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*) and CDFW CESA pursuant to the Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 *et seq.* The USFWS issued a BO (FWS-10B0117-10F0215) and CDFW issued ITP No. 2081-2010-028-05 for TRTP. A summary of mitigation requirements for Swainson's hawk, Mohave ground squirrel, and desert tortoise are discussed below.

### 3.1.2.1 Swainson's Hawk

Temporary and permanent impacts to Swainson's hawk foraging and nesting habitat associated with construction of the Project Component are expected to occur over a total of 4.79 acres (0.01 acre of foraging only habitat, and 4.78 acres of nesting and foraging habitat) and 92.85 acres (nesting and foraging habitat), respectively, requiring the conservation of 97.64 acres of suitable habitat (1:1 mitigation ratio). Temporary impacts to Swainson's hawk foraging habitat will be included in the mitigation requirement for Mohave ground squirrel (described below). As described in the ITP, TRTP impacts to Swainson's hawk foraging habitat, including the 92.85 acres impacted by construction of the Project Component, will be mitigated through conservation of 570 acres of Swainson's hawk habitat (including both foraging and nesting habitat) (CDFG 2010b). If alfalfa (or other habitat with similar foraging benefits) and adequate nesting habitat is approved by CDFG in writing and acquired for Swainson's hawk, then 235 acres will be sufficient to fully mitigate TRTP's impacts on Swainson's hawk (CDFG 2010b).

### 3.1.2.2 Mohave Ground Squirrel and Desert Tortoise

Mitigation has been combined for Mohave ground squirrel and desert tortoise because these species use the same habitat types (i.e., creosote bush scrub and rabbitbrush scrub); however, USFWS and CDFW define suitable habitat for desert tortoise differently (Table 3-1). Temporary and permanent impacts to desert tortoise habitat, as defined by both USFWS and CDFW, associated with construction of the Project Component are expected to occur over a total of 96.74 acres (4.34 acres of temporary impacts, and 92.40 acres of permanent impacts). An additional 2.88 acres (0.49 acre of temporary impacts, and 2.39 acres of permanent impacts) of suitable desert tortoise habitat, as defined by CDFW, will also be impacted by the construction of the Project Component, requiring the conservation of a total of 289.20 acres of suitable habitat (1:1 mitigation ratio for temporary impacts; 3:1 mitigation ratio for permanent impacts). Impacts to Mohave ground squirrel habitat

associated with construction of the Project Component are expected to occur over a total of 99.62 acres (overlapping with impacts to desert tortoise habitat), requiring the conservation of 289.20 acres of suitable habitat (3:1 mitigation ratio) (Table 3-1). As described in the ITP, TRTP impacts to Mohave ground squirrel and desert tortoise habitat, including the 99.62 acres impacted by construction of the Project Component, will be mitigated through conservation of 1,016 acres of desert tortoise and Mohave ground squirrel habitat (CDFG 2010b).

**Table 3-1. Summary of Listed Species Impacts and Mitigation Required**

Covered Species	Impact Acreage	Mitigation Ratio	Mitigation Acreage Requirement
<b>Swainson’s Hawk—Foraging-Only Habitat*</b>			
Temporary	0.01	1:1	Included in acreage of Mohave ground squirrel, below
<b>Swainson’s Hawk—Nesting and Foraging Habitat*</b>			
Permanent	92.85	1:1	92.85
Temporary	4.78	1:1	Included in acreage of Mohave ground squirrel, below
<b>Mohave Ground Squirrel</b>			
Permanent (Overlap with desert tortoise habitat)	94.79	3:1	284.37
Temporary	4.83	1:1	4.83
<b>Desert Tortoise – CDFW Only Suitable Habitat</b>			
Permanent (Overlap with Mohave ground squirrel habitat)	2.39	3:1	Included in acreage of Mohave ground squirrel, above
Temporary	0.49	1:1	
<b>Desert Tortoise – USFWS &amp; CDFW Suitable Habitat</b>			
Permanent (Overlap with Mohave ground squirrel habitat)	92.40	3:1	Included in acreage of Mohave ground squirrel, above
Temporary	4.34	1:1	
* CDFW ITP is requiring SCE to mitigate impacts through conservation of 570 acres of suitable habitat. Note: Temporary and permanent impacts calculated using 3/25/13 engineering designs.			

## 3.2 Avoidance and Minimization Measures

Every attempt will be made to minimize both habitat degradation and population impacts to listed species. The mitigation measures listed and described in this section are SCE’s applicant-proposed measures (APMs) or mitigation measures, and are taken from Chapter 3, Section 4 of the FEIR.

### 3.2.1 Applicant-Proposed Measures

APMs are environmental commitments that were identified by SCE as part of the TRTP. It should be noted that the APMs overlap to some extent with the mitigation measures identified in the FEIR and FEIS. APM BIO-1, 2, 3, 4, 5, 6, 7, 8, and 9 will be implemented to minimize overall species impacts. Refer to Chapter 3, Section 4 of the FEIR for a complete description of the APMs.

## 3.2.2 Mitigation Measures from the FEIR and FEIS

MMs are measures that were identified during preparation of the FEIR and FEIS that would be implemented by SCE to reduce impacts to a less than significant level. It should be noted that the MMs overlap to some extent with the APMs identified by SCE. MMs A-1, AQ-1a, B-1a, B-1b, B-2, B-3a, B-3b, B-3c, B-7, B-8b, B-10, B-15, B-18a, B-18b, B-19, B-22a, B-22b, B-22c, H-1a, and H-1b will be implemented to minimize overall species impacts. Refer to Chapter 3, Section 4 of the FEIR for a complete description of the MMs.

## 3.2.3 Onsite Mitigation

### 3.2.3.1 Mitigation Site Description

Because of agency concerns regarding the challenges associated with successfully restoring native vegetation communities in arid environments, both temporary and permanent impacts to special-status/listed species associated with construction of the Project Component will be regarded as permanent and mitigated at offsite locations (described below). Areas temporarily impacted by construction of the Project Component will be re-contoured, as needed, and may be seeded with appropriate native species to stabilize disturbed soils, prevent erosion, and restore a natural appearance in accordance with the State Water Resources Control Board, Waste Discharge Requirements (WDR), Storm Water Pollution Prevention Plan (SWPPP), (SWRCB 2011), the final CDFW Streambed Alteration Agreement (CDFG 2011), the TRTP Excavation Plan (CH2MHILL, 2010), and MM V-4b, and Visual APM AES-8 (Aspen 2009). These activities are not intended to replace temporary impacts to special-status habitat.

### 3.2.3.2 Mitigation Goals

There are no specific goals for onsite mitigation for impacts to special-status/listed species, as all mitigation for listed species will be implemented at offsite locations.

### 3.2.3.3 Financial Assurances

As specified in the ITP, SCE has provided CDFW with a letter of credit as security for acquisition, enhancement, and long-term management of compensatory mitigation for Swainson's hawk, desert tortoise, and Mohave ground squirrel. There are no other financial assurances required by applicable project permits associated with the Project Component.

### 3.2.3.4 Ownership Status

There are no onsite mitigation areas for special-status/listed species; all mitigation will be implemented at offsite locations.

### 3.2.3.5 Reporting Measures

There are no onsite reporting requirements for special-status/listed species mitigation.

### 3.2.4 Offsite Mitigation Site Description

SCE is currently working with the CDFW and private land owners to secure suitable areas as mitigation for temporary and permanent impacts to vegetation communities, listed species habitat, and state jurisdictional areas associated with construction of the Project Component. The preservation lands identified are located adjacent to the CDFW Fremont Valley Ecological Reserve (Attachment C). The Reserve is located approximately 9 miles northeast of California City and approximately 5 miles southwest of Highway 395 in Kern County, California. The Reserve is contiguous to land owned by Bureau of Land Management designated as Desert Tortoise Natural Area. Incorporation of the preserved lands and fee title transfer to the CDFW would expand the current boundary of the Ecological Reserve by approximately 20 percent.

#### 3.2.4.1 Mitigation Goals

The offsite mitigation effort is focused on providing opportunities for wildlife to replace listed species habitat impacted by construction of the Project Component in accordance with the USFWS BO, CDFW's ITP, and FEIR mitigation measures. The goals of the mitigation program are to comply with the requirements mandated in the USFWS BO, CDFW's ITP, and FEIR (Aspen 2009); restore/enhance or preserve habitats that are suitable for nesting, foraging, and/or breeding by Swainson's hawk, Mohave ground squirrel, and desert tortoise; restore/enhance or preserve habitats of similar or higher functions and services than those impacted for listed species; restore/enhance or preserve habitats that will be self-sustaining and provide long term ecological benefit for the listed species.

The goals for listed species mitigation overlap with the goals for mitigating impacts of the Project Component to other resources such as vegetation communities and jurisdictional features. Wherever feasible, mitigation for impacts to listed species and other resources will be implemented at the same site or sites.

#### 3.2.4.2 Financial Assurances

As specified in the ITP, SCE has provided CDFW with a letter of credit as security for acquisition, enhancement, and long-term management of compensatory mitigation for Swainson's hawk, desert tortoise, and Mohave ground squirrel. There are no other financial assurances required by applicable project permits associated with the Project Component.

SCE will fund an endowment held by CDFW to fund the long term management and maintenance of the preserved lands as a function of the Ecological Reserve.

#### 3.2.4.3 Ownership Status

As described above, the preserved lands would be incorporated into the CDFW Fremont Valley Ecological Reserve. The Fremont Valley Ecological Reserve is owned and managed by the CDFW and fee title transfer would assign ownership status of the respective preserved lands to CDFW.

#### 3.2.4.4 Reporting Measures

Reporting requirements for the restoration/enhancement/ or preservation of Habitat Management lands will be completed as stipulated by USFWS, CDFW and the SWRCB in the BO, ITP, and WDR

permits and applicable agreements. Reporting requirements for the Habitat Management lands will be completed as specified in the CDFW ITP, and include an interim and/or long-term management plan for CDFW approval, a baseline biological assessment and a land survey report. These reports will be provided to CDFW within 4 months of recording or transfer. Additional documentation is required as part of the Habitat Management Land Acquisition package for CDFW approval as specified in Attachment 4A of the ITP. SCE will work with CDFW on developing an HMP appropriate for the expansion of the Fremont Valley Ecological Reserve.

#### **3.2.4.5 Integration into Existing Mitigation Sites**

As described above, all impacts to Mohave ground squirrel, desert tortoise, and Swainson's hawk habitat will be mitigated as permanent impacts at offsite locations. Compensatory mitigation required for impacts on listed-species habitat will also meet the requirements for mitigation of temporary and permanent impacts to vegetation communities, and jurisdictional resources. The goals for offsite mitigation for mitigating impacts of the Project Component on listed species habitat overlap with the goals for vegetation communities and state jurisdictional areas. Wherever feasible, off site mitigation for impacts to listed species habitat, vegetation communities, and state jurisdictional areas will be implemented at the same site or sites. A fee title of the purchased lands will be transferred to CDFW as mitigation for temporary and permanent impacts to these species pursuant of the Incidental Take Permit, sensitive vegetation communities pursuant of the FEIR and jurisdictional resources pursuant of applicable wetland permits.

### Anticipated Impacts and Mitigation Required

Potential impacts of the Project Component on vegetation communities include permanent impacts associated with expansion of existing graded pads, construction of the new substation pad and structures, access roads, and drainage modifications, and temporary impacts associated with construction of temporary access roads, and maintenance or modification of existing access roads that might be needed by construction vehicles accessing work sites. Descriptions of these activities are provided in Chapter 1, *Introduction*, of this HMMP.

Avoidance and minimization measures will be implemented for regulated trees within work areas that are considered temporary (i.e. tree trimming along access roads).

#### 4.1.1 Affected Tree Species

Qualified arborists and biologists approved by SCE, California Public Utilities Commission (CPUC), and the USFS conducted preconstruction tree inventories for the Project Component between April 16 and June 4, 2010. An overview of the results of the tree inventory is provided below. A more detailed description of the tree inventory, including mapping data is provided in a separate report (2010 Tree Inventory Report Segments 4, 5, and 10; ICF 2010c).

No regulated trees were observed within the survey boundaries for Project Component during the 2010 surveys (ICF 2010).

#### 4.1.2 Mitigation Requirements

Per Mitigation Measure B-1a, impacts to native trees within the Project Component will be based on the local jurisdiction requirements. Impacts to regulated trees that occur within the County of Los Angeles will be mitigated based on the County of Los Angeles Oak Tree Ordinance, which has formal mitigation ratios for native oak species (County of Los Angeles 1982). Impacts to regulated trees within the County of Kern will be mitigated based on the Kern County Land Use, Open Space, and Conservation Element, Oak Tree Conservation (County of Kern 2007) and the Kern County Zoning Ordinance (County of Kern 2009).

There are no anticipated impacts to regulated trees associated with projected construction activities at Whirlwind Substation or Vincent Substation.

##### 4.1.2.1 Los Angeles County

As stated in the County of Los Angeles Oak Tree Ordinance, native oak species are to be mitigated at a ratio of 2:1 (County of Los Angeles 1982). Each replacement tree will be at least a 15-gallon size specimen and measure at least 1 inch in diameter 1 foot above the base. Wherever feasible,

replacement trees should consist of indigenous oak trees certified as being grown from a seed source collected in Los Angeles or Ventura counties (County of Los Angeles 1982).

Within the County of Los Angeles, it is anticipated that no regulated trees will be impacted by currently projected construction activities at Vincent Substation. There were no observations of oak species at Vincent Substation.

#### 4.1.2.2 Kern County

The County of Kern does not have formal mitigation rates for regulated trees but does have an oak woodland cover retention standard. The Kern County Land Use, Open Space, and Conservation Element, Oak Tree Conservation states the following oak woodland retention standard (County of Kern 2007):

- Development parcels containing oak woodlands (10% percent cover of existing site) are subject to a minimum canopy coverage retention standard of thirty percent (30%).

Within the County of Kern, it is anticipated that no regulated trees will be impacted by currently projected construction activities at Whirlwind Substation. There were no observations of oak species at Whirlwind Substation.

## 4.2 Avoidance and Minimization Measures

During construction, a biological monitor will be present to identify sensitive biological resources, including regulated trees. All regulated trees, if present, in the vicinity of the construction area will be flagged for avoidance and tree protection zones will be established. Ingress and egress routes will be established prior to the start of construction activities. Tree protection zones will be demarcated by ESA flagging or protective fencing not less than 5 feet in height around the driplines of regulated trees. Whenever possible, tree protection zones will be established 5 feet from the edge of regulated trees' driplines or 15 feet from the trunks, whichever is greater. The tree protection flagging or fencing will be erected before demolition, grading, or any other construction activity begins. Once the protection zones are established, they are to remain in place for the duration of construction activities. If construction is to enter within in these tree protection zones, the following activities will be considered: padding of vehicles entering the tree protection zone, minimizing soil removal or addition around driplines, and placing matting under the existing driplines during construction activities.



## Mitigation for Impacts to Vegetation Communities

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### 5.1 Anticipated Impacts and Mitigation Requirements

Potential impacts of the Project Component on vegetation communities include permanent impacts associated with expansion of existing graded pads, construction of the new substation pad and structures, access roads, and drainage modifications, and temporary impacts associated with construction of temporary access roads, and maintenance or modification of existing access roads that might be needed by construction vehicles accessing work sites. Descriptions of these activities are provided in Chapter 1, *Introduction*, of this HMMP. A discussion of expected impacts to vegetation communities is provided in this chapter below.

Potential impacts associated with the Project Component include impacts to the following vegetation communities: on developed/ barren, ruderal grassland, Mojave creosote bush scrub, Mojave desert wash scrub, Mojave juniper woodland scrub, desert saltbush scrub, rabbitbrush scrub and Mojave mixed woody scrub. A summary of the total impacts for each vegetation community is provided in Table 5-1. Table 5-1 also provides the required mitigation acreage for each vegetation community based on the ratios presented in the FEIR (Table 5-2) and as specified by regulating agencies. Note that mitigation is not proposed for impacts within existing access road boundaries. Similarly, developed/barren areas on compensation lands will not be credited for mitigation unless permanent mitigation for impacts to developed/barren areas supporting sensitive wildlife is appropriate.

**Table 5-1. Summary of Vegetation Community Impacts and Mitigation Required**

Affected Vegetation Community	Project Component Impacts		Mitigation Required	
	Temporary Impacts (Acres)	Permanent Impacts (Acres)	Temporary (Acres)	Permanent (Acres)
<b>Whirlwind Substation</b>				
Desert saltbush scrub	0.37	3.10	0.37	3.10
Developed/Barren	0.90	2.48	—	—
Mojave desert wash scrub	0.01	—	0.01	—
Mojave creosote bush scrub	3.96	89.30	3.96	89.30
Mojave creosote bush scrub/ Ephemeral desert wash <sup>1</sup>	—	0.03	—	0.09
Mojave mixed woody scrub	0.05	1.94	0.05	1.94
Rabbitbrush scrub	0.44	0.45	0.44	0.45
Ruderal grassland	0.51	21.02	0.51	21.02
<b>Substation Total</b>	<b>6.24</b>	<b>118.29</b>	<b>5.34</b>	<b>115.90</b>
<b>Vincent Substation</b>				
Developed/ Barren	0.63	34.44	—	—
Mojave desert wash scrub	0.01	—	0.01	—
Mojavean juniper woodland and scrub	0.05	6.03	0.05	9.05
Mojave mixed woody scrub	0.85	7.53	0.85	7.53
Mojave mixed woody scrub-disturbed	—	4.00	—	4.00
Ruderal grassland	0.98	1.46	0.98	1.46
<b>Substation Total</b>	<b>2.52</b>	<b>53.47</b>	<b>1.89</b>	<b>22.04</b>
<b>GRAND TOTAL</b>	<b>8.76</b>	<b>171.76</b>	<b>7.35</b>	<b>137.94</b>

<sup>1</sup> SWRCB and CDFW jurisdictional feature

<sup>2</sup>Per the FEIR, non-native habitats will be reseeded with a native seed mix. Per the FEIR Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (i.e., burrowing owls, etc.)

Note: Temporary and permanent impacts calculated using 3/25/13 engineering designs.

Construction of the Project Component will result in temporary and permanent impacts to a total of approximately 180.52 acres of vegetation communities (5-1). As described below, both temporary and permanent impacts to vegetation communities will be regarded as permanent and mitigated at offsite locations. Areas temporarily impacted by construction of the Project Component will be re-contoured, as needed to restore a natural appearance as described in Section 2.2 of the *Excavation Plan (To Address Visual Resources)* (CH2MHILL, 2010) and in accordance with MM V-4b, and Visual APM AES-8 (Aspen 2009). The disturbed sites areas also be seeded with appropriate native species to stabilize disturbed soils and prevent erosion as stipulated in Section 3.2 of the final CDFW Streambed Alteration Agreement (CDFG 2011), and/or stabilized through implementation of other erosion

control Best Management Practices (BMPs) as described in the Whirlwind Substation Storm Water Pollution Prevention Plan (SWPPP) (Shaw 2011).

**Table 5-2. Mitigation Ratios for Vegetation Community Impacts**

Vegetation Community	Mitigation Ratios	
	Temporary Impacts	Permanent Impacts
Barren/Developed	1:1*	1:1*
Desert Saltbush Scrub	1:1	1:1
Mojave Creosote Bush Scrub	1:1	1:1
Mojave Desert Wash Scrub	1:1	3:1
Mojave Juniper Woodland and Scrub	1:1	1.5:1
Mojave Mixed Woody Scrub	1:1	1:1
Mojave Mixed Woody Scrub—Disturbed	1:1	1:1
Rabbitbrush Scrub	1:1	1:1
Ruderal Grassland	1:1*	1:1*

Ratios may be adjusted based on existing site conditions and disturbance levels with approval of the CPUC. Ratios could range from 0.5 to maximum as noted based on-site evaluation.

\*Non-native habitats will be reseeded with a native seed mix. Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (e.g., burrowing owls, etc.).

Source: FEIR (Aspen 2019)

## 5.1.1 Onsite Mitigation

### 5.1.1.1 Mitigation Site Description

Because of concerns regarding the challenges associated with successfully restoring native vegetation communities in arid environments, both temporary and permanent impacts to vegetation communities associated with construction of the Project Component will be regarded as permanent and mitigated at offsite locations (described below). Areas temporarily impacted by construction of the Project Component will be re-contoured, as needed, and may be seeded with appropriate native species to stabilize disturbed soils, prevent erosion, and restore a natural appearance in accordance with the final CDFW Streambed Alteration Agreement (CDFG 2011), the TRTP Excavation Plan (CH2MHILL, 2010), and MM V-4b, and Visual APM AES-8 (Aspen 2009), and/or stabilized through implementation of other erosion control BMPs as described in the Whirlwind Substation SWPPP (Shaw 2011).

Pursuant of MM V-2 and APM AES-23, SCE shall establish a permanent screen of sufficient height for immediate visual screening around the new expansion area of Vincent Substation. The visual mitigation landscaping will be installed within the temporary disturbance area outside the substation expansion area perimeter as described in the Vincent Substation Landscape Plan (AMEC 2010). The remaining temporary disturbance area outside the visual landscaping will be

recontoured and seeded with a native seed mix to stabilize disturbed soils. Onsite revegetation within temporary disturbance areas of the Project Component will be monitored and determined complete in compliance with SWPPP requirements (Shaw 2011) (AEI CASC 2010).

### 5.1.1.2 Mitigation Goals

The goal for revegetation of onsite areas temporarily disturbed by construction is to stabilize disturbed soils, prevent erosion and restore a natural appearance. Onsite temporary disturbance areas may be revegetated by application of a native seed mix. SWPPP requirements specify the application of permanent erosion control to all remaining disturbed soils following construction. Visual APM AES-8, requires all areas cleared during construction to be re-graded and revegetated to restore the area to an appearance that will blend back into the overall landscape context. Revegetation in these areas is the responsibility of SCE and may be completed by the construction contractor at the discretion of SCE. These areas are not subject to success criteria or performance monitoring for purposes of habitat restoration. These areas are subject to maintenance and monitoring requirements specified in the SWPPP and Visual APM AES-8.

### 5.1.1.3 Financial Assurances

As specified in the ITP, SCE has provided CDFW with a letter of credit as security for acquisition, enhancement, and long-term management of compensatory mitigation for Swainson's hawk, desert tortoise, and Mohave ground squirrel habitat and associated vegetation communities. There are no other financial assurances required by applicable project permits associated with the Project Component.

### 5.1.1.4 Ownership Status

Onsite mitigation areas required for state jurisdictional waters (Whirlwind only) will be located within the Project Component ROW at the point of disturbance.

### 5.1.1.5 Reporting Measures

Reporting requirements associated with the temporary impacts associated with the Project Component are limited to the CDFW Streambed Alteration Agreement (Whirlwind) and are specified in the referenced permit and described in detail in Section 6.1 of this HMMP. Additional reporting requirements are described in Section 4.2 of the final CDFW Streambed Alteration Agreement (CDFG 2011), and in Section 8 of the Whirlwind Substation SWPPP (Shaw 2011).

## 5.1.2 Offsite Mitigation

### 5.1.2.1 Mitigation Site Description

As described in Chapter 3 of this HMMP, compensatory mitigation of temporary and permanent impacts to vegetation communities will also meet the mitigation requirements for impacts on listed-species habitat, and jurisdictional resources. Fulfillment of mitigation for impacts to vegetation communities, combined with mitigation for temporary and permanent impacts to listed species habitat and jurisdictional resources is proposed through securing lands adjacent to the CDFW

Fremont Valley Ecological Reserve in Kern County, California. SCE is currently working with the CDFW to identify and acquire parcels with the appropriate habitat to meet these requirements. Once completed, the agency-approved off-site mitigation plan will be provided as Attachment B to this HMMP. The approved-plan will include descriptions of the acquired land parcels, vegetation communities, mitigation acreage, map, and all required documentation specified in the applicable regulatory permits.

A summary of the total impacts and the required mitigation acreage for each vegetation community is provided in Table 5-1. Monitoring of offsite compensatory mitigation areas will be conducted in accordance with Habitat Management Plan(s) prepared for the compensatory mitigation site, as specified in the ITP (CDFG 2010b).

### **5.1.2.2 Mitigation Goals**

The goals of the mitigation program are to comply with the requirements mandated in the USFWS BO, CDFW's ITP, and FEIR (Aspen 2009); to restore/enhance or preserve habitats that are of similar or higher functions and services than those impacted; and to restore/enhance or preserve habitats that reflect the affected vegetation community and the ecological functions and values of that community.

The goals for offsite mitigation for vegetation communities overlap with the goals for mitigating impacts of the Project Component on listed species habitat and state jurisdictional areas. Wherever feasible, off site mitigation for impacts to vegetation communities, listed species habitat, and state jurisdictional areas will be implemented at the same site or sites.

### **5.1.2.3 Financial Assurances**

As specified in the ITP, SCE has provided CDFW with a letter of credit as security for acquisition, enhancement, and long-term management of compensatory mitigation for Swainson's hawk, desert tortoise, and Mohave ground squirrel. Compensatory mitigation for these species will also meet the requirements for impacts to vegetation communities.

SCE will fund an endowment held by CDFW to provide financial assurance for the long term management and maintenance of the preserved lands as a function of the Ecological Reserve.

### **5.1.2.4 Ownership Status**

The Fremont Valley Ecological Reserve is owned and managed by the CDFW and fee title transfer would assign ownership status of the respective preserved lands to CDFW.

### **5.1.2.5 Reporting Measures**

Reporting requirements for the Habitat Management lands will be completed as stipulated by USFWS, CDFW and SWRCB in the BO, ITP, and WDR permits and applicable agreements. Additional documentation is required as part of the CDFW Habitat Management Land Acquisition package for approval as specified in Attachment 4A of the ITP.

## Mitigation for Impacts to Jurisdictional Areas

### 6.1 Anticipated Impacts to USACE, SWRCB, and CDFW Jurisdictional Areas and the Mitigation Required

ICF conducted a delineation of jurisdictional waters and wetlands for the Whirlwind substation survey area on September 18, 2009. There are no jurisdictional areas or jurisdictional impacts associated with the Vincent substation survey area. All features meeting the USACE, SWRCB, and CDFW guidance criteria were delineated. Potential impacts of the Project Component on vegetation communities include permanent impacts associated with expansion of existing graded pads, construction of the new substation pad and structures, access roads, and drainage modifications, and temporary impacts associated with construction of temporary access roads, and maintenance or modification of existing access roads that might be needed by construction vehicles accessing work sites. Descriptions of these activities are provided in Chapter 1, *Introduction*, of this HMMP. One drainage will be permanently affected within the Whirlwind substation portion of the Project Component. The feature considered to be potentially affected is described below, and the final jurisdictional impacts are described. No impacts to jurisdictional features are identified as part of the Vincent Substation expansion.

Impacts related to construction and operation of the Whirlwind substation portion of the Project Component include permanent impacts to 0.03 acres (390 feet) of SWRCB waters of the state and CDFW state streambeds (SS) classified as a Mojave creosote bush scrub vegetation community (Table 6-1). This feature is isolated and therefore not under USACE jurisdiction. No wetlands were delineated in the survey area.

Compensatory mitigation is proposed at ratios designated in the FEIR and by regulating agencies for the affected feature, excluding temporary impacts to concrete-lined features and impacts to unvegetated features completely within existing access road boundaries. A summary of estimated impacts and mitigation requirement for the affected jurisdictional area are provided in Table 6-1.

**Table 6-1. Summary of Jurisdictional Impacts and Mitigation Required**

Affected Feature/Vegetation Community	Segment 9 Project Component		Mitigation Required <sup>1</sup>		
	Temporary Impacts (Acres)	Permanent Impacts (Acres)	Temporary (Acres)	Permanent (Acres)	Total
	Mojave creosote bush scrub	—	0.03	—	0.09

<sup>1</sup> No mitigation is proposed for maintenance impacts on existing access roads.

## 6.1.1 Onsite Mitigation

### 6.1.1.1 Mitigation Site Description

As specified in the regulatory permits, all permanent impacts to jurisdictional areas associated with construction activities at the Whirlwind substation portion of the Project Component will be mitigated offsite (described below).

If, through minimization and avoidance, project activities result in temporary impacts in lieu of permanent impacts, these areas will be revegetated in compliance with the specifications set forth in the CDFW Streambed Alteration Agreement. Specifically, if the Project causes any exposed slopes or exposed areas on streambeds that will not be stabilized by rip rap, these areas will be seeded with a CDFW-approved seed mixture applied no later than November 15 the year construction ends (CDFG 2011). If vegetation cannot be supported, non-erodible materials will be used to stabilize these areas. In addition, areas temporarily impacted by construction of the Project Component will be revegetated in compliance with SWPPP (Shaw 2011), (AEI CASC 2010) the TRTP Excavation Plan (CH2MHILL 2010), and MM V-4b (Aspen 2009).

### 6.1.1.2 Mitigation Goals

If project activities result in temporary impacts in lieu of permanent impacts, these impacted areas will be revegetated or otherwise stabilized as described above. The goal for revegetation of onsite areas temporarily disturbed by construction is to stabilize disturbed soils and prevent erosion. Revegetation in these areas is the responsibility of SCE and may be completed by the construction contractor at the discretion of SCE. These areas are not subject to success criteria or performance monitoring.

### 6.1.1.3 Financial Assurances

The regulatory permits for impacts to jurisdictional waters do not specify financial assurances as a mitigation requirement.

### 6.1.1.4 Ownership Status

Areas temporarily impacted by construction of the Project Component and seeded to stabilize disturbed soils and prevent erosion will be located within the Project Component ROW at the point of disturbance.

### 6.1.1.5 Reporting Measures

A Final Project Report will be submitted to CDFW within 30 days after the completion of the Project Component (Whirlwind). The final report will summarize the Project-construction, include any problems relating to the protective measures of the Streambed Alteration Agreement, and include before and after photo documentation of the site.

## 6.1.2 Offsite Mitigation

### 6.1.2.1 Mitigation Site Description

SCE is currently working with the CDFW on a land acquisition to expand the Fremont Valley Ecological Reserve in California City. A fee title of the purchased lands will be transferred to CDFW as mitigation for impacts to waters of the state and CDFW state streambeds pursuant of the SWRCB Waste Discharge Requirements and Streambed Alteration Agreement. Compensatory mitigation for impacts to 0.03 acres of jurisdictional waters of the state and state streambeds will be mitigated at a 3:1 ratio; which equals or exceeds the mitigation requirements in the FEIR (Aspen 2009). SCE will purchase 0.09 acres of jurisdictional streambeds supported on lands located adjacent to the Fremont Valley Ecological Reserve for incorporation into the Reserve. This acreage will consist of jurisdictional streambeds associated with the native vegetation communities identified in Table 6-1. All permanent impacts to jurisdictional areas will be mitigated at a 3:1 ratio, except unvegetated features which will be mitigated at a 1:1 ratio for permanent impacts and 0:1 for temporary impacts (Aspen 2009, 2010).

The agency-approved off-site mitigation plan will be provided as Attachment B to the HMMP. The Plan will include the acquired land parcels, vegetation communities, mitigation acreage, map, and required documentation specified in the applicable regulatory permits.

### 6.1.2.2 Mitigation Goals

The goals of the mitigation program are to comply with the requirements mandated in the USFWS BO, CDFW's ITP, and FEIR (Aspen 2009); restore/enhance or preserve habitats that are of similar or higher functions and services than those impacted; restore/enhance or preserve habitats that reflect the affected vegetation community and the ecological functions and values of that community.

The goals for offsite mitigation for state jurisdictional areas overlap with the goals for mitigating impacts of the Project Component on vegetation communities and listed species habitat. Wherever feasible, offsite mitigation for impacts to state jurisdictional areas, vegetation communities, and listed species habitat will be implemented at the same site or sites.

### 6.1.2.3 Financial Assurances

Financial assurances are not required by the jurisdictional agencies for compensatory mitigation as a result of project impacts to jurisdictional waters.

### 6.1.2.4 Ownership Status

As described above, SCE will be mitigating all permanent impacts to jurisdictional streambeds through preservation of lands to be incorporated by transfer of fee title into the Fremont Valley Ecological Reserve, which is owned by the CDFW.

### 6.1.2.5 Reporting Measures

Reporting requirements for the Habitat Management lands will be completed as specified in the CDFW ITP, and include an interim and/or long-term management plan for CDFW approval, a baseline biological assessment and a land survey report. These reports will be provided to CDFW



within 4 months of recording or transfer. Additional documentation is required as part of the Habitat Management Land Acquisition package for CDFW approval as specified in Attachment 4A of the ITP. A copy of the Implementation Agreement with the CDFW will be submitted to SWRCB within 30 days after the final draft of the Agreement is approved by CDFWG.

## **7.1 Southern California Edison**

SCE will be the owner/operator as well as responsible for onsite installation and monitoring, of the TRTP. SCE is also responsible for mitigating project impacts. SCE may assign revegetation activities to the Construction Contractor at the Company's discretion. SCE will have final review and acceptance over all work on the TRTP.

### **Southern California Edison**

6 Pointe Drive  
Brea, California 92821  
Contact: Renee Latu  
626-476-8506

### **7.1.1 California Public Utilities Commission**

#### **California Public Utilities Commission**

505 Van Ness Avenue  
San Francisco, California 94102  
Contact: John Boccio

### **7.1.2 Regulatory Agencies**

#### **California Department of Fish and Game, South Region**

4665 Lampson Avenue, Suite C  
Los Alamitos, California 90720  
Contact: Erinn Wilson

#### **California Department of Fish and Game, Central Region**

1234 East Shaw Avenue  
Fresno, California 93710  
Contact: Craig Bailey

#### **U.S. Fish and Wildlife Service, Ventura Field Office**

2493 Portola Rd.  
Ventura, California 93003  
Contact: Ray Bransfield

**State Water Resources Control Board**

1001 I Street, 15th Floor-55c

Sacramento, California 95814

Contact: Robert Solecki

## Chapter 8

# Preservation and Management of Compensatory Mitigation Sites

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## 8.1 Overview of Compensatory Mitigation Sites

Compensatory mitigation to meet the requirements of the FEIR and FEIS, USFWS BO, CESA ITP, and CWA permits will be implemented by SCE. SCE is currently working with CDFW and private land owners to secure lands for incorporation into the CDFW Fremont Valley Ecological Reserve. SCE has received preliminary approval from Kern County CDFW Central Region to proceed with the mitigation proposal to satisfy ITP mitigation requirements.

Specific compensatory mitigation sites will be identified by SCE, based on existing habitat functions and values, connectivity with adjacent habitat areas, and land-owner priorities. SCE will consult with CDFW to ensure that the selected areas meet agency requirements. The USFWS biological opinion Conservation Measure 12 stipulates USFWS approval of the fee title entity is required. Clarification provided by the USFWS states approval of the mitigation site by the Agency is not required. The USFWS defers approval of the property acquisition agreement to the CDFW (Bransfield pers. comm. 2012).

Additionally, as specified in the ITP, SCE prepare and submit under separate cover a Preliminary Title Report, Phase One Environmental Site Assessment Report, any technical reports and Habitat Management Plan(s) for the compensatory mitigation site(s). The Habitat Management Plan(s) will be prepared in coordination with CDFW and include all necessary components stipulated in the ITP permit.

## 8.2 Management Responsibilities

Once Habitat Management lands have been acquired, a fee title will be transferred to CDFW. Habitat Management lands will be managed as a component of the Fremont Valley Ecological Reserve by CDFW Central Region. SCE will work with CDFW to develop a Habitat Management Plan appropriate for the reserve.

## 8.3 Management Goals

The goal for the compensatory mitigation sites is to manage the sites to maintain ecosystem functions and values to the benefit of listed species, vegetation communities and jurisdictional resources impacted by the Project Component.

## 8.4 Management Constraints

Potential management constraints for the compensatory mitigation sites include unwilling sellers of identified mitigation lands, human encroachment/vandalism, and colonization of the sites by invasive non-native species present on adjacent sites.

## 8.5 Management Activities and Costs

Management of the compensatory mitigation sites will be described in the Habitat Management Plans for the site(s). SCE will be providing an endowment fund to be held by CDFW for the long term maintenance and management funds.

## 8.6 Reporting Measures

Reporting requirements for the Habitat Management lands will be completed as stipulated by USFWS, CDFW in the BO, ITP, and CWA permits and applicable agreements. Additional documentation is required as part of the CDFW Habitat Management Land Acquisition package for approval as specified in Attachment 4A of the ITP.

## 8.7 Public Use

Public use for compensatory mitigation sites that have existing passive public use will be maintained in a manner compatible with maintaining habitat functions and values and meeting the mitigation requirements. No new public use is planned for the compensatory mitigation sites.

## 8.8 Regulatory Agreements

Compensatory mitigation is being implemented to meet the conditions and measures stipulated by USFWS, CDFW in the BO, ITP, and CWA permits.

## Chapter 9 References

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- AEI CASC. 2010. *SWPPP Storm Water Discharge Associated with Construction Activity* prepared for Southern California Edison Vincent Substation Project. March.
- AMEC. 2009a. *Southern California Edison, Tehachapi Renewable Transmission Project, Segments 4, 5, and 10, Protocol-level Surveys for Swainson's Hawk*. Unpublished report prepared for Southern California Edison. Rosemead, California. November.
- AMEC. 2009b. *Southern California Edison, Tehachapi Renewable Transmission Project, Segment 9, Desert Tortoise Survey Report*. Unpublished report prepared for Southern California Edison. Rosemead, California. September.
- AMEC. 2009c. *Southern California Edison, Tehachapi Renewable Transmission Project, Segment 9, Final 2009 Burrowing Owl Focused Survey Report for Whirlwind Substation*. Unpublished report prepared for Southern California Edison. October.
- AMEC. 2009d. *Final Special-Status Plant Species Survey Report for the Southern California Edison Tehachapi Renewable Transmission Project, Segments 4, 5 and 10*. Prepared for Southern California Edison. December.
- AMEC. 2010. *Final Habitat Restoration and Revegetation Plan Vincent Substation Expansion Project*. Unpublished report prepared for Southern California Edison. January.
- Aspen (Aspen Environmental Group). 2009. *Final Environmental Impact Report/Environmental Impact Statement, Southern California Edison's Application for the Tehachapi Renewable Transmission Project*. Prepared for the California Public Utilities Commission and the USDA Forest Service. October.
- Aspen (Aspen Environmental Group). 2010. *Final Environmental Impact Statement, Southern California Edison's Application for the Tehachapi Renewable Transmission Project*. Prepared for the California Public Utilities Commission and the USDA Forest Service. September.
- Aspen (Aspen Environmental Group) and H.T. Harvey & Associates. 2009. *Biological Resources Specialist Report for the Tehachapi Renewable Transmission Project*. Prepared by California Environmental Quality Act (CEQA) Lead Agency: California Public Utilities Commission Energy Division; and National Environmental Policy Act (NEPA) Lead Agency: USDA Forest Service, Angeles National Forest.
- Aspen. 2009b. *Revised Biological Resources Specialist Report for the Tehachapi Renewable Transmission Project*. Prepared for the California Public Utilities Commission and the USDA Forest Service. September.
- Bransfield, Ray US Fish and Wildlife Service Ventura Field Office. Personal communication August 21, 2012. California Invasive Plant Council (Cal-IPC). 2006. *California Invasive Plant Inventory*. Berkeley, California: California Invasive Plant Council. February 2006. Available: <http://www.cal-ipc.org/ip/inventory/pdf/Inventory2006.pdf>.

- Cal-IPC. 2007. "New Weeds Added to the Cal-IPC Inventory." *Cal-IPC News* Spring 2007:10. Available: <<http://www.cal-ipc.org/ip/inventory/pdf/WebUpdate2007.pdf>>.
- CDFG. 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database*. Vegetation Classification and Mapping Program. September.
- CDFG. 2009. *List of California Vegetation Alliances*. Vegetation Classification and Mapping Program. December. Replaces CDFG 2007 *List of California Vegetation Alliances* cited in previous reports.
- CDFG. 2010a. *California Natural Diversity Database, Rarefind 3*. CDFG Biogeographic Data Branch.
- CDFG. 2010b. *Incidental Take Permit No. 2081-2010-028-05, Southern California Edison, Tehachapi Renewable Transmission Project*. May.
- CDFG. 2011. *Final lake and Streambed Alteration Agreement Notification No. 1600-2010-R4, Unnamed Tributary to Rosamond Lake, - Kern County*. January.
- County of Kern. 2007. *Kern County General Plan, Section 1.10.10, Land Use, Open Space, and Conservation Element, Oak Tree Conservation*. Kern.
- County of Kern. 2009. *Kern County Zoning Ordinance, Chapter 19.73.120 Development Standards*. Kern.
- CH2MHill. 2010. *Excavation Plan (To Address Visual Resources)*. February. Santa Ana, CA. Prepared for Southern California Edison.
- CNPS. 2009. *Inventory of Rare and Endangered Plants*. v7-09d. Available: <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi>.
- County of Los Angeles. 1982. *Los Angeles County Municipal Code, Section 22.56.2060, County of Los Angeles Oak Tree Ordinance*. Los Angeles.
- Dudek and Associates. 2010. *Compensatory Program for State-listed Species, Tehachapi Renewable Transmission Project*. March.
- Elzinga, C. L., D. W. Salzer, J. W. Willoughby, J. P. Gibbs. 1998. *Measuring and Monitoring Plant Populations*. Bureau of Land Management, Technical Reference 1730-1, Denver, CO.
- Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press: Berkeley, CA.
- Holland, R. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. The Resources Agency, California Department of Fish and Game.
- ICF. 2010a. *Vegetation Mapping for the ICF 2010 Botanical Field Survey for the Tehachapi Renewable Transmission Project*. Unpublished Report Prepared for Southern California Edison. August.
- ICF. 2010b. *Southern California Edison, Tehachapi Renewable Transmission Project, Focused Survey Report Special-Status Plant Species, Segment 9*. Unpublished Report prepared for Southern California Edison. September.

- ICF. 2010c. *Southern California Edison, Tehachapi Renewable Transmission Project, 2010 Tree Inventory Report, Segment 9*. Unpublished Report prepared for Southern California Edison. September.
- ICF. 2010d. *Southern California Edison, Tehachapi Renewable Transmission Project, Focused Survey Report for Desert Tortoise, Segment 9*. Unpublished report prepared for Southern California Edison. Rosemead, California. September.
- ICF. 2010e. *Southern California Edison, Tehachapi Renewable Transmission Project, Focused Survey Report for Western Burrowing Owl, Segment 9 (Antelope, Vincent, and Whirlwind Substations)*. Prepared for Southern California Edison. Rosemead, California. September.
- ICF. 2010f. *Southern California Edison, Tehachapi Renewable Transmission Project, Focused Survey Report for Swainson's Hawk, Segment 9*. Unpublished report prepared for Southern California Edison. Rosemead, California. September.
- Leung, J. 2010. *Electronic mail regarding acquisition of mitigation lands for the desert tortoise habitat*. Dated July 22. Senior biologist, Southern California Edison. Rosemead, California.
- Natural Resources Conservation Service (NRCS). 2009. *Natural Conservation Practice Standards*. Available: <<http://www.nrcs.usda.gov/technical/standards/nhcp.html>>.
- Sawyer, J. O., and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA.
- SCE. 2012. Email communication regarding SCE notification on cessation of monitoring of transplanted cacti to CPUC/Aspen. Dated March 14. Southern California Edison. Rosemead, California.
- State Water Resources Control Board (SWRCB). 2011. *Notice of Applicability of Water Quality Order 2004-0004-DWQ General Waste Discharge Requirements for Southern California Edison Tehachapi Renewable Transmission Project: Segment 9—Whirlwind Substation, Kern County, File No. SB100011N*. March.
- U.S. Geological Survey (USGS). 1999. 7.5-Minute Pacifico Mountain, California, Quadrangle.
- . 1995. 7.5-Minute Fairmont Butte, California, Quadrangle.



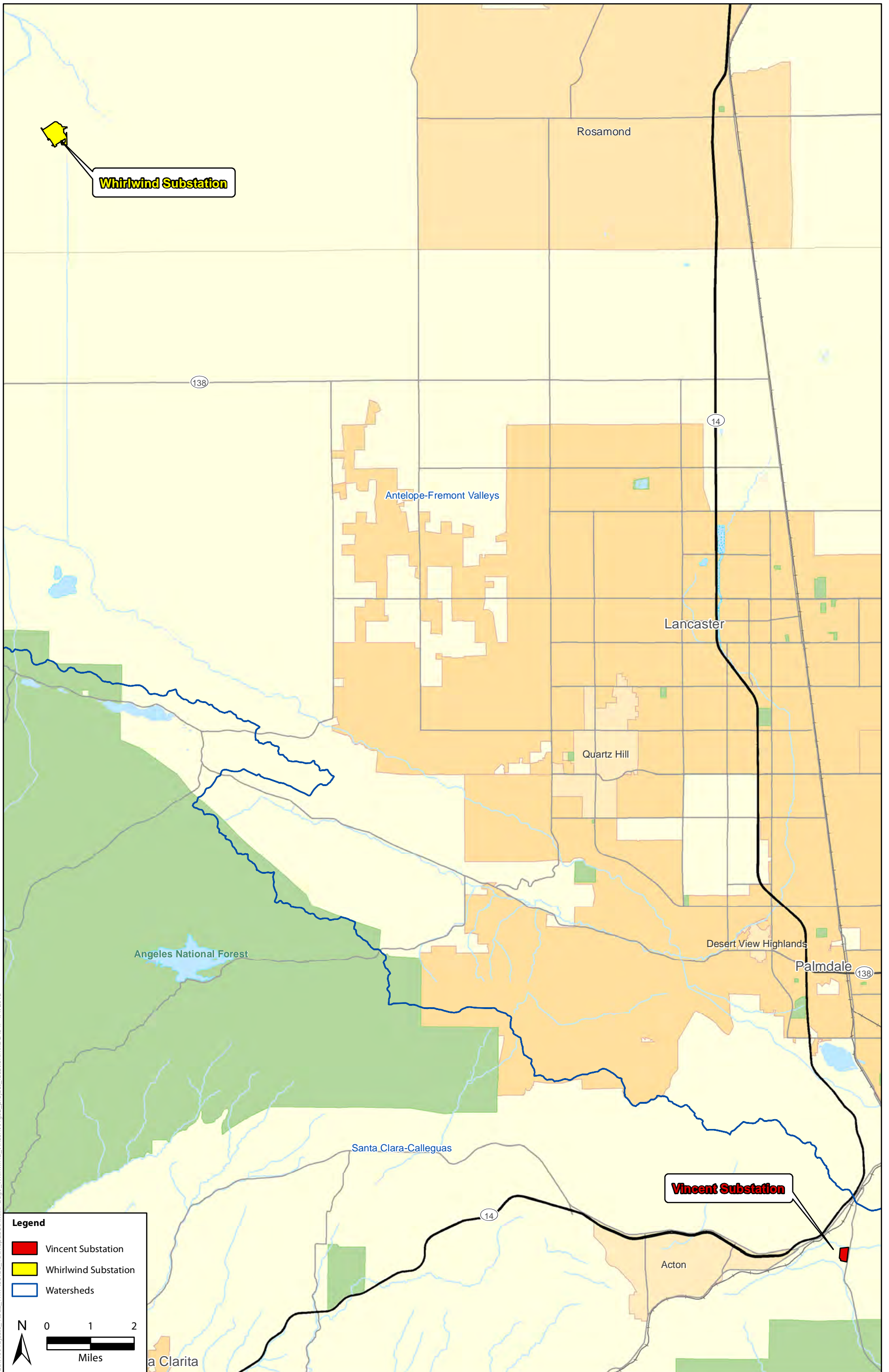
Attachment A  
**Figures**

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**Figure 1**  
**Regional Vicinity - Segment 9 Vincent and Whirlwind Substations**  
**Habitat Mitigation and Monitoring Plan**  
**Tehachapi Renewable Transmission Project**





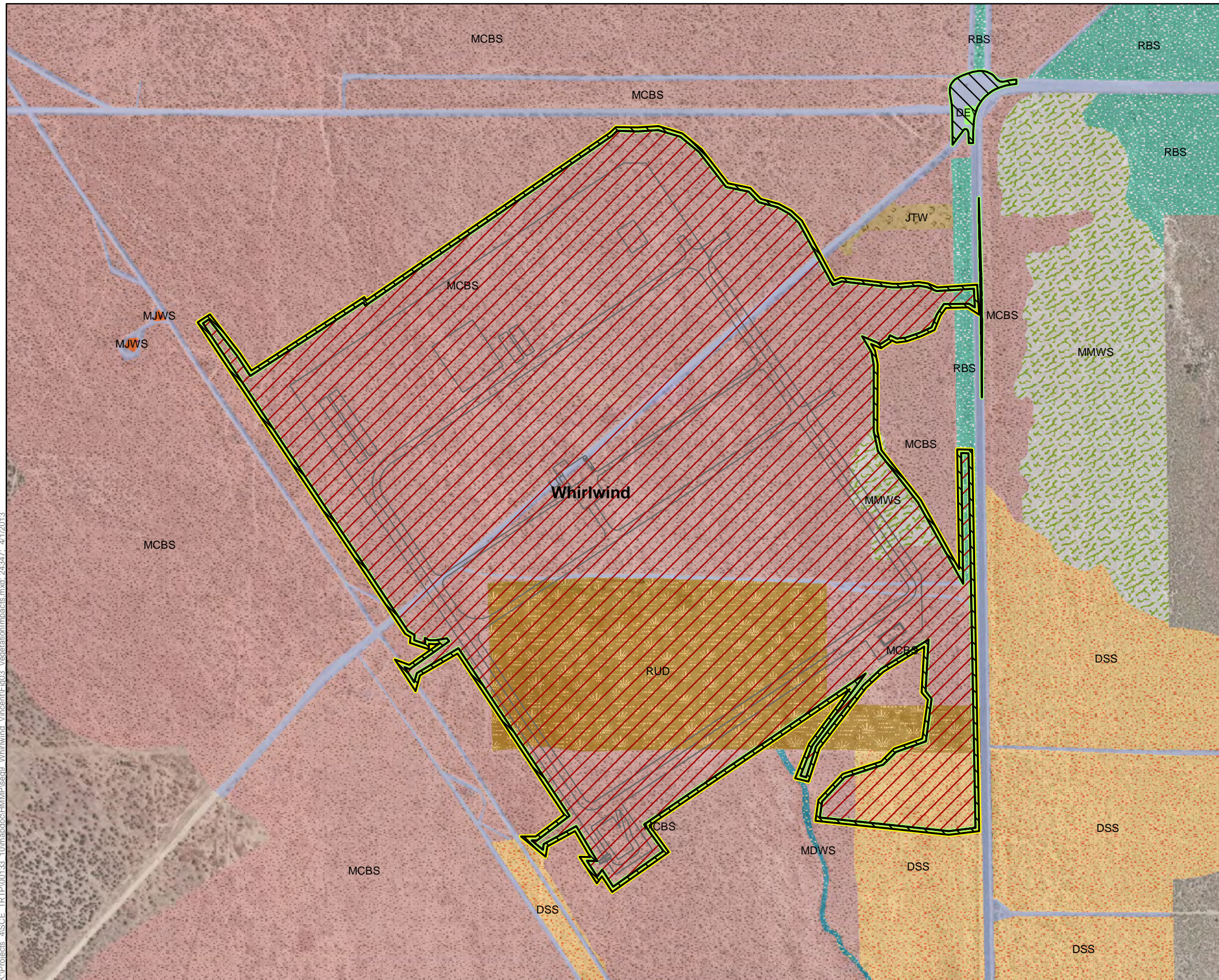
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Source: SCE (2013); ESRI StreetMap North America (2010)



**Figure 2**  
**Project Location - Segment 9 Vincent and Whirlwind Substations**  
**Habitat Mitigation and Monitoring Plan**  
**Tehachapi Renewable Transmission Project**

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**Legend**

- Proposed Substation
- Substation Disturbance Area
- Substation Fence Boundary

**Impacts**

- Permanent
- Temporary

**Vegetation Communities**

BSS - Big Sagebrush Scrub	MJWS - Mojave Juniper Woodland Scrub
DEV - Disturbed/Developed	MJWS-D - Mojave Juniper Woodland Scrub-Disturbed
DSS - Desert Saltbrush Scrub	MMWS - Mojave Mixed Woody Scrub
JTW - Joshua Tree Woodland	MMWS-D - Mojave Mixed Woody Scrub-Disturbed
MCBS - Mojave Creosote Bush Scrub	RBS - Rabbitbrush Scrub
MDWS - Mojave Desert Wash Scrub	RUD - Ruderal Grassland

Source: SCE (2013); ESRI Basemap Imagery (2013)

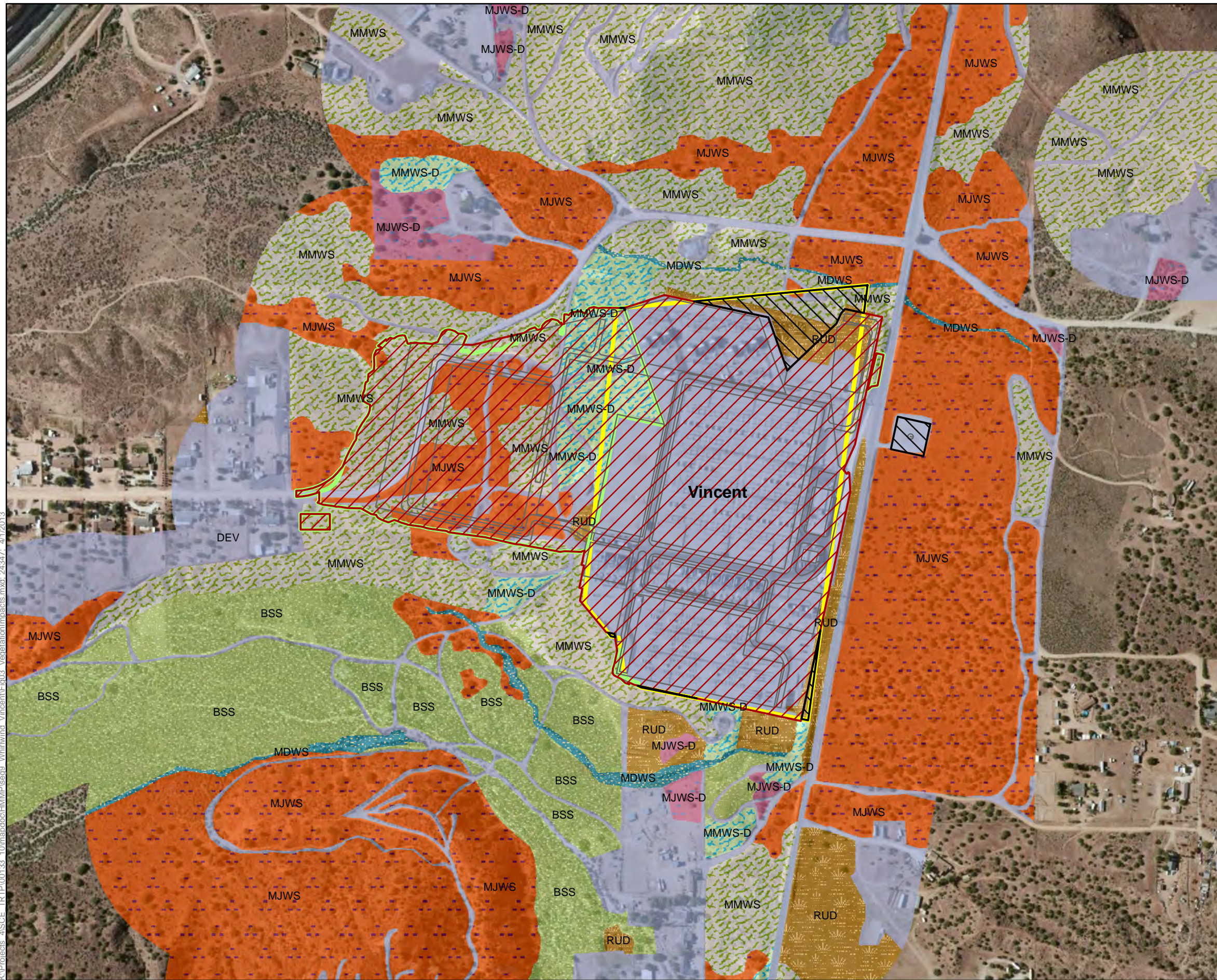


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**Figure 3 - Whirlwind Vegetation Communities and Project Impacts - Segment 9 Vincent and Whirlwind Substations Habitat Mitigation and Monitoring Plan Tehachapi Renewable Transmission Project**

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**Legend**

- Proposed Substation
- ▭ Substation Disturbance Area
- ▭ Substation Fence Boundary

**Impacts**

- ▨ Permanent
- ▨ Temporary

**Vegetation Communities**

▨ BSS - Big Sagebrush Scrub	▨ MJWS - Mojavean Juniper Woodland Scrub
▨ DEV - Disturbed/Developed	▨ MJWS-D - Mojavean Juniper Woodland Scrub-Disturbed
▨ DSS - Desert Saltbrush Scrub	▨ MMWS - Mojave Mixed Woody Scrub
▨ JTW - Joshua Tree Woodland	▨ MMWS-D - Mojave Mixed Woody Scrub-Disturbed
▨ MCBS - Mojave Creosote Bush Scrub	▨ RBS - Rabbitbrush Scrub
▨ MDWS - Mojave Desert Wash Scrub	▨ RUD - Ruderal Grassland

Source: SCE (2013); ESRI Basemap Imagery (2013)



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**Figure 3 - Vincent Vegetation Communities and Project Impacts - Segment 9 Vincent and Whirlwind Substations Habitat Mitigation and Monitoring Plan Tehachapi Renewable Transmission Project**

Attachment B  
**Vincent Substation Short-Joint Beavertail Translocation**  
**Memos**

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## MEMORANDUM

10 March 2010

Mr. Jack Goldfarb  
Environment, Health and Safety Division  
Southern California Edison  
2244 Walnut Grove Avenue #3A  
Rosemead, CA 91770

**Re: Short-joint Beavertail (*Opuntia basilaris* var. *brachyclada*) Transplantation  
Vincent Substation Expansion Project**

Dear Mr. Goldfarb,

Southern California Edison (SCE) is proposing to transplant short-joint beavertail cacti, as discussed in the Draft Habitat Restoration and Revegetation Plan for the Vincent Substation Expansion. The following is a detailed description of the components regarding success vs. failure, monitoring, reporting, and remediation for the transplanted individuals. The Vincent Substation Expansion restoration components will also be described in the Final Habitat Restoration and Revegetation Plan for private lands impacted by the Tehachapi Renewable Transmission Project (TRTP).

### Maintenance and Monitoring

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Maintenance and monitoring of the transplanted short-joint beavertail cacti will be performed with the knowledge and oversight of the project botanist (or restoration specialist). Maintenance will be performed by a restoration contractor experienced in the care of native succulents. Maintenance activities will include the removal of nonnative vegetation in order to help establish the transplanted cacti by reducing the competition for natural resources, including water, nutrients, and sunlight. Weeds surrounding the cacti will be controlled through manual removal only.

#### Monitoring Schedule

The project botanist (or restoration specialist) will be responsible for inspecting the transplanted species and, if necessary, providing recommendations to the contractor for changes in the maintenance program. Monitoring will be conducted for a period of three (3) years. During Year 1, the transplanted cacti will be monitored quarterly and during Years 2 and 3, monitoring will occur annually. Monitoring activities will be conducted to evaluate survivorship and plant vigor, using the existing live plants that are naturally occurring on site as standards to judge vigor. After each monitoring visit, the project botanist will submit a report summarizing the status and survivorship of the transplanted cacti at the site. The quarterly and annual monitoring data will be provided as a spreadsheet, appended to the monitoring reports.

## Success Criteria and Remedial Measures

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The overall goal of transplanting activities is to achieve an 80 percent survivorship. If survivorship is less than 80 percent at any time before the end of the three year monitoring period, replacement planting will occur (any lost species will be left in place as vertical mulch). Replacement plants will be grown from seed that is collected on-site from extant short-joint beavertail cacti. This seed will be collected and grown by a Southern California nursery that has experience in growing native plants. Plants will be propagated into 1- gallon containers that will be planted in the vicinity of the original transplants in order to make up the overall survivorship requirements at a 2:1 ratio (i.e., for every one plant below 80 percent that survives three years, SCE will plant and monitor 2 1-gallon size replacement plants originating from on-site seed). Replacements will be monitored for 3 years with the same maintenance, monitoring and survival requirements as the original plantings. A description of all remedial actions will be included in the monitoring reports.

## Notification of Completion

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When the monitoring period is complete and if the final success criteria have been met, notification of these events will be provided as part of the final annual report. The final annual report submitted by the botanist will be provided to the reviewing agencies within 60 days of project completion. The final annual report will describe how the transplantation was implemented, noting the identification tags and locations of the plants, all monitoring data, remediation measures, any problems encountered, and any deviations from the methods described.

Following receipt of the final annual report, SCE or their designee may provide access and guidance through the site to agencies involved, including the CPUC, to confirm the adequate completion of the mitigation effort.

If you have any questions or require additional information, please contact me at (619) 838-4034 or at [halleh.paymard@amec.com](mailto:halleh.paymard@amec.com).

Sincerely,

**Halleh M. Paymard**

**Botanist**

**Biological Resources**

**amec** Earth & Environmental





## **Restoration Monitoring Memorandum**

**PROJECT: Tehachapi Renewable Transmission Project,  
Segments 4 through 11**

**From:** Ryan Gilmore, ECORP Consulting Inc.

**To:** Jack Goldfarb, Biologist, SCE  
Environment, Health and Safety Division  
Southern California Edison  
2244 Walnut Grove Avenue #3A  
Rosemead, CA 91770

**Date:** March 29, 2010

**RE: Additional Transplantation of Short-joint Beavertail Cactus  
(*Opuntia basilaris* var. *brachyclada*) at Vincent Substation,  
Palmdale, California.**

### **Purpose**

The purpose of this memo is to summarize restoration monitoring services that ECORP provided on March 25, 2010 near the Vincent Substation located south of Palmdale, California.

### **Need for Work**

Previously (March 15, 2010) a total of six short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*; SJBC; California Native Plant Society List 1B.2 plant) were transplanted from the Vincent Substation construction footprint by Nature's Image; ECORP provided restoration monitoring services for that effort (see Memo dated March 19, 2010). Following the March 15 transplantation effort, Mr. Goldfarb of Southern California Edison requested that additional SJBC be transplanted from the construction footprint.

On March 25, 2010, an ECORP biologist (Ryan Gilmore) who has applicable experience working with SJBC, monitored the transplantation of SJBC to verify that the work was performed as specified in the *Final Habitat Restoration and Revegetation Plan* (AMEC

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2010) (hereinafter referred to as Plan) for the Vincent Substation Expansion Project (project). The Restoration Contractor for this work was Nature's Image. A total of eight additional SJBC were identified as requiring transplantation to avoid impacts associated with the project; however, two of the cactuses were actually found to be in extremely poor health (discussed in further detail in Results section below). One of the plants was found to be extremely desiccated and near death. The other plant was found bare root and on the surface of a disturbed area. The ground disturbance was not due to activities associated with the project but off highway vehicle (OHV) use.

### **Methods**

Prior to beginning the transplantation work, the on-site ECORP biologist reiterated to the Nature's Image crew that SJBC has wide root systems and they would have to be transplanted exactly according to methods described in the Plan, and if not performed in the specified manner, Nature's Image would be held to monitoring the transplanted SJBC for a period of five (5) years. Nature's Image adhered to ECORP's directives and performed the excavation of the cactuses at four times the width of the above ground stem segments from the base of the cactus, and to a depth of four to eight inches below the surface. The cactuses were dug out by hand and carefully moved without damaging their root balls.

The cactuses were relocated to a predetermined transplant site chosen adjacent to the Vincent Substation. The transplantation site is similar in elevation and soil. The cactuses spent less than an hour out of the ground. Each cactus had its new location recorded with a Global Positioning System (GPS) device. Each SJBC requiring transplantation was assigned an identification (ID) number. Rather than directly attaching a tag to plants, ID numbers were written on rebar caps and placed on top of rebar that was pounded into the ground at the relocation sites (taking care not to damage cactus roots). The individual numbering of specific cactuses was started at number seven to reflect the six cactuses which were previously transplanted on March 15, 2010. Each cactus was replanted similar to its original depth and orientation and, as much as practicable, in the same soil conditions as from where it originally was growing. The salvaged cactuses were planted into holes two to three times their width, and only as deep as the rootball. The salvaged cactuses were planted and the soil tamped by hand around the plant so that no air pockets remained around the roots. The cactuses were then watered deeply and slowly at the time of transplantation to further minimize any air pockets and to ensure proper soil compaction.

### **Results**

A total of eight SJBC were discovered to be growing at the Vincent Substation after commencement of ground clearing activities. These cactuses were not damaged as a result of ground clearing activities. A total of eight cactuses were relocated to the transplantation site. The locations of transplanted cactuses were recorded using a GPS unit (See Table 1 below). The cactuses were photo documented before and after salvage activities were completed (these photos are available upon request). It should be noted

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that cactus number twelve and thirteen were determined to have a low chance of survival.

**Table 1: Locations for Relocated Cactuses**

<b>Plant Identification</b>	<b>Original Location</b>		<b>New Location</b>		<b>Comments</b>
7	34.48724	118.12282	34.48817	118.12183	
8	34.48732	118.12293	34.48814	118.1218	
9	34.48734	118.12296	34.48813	118.12175	
10	34.48742	118.1231	34.48817	118.12177	
11	34.48652	118.12317	34.48816	118.12164	
12	34.48668	118.12347	34.48825	118.12152	Out of ground, slight desiccation
13	34.48731	118.12284	34.48812	118.12165	Extreme desiccation
14	34.48763	118.12306	34.48815	118.12159	

**Maintenance Requirements**

According to the Plan the cactuses shall be watered approximately 15 days after transplantation. Nature's Image will conduct supplemental watering of the additional transplanted SJBC (total of eight) on or prior to April 9, 2010. Long-term care shall follow the protocols established in the *Final Habitat Restoration and Revegetation Plan*.

Please contact me, or Josh Corona-Bennett (ECORP, [858] 279-4040) if you have any questions regarding the transplantation of SJBC from the Vincent Substation Expansion Project area.

Sincerely,



Ryan Gilmore  
Biologist  
[rgilmore@ecorpconsulting.com](mailto:rgilmore@ecorpconsulting.com)  
ECORP Consulting, Inc.

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**References:**

AMEC Earth & Environmental, Inc. (AMEC). 2010. *FINAL Habitat Restoration and Revegetation Plan, Vincent Substation Expansion Project*. Prepared for Southern California Edison, January 2010.

## Attachment C

# Seed Mixes and Container Plants

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### TRTP Segment 9 Seed Mixes and Container Plants

#### California Annual Grassland

Scientific Name	Common Name	Propagule Type	Quantity/Acre**
<i>Amsinkia tessellata</i>	devil's lettuce	Seed	3
<i>Calandrinia ciliata</i>	red maids	Seed	2
<i>Chaenactis glabriuscula</i> var. <i>glabriuscula</i>	yellow pincushion	Seed	3
<i>Cryptantha muricata</i>	prickly popcorn flower	Seed	3
<i>Eschscholzia californica</i>	California poppy	Seed	3
<i>Lasthenia californica</i>	California goldfields	Seed	3
<i>Lotus strigosus</i>	Bishop's lotus	Seed	5
<i>Lupinus bicolor</i>	minature lupine	Seed	4
<i>Nassella pulchra</i>	purple needlegrass	Seed	5
<i>Nassella cernua</i>	nodding needlegrass	Seed	4
<i>Poa secunda</i>	one-sided blue grass	Seed	4
<i>Vulpia microstachys</i>	small fescue	Seed	5

#### Mojave Creosote Bush Scrub

Scientific Name	Common Name	Propagule Type	Quantity/Acre**
<i>Ambrosia dumosa</i>	burro-weed	Seed	5
<i>Amsinkia tessellata</i>	devil's lettuce	Seed	3
<i>Cylindropuntia echinocarpa</i>	Wiggin's cholla	Container	50
<i>Cryptantha muricata</i>	prickly popcorn flower	Seed	2
<i>Encelia actoni</i>	Acton bush sunflower	Container	35
<i>Ephedra nevadensis</i>	Nevada jointfir	Container	190
<i>Ephedra viridis</i>	green ephedra	Container	190
<i>Larrea tridentata</i>	creosote	Container	250
<i>Lasthenia californica</i>	California goldfields	Seed	2
<i>Mirabilis californica</i>	desert wishbone	container	30
<i>Salvia columbariae</i>	chia	Seed	3

#### Mojave Desert Wash Scrub

Scientific Name	Common Name	Propagule Type	Quantity/Acre**
<i>Achnatherum speciosum</i>	desert needlegrass	Seed	3
<i>Ambrosia salsola</i>	cheesebush	Seed	5
<i>Amsinkia tessellata</i>	devil's lettuce	Seed	2

Attachment C  
**Fremont Valley Ecological Reserve Conceptual  
Mitigation Package**

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**Pending**