

FINAL

Raven Monitoring, Management, and Control Plan

West of Devers Upgrade Project
Riverside and San Bernardino Counties, California

Prepared for

Southern California Edison

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Prepared by

JACOBS®

Raven Monitoring, Management, and Control Plan Checklist

Applicable Agencies:

- Bureau of Indian Affairs
- Bureau of Land Management
- California Department of Fish and Wildlife
- California Public Utilities Commission
- Coachella Valley Conservation Commission
- Morongo Band of Mission Indians
- Riverside County Regional Conservation Authority
- U.S. Fish and Wildlife Service

Applies in the Following Areas:

- BLM Lands
- Morongo Reservation
- San Bernardino County
- CV-MSHCP
- WR-MSHCP

Applies to the Following Project Components:

- Transmission Line
- Subtransmission
- Telecom
- Substations
- Distribution
- Construction Yards

Addresses the Following Measure:

FEIR/FEIS MM WIL-2b Prepare and implement Raven Monitoring, Management, and Control Plan

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Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BO	Biological Opinion
BMP	best management practice
CAISO	California Independent System Operator
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CM	conservation measure
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CVCC	Coachella Valley Conservation Commission
CV-MSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
EPD	Environmental Protection Department
ESA	Endangered Species Act
ITP	Incidental Take Permit
kV	kilovolts
LSA	LSA Associates, Inc.
MM	mitigation measure
Morongo Reservation	Reservation Trust Lands of the Morongo Band of Mission Indians
NBMP	Nesting Bird Management Plan
NFWF	National Fish and Wildlife Foundation
O&M	operations and maintenance
Plan	Raven Plan
Project	West of Devers Upgrade Project
PSE	Participating Special Entity
RCA	Riverside County Regional Conservation Authority
ROD	Record of Decision
ROW	right-of-way
RRMP	Regional Raven Management Plan

ACRONYMS AND ABBREVIATIONS

SCE	Southern California Edison
SR	State Route
USFWS	U.S. Fish and Wildlife Service
WOD	West of Devers Upgrade Project
WR-MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

Introduction

Southern California Edison (SCE) proposes to construct the West of Devers (WOD) Upgrade Project (Project) to increase the power transfer capability of the WOD 220-kilovolt (kV) transmission lines between Devers, El Casco, Vista, and San Bernardino substations. The Project is needed to facilitate the full deliverability of new electric generation resources being developed in eastern Riverside County, in an area designated by the California Independent System Operator (CAISO) for planning purposes as the Blythe and Desert Center areas. The Project, planned to be operational by 2021, would upgrade the existing WOD transmission line system by replacing the existing WOD 220-kV transmission lines and associated structures with higher-capacity transmission lines and structures and making telecommunication improvements.

This Raven Monitoring, Management, and Control Plan (Raven Plan or Plan) describes the raven management strategy and reporting procedures for the Project. The Plan has been prepared to address mitigation measure (MM) WIL-2b from the Final Environmental Impact Report¹ (FEIR) and Final Environmental Impact Statement (FEIS) (Bureau of Land Management [BLM], 2016a) as presented in the Certificate of Public Convenience and Necessity (CPCN) (California Public Utilities Commission [CPUC], 2016b) and Record of Decision (ROD) (BLM, 2016b), respectively, and conservation measure (CM) 36 from the U.S. Fish and Wildlife Service Biological Opinion (BO) (USFWS, 2016), and Take Minimization Measure 8.15 from the California Fish and Game Code (CFGC) Section 2081 Incidental Take Permit (ITP) (CDFW, 2018) for the Project. Applicant Proposed Measure BIO-5 from the Proponent's Environmental Assessment (SCE, 2013) was superseded by FEIR/FEIS MM WIL-2b and is not discussed further in this Plan. In general, the purpose of the Plan is to minimize raven (*Corvus corax*) predation on desert tortoise (*Gopherus agassizii*) during the construction, restoration, and operations and maintenance (O&M) phases of the Project.

1.1 Project Overview

The Project would upgrade the existing WOD system by replacing existing 220-kV transmission lines and associated structures with new, higher-capacity 220-kV transmission lines and structures, modifying existing substation facilities, removing and relocating existing subtransmission (66-kV) lines, removing and relocating existing distribution (12-kV) lines, and making various telecommunication improvements. In particular, the Project would:

- Upgrade substation equipment within SCE's existing Devers, El Casco, Etiwanda, San Bernardino, and Vista substations to accommodate continuous and emergency power on the upgraded WOD 220-kV transmission lines. Activities related to substation upgrades will take place within the existing, disturbed fence lines of the substations and are not addressed further in this Plan.
- Remove and upgrade the existing 220-kV transmission lines and structures primarily within the existing WOD corridor as follows:
 - Segment 1 would be approximately 3.5 miles long and extend south from San Bernardino Substation to the San Bernardino Junction. It would include the following existing 220-kV transmission lines: Devers–San Bernardino, Etiwanda–San Bernardino, San Bernardino–Vista, and El Casco–San Bernardino. Segment 1 does not include desert tortoise habitat and is west of the current known geographic range of the desert tortoise.

¹ For the purpose of this Plan, "FEIR" refers to the FEIR (California Public Utilities Commission [CPUC], 2015) and Addendum to the FEIR (CPUC, 2016a).

- Segment 2 would be approximately 5 miles long and extend west from the San Bernardino Junction to Vista Substation. It would include the following existing 220-kV transmission lines: Devers–Vista–No. 1 and Devers–Vista No. 2. Segment 2 does not include desert tortoise habitat and is west of the current known geographic range of the desert tortoise.
- Segment 3 would be approximately 10 miles long and extend east from the San Bernardino Junction to El Casco Substation. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, El Casco–San Bernardino, and Devers–San Bernardino. Segment 3 does not include desert tortoise habitat and is west of the known geographic range of the desert tortoise.
- Segment 4 would be approximately 12 miles long and extend east from El Casco Substation to San Gorgonio Avenue in the City of Banning. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino. Segment 4 is west of the current known range of the desert tortoise.
- Segment 5 would be approximately 9 miles long and extend east from San Gorgonio Avenue in the City of Banning to the eastern limit of the Reservation Trust Lands of the Morongo Band of Mission Indians (Morongo Reservation) at Rushmore Avenue. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino. The eastern portions of Segment 5, from approximately the eastern edge of the Morongo Reservation east, includes desert tortoise habitat and is within the current known geographic range of the desert tortoise.
- Segment 6 would be approximately 8 miles long and extend east from the eastern boundary of the Morongo Reservation to Devers Substation. It would include the following existing 220-kV transmission lines: Devers–Vista No. 1, Devers–Vista No. 2, Devers–El Casco, and Devers–San Bernardino. Segment 6 includes desert tortoise habitat and is within the current known geographic range of the desert tortoise.
- Remove a portion (approximately 2 miles) of the existing San Bernardino–Redlands–Timoteo and San Bernardino–Redlands–Tennessee 66-kV Subtransmission Lines from within the existing WOD right-of-way (ROW) and reconstruct as follows:
 - The relocated San Bernardino–Redlands–Timoteo 66-kV Subtransmission Line would be approximately 2 miles long and would reconnect to the San Bernardino–Redlands–Timoteo 66-kV Subtransmission Line inside Timoteo Substation.
 - The relocated San Bernardino–Redlands–Tennessee 66-kV Subtransmission Line would be approximately 3.5 miles long and would reconnect to the San Bernardino–Redlands–Tennessee 66-kV Subtransmission Line at Barton Road.

These Project components are located west of the current known geographic range of the desert tortoise.

- Remove a portion of the existing Dental and Intern 12-kV distribution circuits within the WOD ROW and relocate the circuits as follows:
 - The relocated Dental 12-kV Distribution Circuit would be approximately 1.5 miles long and would reconnect to the existing Dental 12-kV circuit.
 - The relocated Intern 12-kV Distribution Circuit would be approximately 2.25 miles long and would reconnect to the Intern 12-kV circuit.

These Project components are located west of the current known geographic range of the desert tortoise.

- Install telecommunication lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

1.2 Project Location

The Project crosses the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, Palm Springs, Rancho Cucamonga, Redlands, San Bernardino, and Yucaipa, and unincorporated areas of Riverside and San Bernardino counties (Figure 1-1). The transmission corridor passes over Interstate 215 in San Bernardino County, as well as State Route (SR)-60, SR-79, SR-243, and SR-62 in Riverside County, and runs approximately parallel to the majority of the Interstate 10 corridor in both San Bernardino and Riverside counties.

The Project is located largely within an existing utility corridor in incorporated and unincorporated areas of Riverside and San Bernardino counties, within the San Bernardino Valley. The San Bernardino Valley region is bounded by the San Gabriel and San Bernardino Mountains to the north, the San Jacinto Mountains to the east, and the Santa Ana Mountains and Pomona Valley on the south and west, respectively. The terrain of the project area varies between gently sloping plains to steep ridges and drainages in the foothills. Elevations within the project area range from approximately 1,050 to 3,000 feet above mean sea level with mountainous topography, lowlands and foothills, and relatively flat urban areas.

The Project, which is divided into six segments for ease of discussion, traverses areas of various land uses and is subject to several federal, state, and local jurisdictions. Segment 1, Segment 2, and the western portion of Segment 3 are located in incorporated and unincorporated portions of San Bernardino County. The eastern portion of Segment 3, all of Segment 4, and very small areas of Segment 5 are located within the planning area of the Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP, 2003) (Riverside County Integrated Project, 2003), which is administrated by the Riverside County Regional Conservation Authority (RCA). Portions of Segment 5, excluding lands held in trust by the Bureau of Indian Affairs (BIA) for the Morongo Reservation, and most of Segment 6, excluding small parcels of lands administrated by BLM, are located within the coverage area of the Coachella Valley Multiple Species Habitat Conservation Plan (CV-MSHCP) (Coachella Valley Association of Governments, 2006), which is administrated by the Coachella Valley Conservation Commission (CVCC).

Desert tortoise habitat is present on portions of Segments 5 and 6 of the Project, from approximately Millard Pass Road on the Morongo Reservation to the eastern terminus of the Project at Devers Substation. For the purpose of analysis, CV-MSHCP Modeled Habitat for desert tortoise is considered “potential” habitat for desert tortoises where it occurs in the project area. However, it should be noted that the project area is subject to the effects of urbanization, drought, erosion, and other factors, resulting in generally low-quality habitat. Desert tortoises have the potential to occur in suitable habitats in Segments 5 and 6. However, based on habitat assessments and surveys conducted for the Project (Garcia and Associates, Inc., 2010; Alice E. Karl and Associates, 2012; LSA Associates, Inc. [LSA], 2013; CH2M HILL Engineers, Inc., 2015), there is a higher probability for tortoises to occur in the portions of the project area from approximately Millard Pass Road to approximately Desert View Avenue (Figure 1-2). There are no designated critical habitat units on the project area. The nearest U.S. Fish and Wildlife Service (USFWS)-designated critical habitat is approximately 25 miles east of the eastern terminus of the Project in the Chuckwalla Critical Habitat Unit.

1.3 Relevant Laws, Regulations, and Management Policies

Several federal and state regulations afford varying degrees of protection for wildlife occurring within the project area. The regulations and permits applicable to the Raven Plan are summarized in this section. The federal and state regulations along with the Project-specific requirements provide the regulatory framework within which the Project must comply.

1.3.1 Federal Laws and Regulations

Federal Endangered Species Act

The Endangered Species Act (ESA) and its subsequent amendments provide guidance for the conservation of endangered and threatened species, and the ecosystems upon which they depend. ESA Section 9 lists activities that are prohibited by the act. For example, “take” of any listed species is prohibited. Take under ESA is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

USFWS Regional Raven Management Program

To address the impacts from ravens on desert tortoises and their habitats, the USFWS together with several cooperating agencies, including the BLM, National Park Service, Department of Defense, and the Department of Agriculture, completed an environmental assessment (Raven Environmental Assessment) for the implementation of a Desert Tortoise Recovery Plan Task to reduce predation by the common raven on the federally threatened desert tortoise in the California desert (USFWS et al., 2008).

Because it is not possible to completely exclude ravens from using Project infrastructure (i.e., transmission lines and towers, buildings, fences, etc.) as nesting, perching, and roosting substrates (during breeding as well as non-breeding seasons), a Regional Raven Management Plan (RRMP) was developed. The RRMP is a regional-scale, adaptively managed program designed to address raven predation in the California desert region (USFWS et al., 2008). Monetary contributions and implementation of the regional plan are intended to address the indirect and cumulative impacts associated with development projects and other land uses in the desert that facilitate the expansion of raven populations into desert tortoise habitats. The National Fish and Wildlife Foundation (NFWF), manages the funds to implement the RRMP.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act is a law implemented as a result of treaties with Britain (on behalf of Canada), Mexico, the former Soviet Union (which included what is now the Russian Federation), and Japan that makes it unlawful, except as formally permitted, to take (pursue, hunt, take, capture, or kill) migratory birds, except under permits for special situations such as imminent threat to human safety or scientific research. The law currently applies to more than 1,000 species, including most native birds, and covers the destruction or removal of active nests of those species. These protections apply whether there was intent and regardless of whether other entitlements are in place, such as approvals under the California Environmental Quality Act.

1.3.2 State and Local Laws and Regulations

California Endangered Species Act

Administered by the California Department of Fish and Wildlife (CDFW), the California Endangered Species Act (CESA) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. It prohibits the take of any species that the California Fish and Game Commission determines to be a threatened or endangered species. CESA also mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect both a federally and state-listed species, compliance with ESA will satisfy the CESA if the CDFW determines that the federal incidental take authorization is “consistent” with CESA under CFGC Section 2080.1.

Sections 3503, 3503.5, 3505, 3513, 3800, 3801.6—Native Birds

These CFGC sections protect all birds, birds of prey, and all nongame birds, as well as their eggs and nests, for species that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take any raptors (e.g., hawks, owls, eagles, and falcons), or their nests and eggs.

1.3.3 Project-Specific Requirements

The Plan was prepared to address the Project-specific regulatory requirements summarized in Table 1-1.

Table 1-1. Project-specific Requirements

West of Devers Upgrade Project Raven Monitoring, Management, and Control Plan

Measure	Description
FEIR/FEIS MM WIL-2b	<p>Prepare and implement Raven Monitoring, Management, and Control Plan. SCE shall prepare and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) consistent with USFWS raven management guidelines and that meets the approval of the CPUC and BLM in consultation with USFWS, and CDFW. The purpose of the Raven Plan shall be to minimize Project-related predator subsidies and prevent any increases in raven numbers or activity within desert tortoise habitat during construction, restoration, and O&M phases. The Plan shall address all Project components and their potential effects on raven numbers and activity. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be implemented pursuant to the Plan. Regardless of raven monitoring results, SCE shall be responsible for all other aspects of raven management described in the Raven Plan, such as avoidance and minimization of Project-related trash, water sources, or perch/roost/nest sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the Project to desert tortoise impacts from increased raven numbers, SCE shall contribute to the USFWS Regional Raven Management Program.</p> <p>SCE shall:</p> <ol style="list-style-type: none"> 1. Prepare and Implement a Raven Management Plan that shall include, but shall not be limited to the following components. The Plan shall be reviewed and approved by CPUC, BLM, USFWS, and CDFW prior to the start of construction activities. <ol style="list-style-type: none"> a. Identify all potential Project activities, structures, components, and other effects that could provide predator subsidies or attractants, including potential sources of food and water, and nesting materials, as well as nest or perch sites. These will include, but will not be limited to: waste food material, road-killed animals, water storage, potential pooling from leaks, dust control, or wastewater, debris from brush clearing, and perch or roost sites on Project facilities and infrastructure. b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities. c. Appoint a qualified biologist who will implement a monitoring schedule and field methods for the purpose of locating any ravens present in the Project vicinity and detecting any increase in raven numbers or activity. d. Specify raven activity thresholds for implementation of control measures. e. Describe control practices for ravens to be implemented as needed based on the monitoring results. f. Address monitoring and nest removal during construction and for the life of the Project. g. Describe reporting schedules and requirements. 2. Contribute to the USFWS Regional Raven Management Program. No later than 30 days prior to the start of construction, SCE shall contribute to the USFWS Regional Raven Management Program by making a one-time payment of \$105 per acre of long-term or permanent Project disturbance within the geographic range of desert tortoise, or as specified by the USFWS, to the National Fish and Wildlife Federation Renewable Energy Action Team raven control account. <p>Implementation locations: This mitigation measure applies on BLM lands and is recommended on all Morongo Tribal Lands. No suitable desert tortoise habitat is present within San Bernardino County and the WR-MSHCP; therefore, this mitigation measure does not apply in these jurisdictions. In the CV-MSHCP, this mitigation measure shall apply in its entirety regardless of SCE’s Participating Special Entity (PSE) status.</p>
BO CM 36	<p>SCE will prepare and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) consistent with Service common raven management guidelines and that meets the approval of the BLM, Service, and CDFW. The purpose of the Raven Plan will be to minimize Project-related predator subsidies and prevent any increases in raven numbers or activity within desert tortoise habitat during</p>

Table 1-1. Project-specific Requirements*West of Devers Upgrade Project Raven Monitoring, Management, and Control Plan*

Measure	Description
	<p>construction and restoration phases. The Raven Plan will address all Project components and their potential effects on raven numbers and activity. The threshold for implementation of raven control measures will be any increases in raven numbers from baseline conditions, as detected by monitoring to be implemented pursuant to the Raven Plan. Regardless of raven monitoring results, SCE will be responsible for all other aspects of raven management described in the Raven Plan, such as avoidance and minimization of Project-related trash, water sources, or perch/roost/nest sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the Project to desert tortoise impacts from increased raven numbers, SCE will contribute to the Service’s Regional Raven Management Program.</p> <p>The Raven Plan will include, but will not be limited to the following components:</p> <ol style="list-style-type: none"> a. Identification of Project activities, structures, components, and other effects that could provide predator subsidies or attractants – including potential sources of food and water, nesting materials, as well as nest or perch sites. These will include, but will not be limited to, waste food material, road-killed animals, water storage, potential pooling from leaks, dust control, or wastewater, debris from brush clearing, and perch or roost sites on Project facilities and infrastructure. b. Management practices to avoid or minimize conditions that might increase raven numbers and predatory activities. c. Appointment of a qualified biologist who will implement a monitoring schedule and field methods for locating any ravens present in the Project vicinity and detecting any increase in raven numbers or activity. d. Specification of raven activity thresholds for implementation of control measures. e. Description of control practices for ravens to be implemented as needed based on the monitoring results. f. Monitoring and nest removal during construction and as needed thereafter. Post-construction nest monitoring and removal, searches for desert tortoise remains, and common raven removal will be conducted for 3 to 5 years after construction and post-construction restoration activities are completed or until SCE demonstrates, and California Public Utilities Commission (CPUC), BLM, Service, and CDFW agree, that any or all of these actions are no longer necessary based on the results of the nest monitoring surveys. g. Reporting schedules and requirements. h. No later than 30 days prior to the start of construction, SCE will contribute to the Service’s Regional Raven Management Program by making a one-time payment of \$105 per acre of long-term or permanent Project disturbance within the geographic range of desert tortoise or as specified by the Service to the National Fish and Wildlife Federation Renewable Energy Action Team raven control account.
ITP Take Minimization Measure 8.15	<p>Raven Management. To reduce the potential for increased raven predation on desert tortoise, Permittee shall develop and implement a raven monitoring, management, and control plan (Raven Plan) for CDFW review and approval. The Raven Plan shall specify actions to minimize Project-related predator subsidies and prevent any increases in raven numbers or activity within desert tortoise habitat during Project construction and restoration. In addition, to offset the cumulative contributions of the Project to desert tortoise impacts from increased raven numbers, Permittee shall make a monetary contribution to the USFWS Regional Raven Management Program to fund ongoing raven management activities. Permittee shall contribute one hundred five dollars (\$1 05.00) per acre for the 249.94 acres of desert tortoise habitat impacted by the Project. For this ITP, the payment shall be \$26,243.70 (249.94 acres x \$105 per acre).</p>

Sources: CPUC, 2016b; USFWS, 2016

Notes:

To avoid redundancy, the FEIR/FEIS MM language was copied from the CPCN (CPUC, 2016b). While subtle differences in MM language were noted upon review of the ROD (BLM, 2016b), the requirements are ultimately the same. References for the citations in the requirement descriptions can be found in the source documents.

1.4 Agency Involvement

CPUC is the lead state agency responsible for compliance with California Environmental Quality Act for the Project. The BLM is the lead federal agency responsible for compliance with the National Environmental Policy Act for the Project. The lead agencies are responsible for CEQA and NEPA compliance, respectively, for the entire project. The lead agencies have discretionary approval over the Project and are responsible for reviewing aspects of the measures documented in this Raven Plan. Because raven subsidies have the potential to affect desert tortoise populations, and the measures in this plan could impact common ravens, the USFWS and CDFW are also responsible for reviewing the Plan.

Consulting agencies are public agencies, other than the lead agencies, that may provide guidance or information needed to satisfy the requirements of the measures contained in this Plan. Given that the Project also crosses lands owned by the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, Palm Springs, Rancho Cucamonga, Redlands, San Bernardino, and Yucaipa, as well as unincorporated areas of Riverside and San Bernardino counties, including the Morongo Reservation, these agencies have elected to participate as a Cooperating Agency for the environmental review of the Project.

1.5 Plan Goals and Objectives

The Raven Plan was developed to address Project-specific impacts on desert tortoise from common ravens that may be attracted to the transmission line towers or infrastructure. This effort is being conducted to reduce raven predation on desert tortoise at the local and regional levels. The goal of the Plan is to use methods to deter raven depredation of juvenile desert tortoises to ensure that the overall number of desert tortoise along the WOD corridor do not decrease as a result of Project implementation.

1.6 Applicable Project Segments

The Plan addresses raven management, monitoring, and control required prior to construction, during construction, and during post-construction/restoration activities for the Project segments listed in Table 1-2.

Table 1-2. Applicable Project Segments

West of Devers Upgrade Project Raven Monitoring, Management, and Control Plan

Measure	Applicable Project Segments
FEIR/FEIS MM WIL-2b	Segments 5 and 6
BO CM 36	Segments 5 and 6
ITP Take Minimization Measure 8.15	Segments 5 and 6

1.7 Timing

The measures described in this Plan are applicable during the preconstruction, construction, and post-construction/restoration phases of the Project, as shown in Table 1-3.

Table 1-3. Applicable Timing*West of Devers Upgrade Project Raven Monitoring, Management, and Control Plan*

Measure	Period		
	Preconstruction (Mobilization)	During Construction (Active)	Post-construction (Restoration)
FEIR/FEIS MM WIL-2b	☒	☒	☒
BO CM 36	☒	☒	☒
ITP Take Minimization Measure 8.15	☒	☒	☒

Common Raven Overview and Desert Tortoise Impact Assessment

2.1 Common Raven Biology

The common raven is a large, black bird with a wedge-shaped tail. Adults reach up to 69 centimeters (2.3 feet) in length and from 689 to 1,625 grams (1.5 to 3.6 pounds) in weight. They are generally distinguished from other *Corvus* species by their large size, more wedge-shaped tail, robust bill, a tendency to soar and glide, and their frequent, harsh, croaking calls. The sexes are generally alike, although females may be smaller (Boarman and Heinrich, 1999a; cited in Boarman, 2002).

Common ravens make heavy use of garbage at landfills, water from many sources, and use structures such as billboards and power line towers for nesting. Common ravens consume food items such as grains, carcasses, and sometimes prey on live animals (Boarman, 2002). Common ravens prey on juvenile desert tortoises, which has resulted in the reduced survival rate of the species (Boarman, 1993; cited in Boarman, 2002). Common ravens are opportunistic feeders and are unlikely to pass up a relatively defenseless food item when found (Boarman, 2002).

2.2 Common Raven Predation on Desert Tortoise

Many species of predators prey on desert tortoises at different stages of their life cycle, including predation on eggs by Gila monsters (Beck, 1990; cited in USFWS, 1984), destruction (and probably consumption) of eggs by kit foxes and coyotes (Turner et al., 1987; cited in USFWS, 1994), predation of juvenile and immature desert tortoise by ravens (Berry, 1985; Woodman and Juarez, 1988; Farrell, 1989; cited in USFWS, 1994), and predation of immature and adult desert tortoises by golden eagles (Berry, 1985; cited in USFWS, 1994).

Natural predation in undisturbed, healthy ecosystems is generally not an issue of concern. Under certain situations, however, the level and type of predation becomes a management issue, and action must be taken to control the predator(s). The most obvious example is when numbers of desert tortoise become precariously low in local areas or regions, and any loss of individuals is likely to threaten that population. Predation rates may be altered when natural habitats are disturbed or modified. For example, densities of predators may increase, food habits of predators may be altered so that desert tortoise become more frequent components in the diet, and predators may prey upon desert tortoise more easily when cover has been reduced. The most important predators of desert tortoises at this time are the raven and the coyote (*Canis latrans*).

The raven is considered a subsidized predator, which is a predatory species whose populations thrive on human-provided resources. Populations of common ravens have been increasing for many decades. Numbers of ravens observed during USFWS breeding bird surveys in the Mojave Desert increased by 1,528 percent between 1968 (the year the surveys were initiated) and 1988 (USFWS, 1984; cited in BLM, 1989). The population increase has been attributed to an expanding human infrastructure into the desert and a dependency on easy food sources found at landfills, illegal dump sites, and agricultural lands (Boarman, 1993). Based on data from more than 1,000 remains, ravens generally kill juvenile desert tortoise with a carapace length of less than 110 millimeters (Campbell, 1983; Berry, 1985; Woodman and Juarez, 1988). Concentrations of shells have been discovered along fence posts (Campbell, 1983), at the bases of known raven perches and nests (Woodman and Juarez, 1988), and along transmission line towers (Farrell, 1989). For example, between 1987 and 1990, 564 shells of

carapace length less than 110 millimeters were collected in California on study plots, along power lines, and at raven nests and perch sites. Of this total, 215 (38 percent) were found on study plots and 349 (62 percent) were found associated with raven perch or nest sites, most of which were along power lines.

2.3 Analysis of Potential Impacts to Desert Tortoises

In the areas of potential desert tortoise habitat, the Project primarily involves removal of existing transmission lines and consolidation into high-capacity replacement facilities. For the purpose of calculating mitigation cost, this Plan considers the estimated maximum potential temporary and permanent impacts to desert tortoise habitat based on January 31, 2017, engineering design. Table 2-1 summarizes the estimated maximum potential impacts to potential desert tortoise habitat.

Table 2-1. Estimated Maximum Potential Impacts to Potential Desert Tortoise Habitat

	CV-MSHCP	BLM	Morongo Reservation	Totals
Permanent	23.80	3.87	3.19	30.86
Temporary	181.56	16.35	21.16	219.07
Total Impacts	205.36	20.22	24.36	249.94

Note:

Calculations based on January 31, 2017, engineering design. Values are acres rounded to the nearest hundredth. Estimated maximum desert tortoise habitat impacts in the FEIR (1,074.1 acres) were based on earlier engineering design.

During construction, the Project may create predator subsidies or attractants, including potential sources of food and water, and nesting materials, as well as nest or perch sites. Potential sources may include waste food material, road-killed animals, water storage, potential pooling from leaks, dust control, or wastewater, and debris from brush clearing. Due to the need to phase portions of construction to maintain system reliability, new structures will be built before existing structures will be removed, thereby resulting in a temporary increase in potential raven nest and roost sites. The raven monitoring, management, and control practices in Section 3 of this Plan are intended to minimize these effects.

It is important to reiterate that the Project involves upgrade of existing facilities. O&M activities are currently conducted along the WOD ROW for the existing facilities. Just as the Project footprint will be reduced, the breadth of the O&M activities will be reduced. In addition, the resulting infrastructure will be new and, for the early years of operation, will require less frequent maintenance than is currently performed. Therefore, attractants such as human presence and associated trash will be reduced during the early years of O&M.

Raven Monitoring, Management, and Control Practices

The following subsections describe the raven monitoring, management, and control practices that will be implemented during the preconstruction, construction, and post-construction/restoration phases of the Project. SCE shall be responsible for all aspects of raven management described in this Plan.

3.1 Qualified Biologist

Prior to the initiation of construction activities, SCE will nominate a lead qualified biologist(s)² or USFWS and CDFW-approved SCE designee with expertise identifying common ravens, raven nests, and desert tortoise remains (e.g., carcass, shell, and bone fragments) will be nominated by SCE to manage the survey, monitoring, and reporting elements in this Plan. The lead qualified biologist will be responsible for drafting the methods for the surveys, schedule development, agency coordination, reporting, and supervision of field staff.

3.2 Baseline Raven Surveys

Within 1 year prior to the start of construction, a qualified biologist(s) or USFWS and CDFW -approved SCE designees will conduct surveys for the presence of raven nests on existing WOD transmission structures and for the presence of desert tortoise remains within a 100-foot radius of each existing structure in potential desert tortoise habitat. During the primary raven nest-building period (February to May), nest surveys will be conducted at least once per month, between the 15th and last day of each month. The object of the survey will be to 1) identify ravens nesting or perching within the project area that are preying on desert tortoise (hereafter referred to as “offending ravens”), and 2) establish baseline conditions (e.g., raven numbers and activity) by which all subsequent raven surveys will be compared. The survey methods may include vehicular windshield surveys, pedestrian surveys, or a combination thereof, as appropriate. Raven nest locations will be recorded by tower number or structure type and with hand-held global positioning system units.

3.3 Preconstruction Surveys and Biological Monitoring

During construction and during the typical breeding bird season (January 1 through August 31), preconstruction surveys will be conducted according to the Nesting Bird Management Plan described by FEIR/FEIS MM WIL-1c. Generally, preconstruction surveys will be conducted within 10 days prior to the start of construction at each work site, and a pre-activity “sweep” will be conducted prior to the start of work each day in potential desert tortoise habitat. In addition, pursuant to FEIR/FEIS MM VEG-1a, SCE will conduct biological monitoring during construction. The locations of active bird nests, including raven nests, will be recorded and the nest cycles tracked during construction. Biological monitors will search for signs of raven predation in the vicinity of raven nests in potential desert tortoise habitat. Data obtained during preconstruction survey and monitoring will be incidental to pre- and post-construction predation surveys, but can also be compared to the baseline data and data from each passing breeding season during construction for the purpose of measuring offending raven activity during construction.

²A qualified biologist will have expertise identifying common ravens, raven nests, and desert tortoise remains (e.g., carcass, shell, and bone fragments). The name and qualifications of the biologist(s) will be submitted to the BLM, USFWS, and CDFW for approval 30 days before the start of the surveys or monitoring.

3.4 Nest Removal and Deterrents

Prior to the start of construction, during the construction, and outside of the avian breeding season (January 1 through August 31), SCE will remove all previously documented raven nests from WOD transmission structures along the transmission line by removing nests from the towers in a manner that makes the material unrecognizable as a nest, and the nesting material will be disposed of so that it is no longer available for use for nest building (e.g., removal to a landfill or disposal at SCE facility). During the non-breeding-season, nests documented as raven nests during the breeding season immediately preceding nest removal may be removed according to the procedures for *Non-listed Special-Status, Non-Special-Status, Non-Game Bird Species* in Section 2.6.3 of the NBMP. Given that raptors and ravens may use the same nests and inactive raven and raptor nests may be indistinguishable, the procedures for *Raptors* in Section 2.6.1 of the NBMP would be used for nest removal during the non-breeding season if species from the breeding season immediately preceding the nest removal is unknown. During the breeding season, SCE may remove raven nests following the protocol for removing inactive raptor nests (see Section 2.6 of the NBMP), provided the nests are determined to be inactive (as defined by the NBMP, and determined by the methods described in Section 2.6.1 of the NBMP) by a qualified biologist. The nests will be removed to prevent take of active nests when project structures are removed or modified during construction. The incidental benefit is that the risk of raven nesting and potential predation of tortoises would be reduced.

Regardless of the breeding season, SCE may also install nest deterrents (e.g., buoys) before and during construction, as needed, in potential raven nests not previously removed, provided the nest is determined to be inactive (as defined by the Nesting Bird Management Plan and determined by the methods described in Section 2.6.1 of the NBMP) by a qualified biologist. Raven nest removal and deterrent installation will be scheduled in a manner that does not impact personnel safety or system reliability. The potential types of nest deterrents and more information regarding nest deterrents can be found in Section 2.5 of the NBMP.

3.5 Best Management Practices

In addition to and in conjunction with the requirements in Table 1-1, SCE will implement the following BMPs during construction and O&M to minimize Project-related predator subsidies and prevent any increases in raven numbers or activity within potential desert tortoise habitat:

- A trash collection system will be established to ensure that all food and other refuse that could attract tortoise predators is properly disposed of in self-closing, sealable containers with lids that latch to prevent entry by wind, common ravens, and mammals.
- All trash receptacles will be regularly inspected and emptied daily to prevent spillage and maintain sanitary conditions. The receptacles will be removed from the project area when construction or O&M activities are complete.
- Road-killed animals or other carcasses detected in the WOD ROW during construction or O&M activities will be reported to a qualified biologist. If determined to be non-special-status species, the carcass will be picked up and disposed of immediately (e.g., removal to a landfill or disposal at SCE facility). For special-status species road-kill, a qualified biologist or SCE representative will contact the USFWS, CDFW, BLM, or other applicable agencies prior to removal and disposal.
- During construction and O&M, storage of materials (e.g., food, trash) that may potentially attract predators will be limited to containers that are not easily accessible to wildlife.
- Use of water for purposes such as fugitive dust abatement will be minimized in potential desert tortoise habitat to prevent pooling, which may attract ravens and other tortoise predators. Water

tanks will be covered with secure lids. Leaking hoses, tanks, or other sources of inadvertent pooling will be repaired immediately or moved offsite.

3.6 Post-Construction Nest Surveys

A qualified biologist(s) or USFWS and CDFW approved SCE designees will conduct surveys for the presence of raven nests on WOD transmission structures and for the presence of desert tortoise remains within a 33-foot radius of each structure in potential desert tortoise habitat. In addition opportunistic surveys for desert tortoise remains under potential raven perch sites (e.g., Joshua tree, yucca, fence posts, etc.) will be conducted out to a distance of 330 feet from each structure. During the primary raven nest-building period (February to May), nest surveys will be conducted at least once per month, between the 15th and last day of each month, which will begin the first raven nesting season following completion of transmission line construction in potential tortoise habitat. Nest survey methods may include vehicular windshield surveys or pedestrian surveys, as appropriate. Where nests are found, pedestrian surveys will be conducted to locate tortoise remains using 15-foot transect spacing, or less depending on the extent of vegetation cover, to ensure 100 percent coverage of the survey area. Surveyors will also check any raven pellets. In the event that a raven is documented initiating a new nesting attempt during the May surveys, follow-up visits to that nest will be made in the subsequent months to establish whether the pair is bringing tortoises back to the nest. Data obtained during post-construction surveys and monitoring will be compared to the baseline raven surveys described above and construction data for the purpose of measuring potential increases in offending raven activity after construction.

3.7 Elimination of Offending Ravens

Elimination of offending ravens is not the first course of action and will be avoided if possible through proper implementation of the methods previously described. If these methods fail to deter offending ravens from being a threat to desert tortoises within project area, lethal action may be necessary. Any lethal actions taken against offending ravens will be coordinated through the BLM, USFWS, and CDFW, given that the ravens and their active nests are protected under the Migratory Bird Treaty Act and CFGC.

Throughout the survey period, if evidence of offending ravens are discovered, SCE will document the circumstances and verify the nesting status of the offending ravens (e.g., incubating, feeding nestlings) and notify the CPUC, BLM, USFWS, CDFW, and the Tribe (via the Environmental Protection Department [EPD]) and BIA (for offending ravens on the Morongo Reservation) verbally (via phone call) and in writing (via email) within 24 hours of documenting the remains. Upon being notified, USFWS will coordinate immediate removal of the offending raven(s). The USFWS will notify the Tribe's EPD and BIA within 48 hours prior to taking any lethal or non-lethal actions to remove offending ravens on the Morongo Reservation.

SCE will establish a Cooperative Service agreement with the U.S. Department of Agriculture/Animal and Plant Health Inspection Service allowing for Wildlife Services to conduct the removal efforts of offending raven(s) within the project area. SCE will be responsible for expenses attributed to removal of offending ravens nesting on WOD structures.

3.8 Long-Term Monitoring and Adaptive Management

An evaluation of the effectiveness of this Plan will be reviewed by SCE, CPUC, BLM, USFWS, and CDFW annually to develop appropriate adaptive measures for the Project for the next breeding season. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions. The frequency and type of practices implemented may increase or decrease, or

change depending on how the survey results compare to baseline conditions, and the effectiveness of the monitoring and nest removal efforts.

Post-construction nest monitoring, searches for desert tortoise remains, and common raven removal will be conducted for 3 to 5 years after construction and post-construction/restoration activities are completed (i.e., during the initial stages of O&M) or until SCE demonstrates, and CPUC, BLM, USFWS, and CDFW agree, that any or all of these actions are no longer necessary based on the results of the nest monitoring surveys.

3.9 Reporting

SCE will submit a report, including the results of the survey effort and a geographic information system layer of all the nests recorded during each year to CPUC, BLM, CDFW, and USFWS within 90 days of the last survey effort. USFWS will be responsible for sharing the nest information with the Common Raven Management Work Group.

Contribution to the Region-Wide Raven Management Plan

In accordance with FEIR/FEIS MM WIL-2b, SCE made a monetary contribution to USFWS RRMP to address raven predation on desert tortoise at the regional level (refer to Section 1.3.1). This monetary contribution was made in addition to the raven monitoring, management, and control practices discussed in Section 3. SCE contributed to the RRMP by making a one-time payment of \$105 per acre of temporary and permanent (i.e., total) Project disturbance in desert tortoise habitat to the NFWF Desert Managers' Group raven control account. SCE will made a one-time payment of \$26,243.70 (249.94 acres x \$105/acre) to NFWF's Desert Managers' Group raven control account which was confirmed by the NFWF on October 23, 2017.

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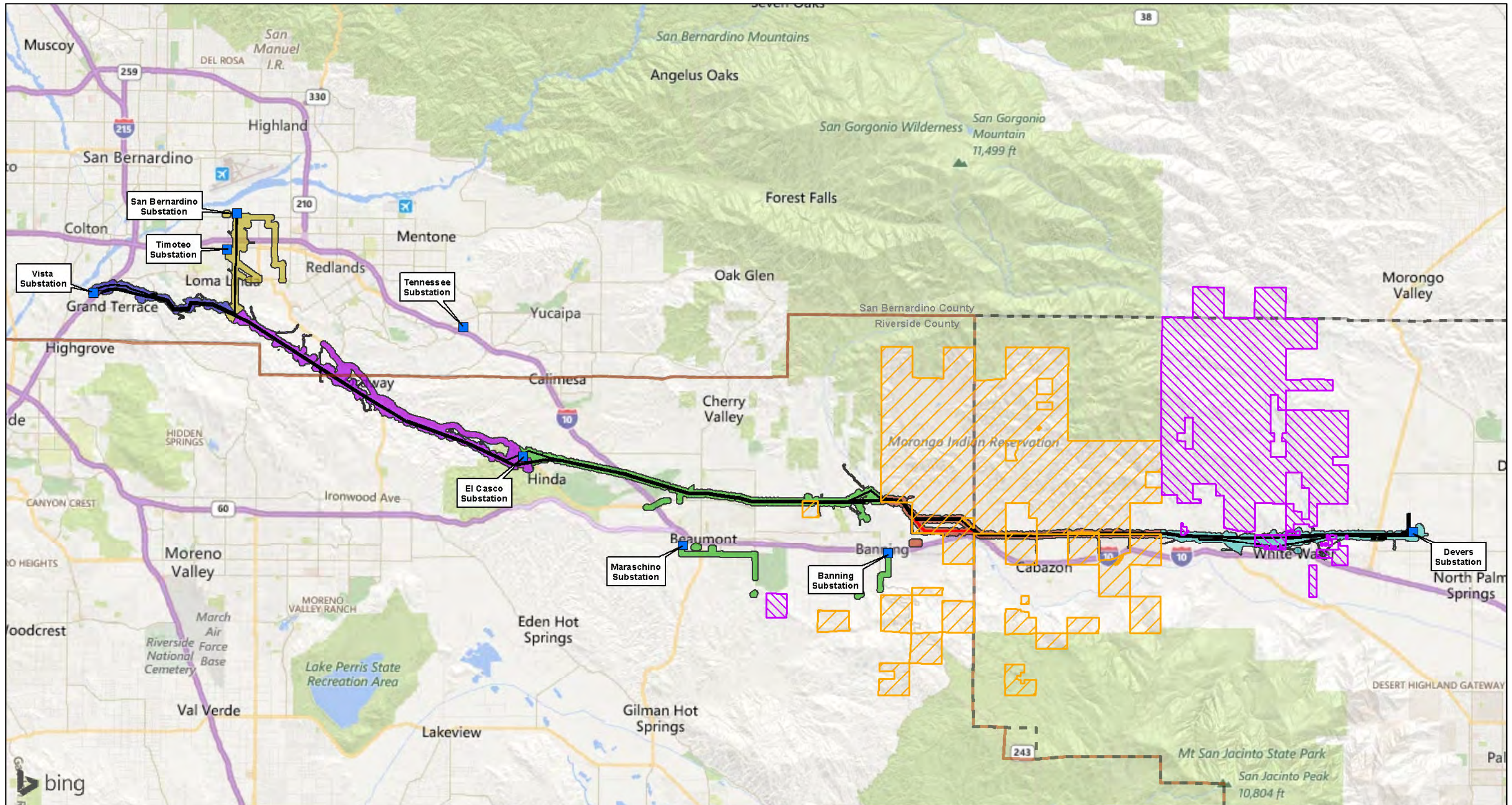
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Revisions

Revisions made to standard text (black ink) should be noted below to document changes in requirements or SCE's approach to this Raven Monitoring, Management, and Control Plan.

Date	Description of Revision	Contact
05/21/2019	Addition of notification requirement for offending ravens on the Morongo Reservation; update to document payment made to the NFWF	Sylvia Granados (Sylvia.Granados@sce.com)

Figures



LEGEND

- Study Area
- Existing Transmission Line Right of Way
- Proposed Right of Way
- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- U.S. Bureau of Land Management
- Morongo Reservation
- Western Riverside County MSHCP
- Coachella Valley MSHCP



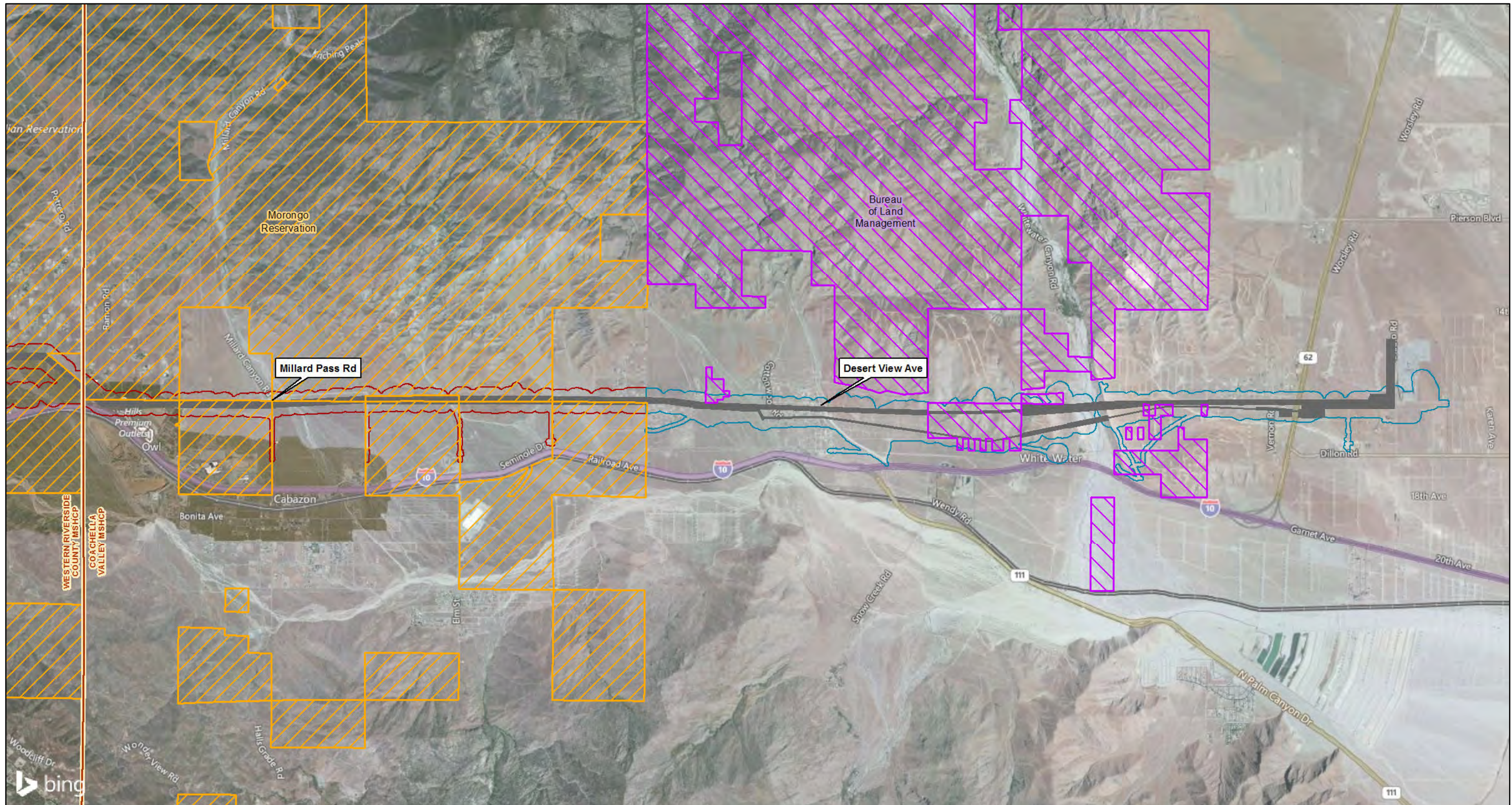
FIGURE 1-1

Southern California Edison
West of Devers Upgrade Project
Project Overview and Study Area
Raven Monitoring, Management, and Control Plan

Source: SCE, Bing Maps

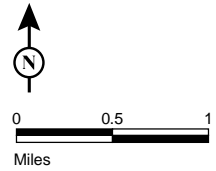
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LEGEND

- Existing Transmission Line Right of Way
- MSHCP Boundary
- Study Area**
- Segment 5
- Segment 6
- DETO Potential Habitat
- U.S. Bureau of Land Management
- Morongo Reservation



Source: SCE, County of Riverside, USFWS, Coachella Valley MSHCP, Bing Maps Hybrid

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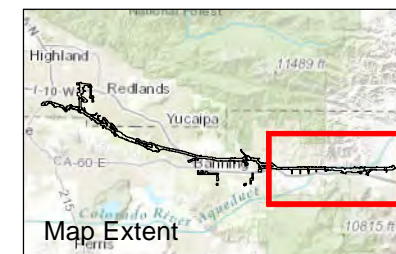


FIGURE 1-2

Southern California Edison
West of Devers Upgrade Project
Desert Tortoise Habitat Overview
Raven Monitoring, Management, and Control Plan

