APPENDIX P-2
Part 1
Biological Assessment

BIOLOGICAL ASSESSMENT
for the
Campo Wind Project with Boulder Brush Facilities
San Diego County, California

Prepared for:

Bureau of Indian Affairs
Pacific Region Regional Office – Indian Affairs
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, California 95825
Contact: Mr. Dan (Harold) Hall

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Brock Ortega
760.479.4254 – bortega@dudek.com

AUGUST 2019

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
BA	biological assessment
BIA	Bureau of Indian Affairs
BMP	best management practice
BO	Biological Opinion
BSA	biological survey area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DG	decomposed granite
ECCS	Electrical Collection and Communication System
ESA	Endangered Species Act
gen-tie line	generator lead line
kV	kilovolt
MW	megawatts
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NWP	Nationwide Permit
O&M	operations and maintenance
Project	Campo Wind Project with Boulder Brush Facilities
QCB	Quino checkerspot butterfly
Reservation	Campo Band of Diegueño Mission Indians Reservation
SDG&E	San Diego Gas and Electric
SWPPP	stormwater pollution prevention plan
Tribe	Campo Band of Diegueño Mission Indians
USFWS	U.S. Fish and Wildlife Service
WSR	Wind and solar resource

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1 INTRODUCTION

Under 25 U.S.C. § 415, any restricted Indian lands may be leased by the Indian owners, with the approval of the Secretary of the Interior (Secretary), for public, religious, educational, recreational, residential, or business purposes, including the development or utilization of natural resources in connection with operations under such leases. The Secretary delegated authority to approve such leases to the Bureau of Indian Affairs (BIA), which promulgated final regulations implementing this authority at 25 C.F.R. Part 162. As relevant here, these regulations govern BIA's approval of wind and solar resource (WSR) leases, which authorize possession of Indian land to install, operate, and maintain instrumentation, facilities, and associated infrastructure, such as wind turbines, to harness wind energy to generate and supply electricity. *Id.* § 162.501. BIA "will approve" a WSR lease unless the required consents have not been obtained from the parties to the lease or BIA finds a compelling reason to withhold approval to protect the best interests of the Indian landowners. *Id.* § 162.566. To the maximum extent possible, BIA defers to the Indian landowners' determination that the WSR lease is in their best interest. *Id*.

This Biological Assessment (BA) was prepared pursuant to the Endangered Species Act (ESA) to evaluate the potential effects of BIA's approval of a WSR lease (Campo Lease) on the Campo Band of Diegueño Mission Indians Reservation (Reservation) in southeast San Diego County, California (Proposed Action), on ESA listed species that may occur in the Action Area. The information provided herein has been prepared in accordance with legal requirements set forth under Section 7 of the ESA, 16 U.S.C 1536 (c), and follows the standards set forth in the *United States Fish and Wildlife Service (USFWS) Endangered Species Consultation Handbook* (USFWS and NMFS 1998).

The Proposed Action would authorize the Campo Lease, allowing Terra-Gen Development Company LLC (Terra-Gen) to develop, finance, construct, operate, and ultimately decommission a renewable energy generation facility (Campo Wind Facilities) on land within the approximately 16,000-acre Reservation Boundary. Boulder Brush LLC[1] proposes to develop, finance, and construct supporting transmission and interconnection infrastructure on private lands in southeastern San Diego County (Boulder Brush Facilities). Boulder Brush LLC would own, operate, maintain, and, ultimately decommission supporting Boulder Brush Facilities, except for the switchyard and incoming/outgoing connection lines components that would be owned and operated by San Diego Gas & Electric Company (SDG&E). For the purposes of this BA, "Project Developer" refers to both Terra-Gen Development Company LLC and Boulder Brush LLC.

The "Campo Wind Project with Boulder Brush Facilities" or "Project" for short, consists of both the Campo Wind Facilities on land within the Reservation Boundary and the Boulder Brush

[1] Boulder Brush LLC is an affiliate of Terra-Gen Development Company LLC.

Facilities which would be located within the adjacent approximately 2,200 acres of Private Lease lands within the Boulder Brush Boundary (see Figure 1, Project Location; all figures provided in Appendix A).[2]

This BA describes the Proposed Action and Project, defines the Action Area, describes the species that may be affected by the Proposed Action, and analyzes how the Proposed Action may affect listed species and/or their habitat. As discussed herein, the Proposed Action may affect and is likely to adversely affect the Quino checkerspot butterfly (*Euphydryas editha quino*) (QCB), an ESA-listed species that may occur in the Action Area. Because designated critical habitat for the QCB does not occur in the Action Area or surrounding vicinity, the Proposed Action will not affect the species' critical habitat.

This BA is organized as follows:

- Chapter 1 provides a summary of the Proposed Action, the purpose of the BA, and a history of USFWS consultation to date.
- Chapter 2 includes a detailed description of the Project, including the Action Area, scope of analysis, Project overview, and Proposed Action.
- Chapter 3 describes the current regulatory status, distribution, and threats to the continued existence of the QCB.
- Chapter 4 describes the environmental baseline within the Action Area, including a description of the QCB along with the habitats upon which it depends. In addition, Chapter 4 addresses designated critical habitat for the QCB. However, designated critical habitat for the QCB does not occur in the Action Area or surrounding vicinity and will not be directly or indirectly affected, and is therefore not discussed in this BA.
- Chapter 5 presents the potential construction-related, operations-related, and maintenance-related effects (direct, indirect, permanent, and temporary) of the proposed action on the QCB and the critical habitat for this species.
- Chapter 6 includes conservation measures applicable to the QCB.
- Chapter 7 identifies the preparers and reviewers of the BA.
- Chapter 8 lists the reference materials, citations, and personal communications relied upon for preparation of this BA.

[2] It is anticipated that the U.S. Army Corps of Engineers will use the biological opinion issued by USFWS at the end of this consultation for its issuance of authorizations under Nationwide Permits for the Project.

1.1 History of Coordination and Consultation to Date

1.1.1 Previous Coordination for the Previous Shu'Luuk Wind Project

Previous work conducted by AECOM for the Shu'Luuk Wind Project that overlaps with the current Action Area was reviewed and incorporated into this report where appropriate. Coordination for the previous Shu'Luuk Wind Project began with a kick-off meeting hosted by the Campo Band of Diegueño Mission Indians (Tribe) and Invenergy Wind California, LLC (IWC), and AECOM to introduce the USFWS to the project. USFWS agency coordination continued in April and June with meetings to discuss avian studies. On December 15, 2010, the USFWS, Tribe, IWC, and AECOM visited areas of suitable QCB habitat on-site and discussed potential effects and mitigation options for QCB. Meetings with USFWS continued through April 2012 to discuss avian survey results, modeling, and conservation plans. A chronology of coordination with USFWS can be found in the Shu'Luuk Wind Project Draft Biological Assessment, dated May 2012 (AECOM 2012). The Shu'Luuk Wind Project was not constructed.

1.1.2 Recent Coordination for the Project

On October 10, 2018, Dudek held a kick-off meeting that initiated coordination with representatives from USFWS, the BIA, the Tribe, and Terra-Gen to discuss the Project. Dudek provided a summary of surveys conducted to date and discussed potential surveys based on impacts to habitat. Dudek submitted a final draft of the *2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project* and *2018 Focused Quino Checkerspot Surveys for the Torrey Wind Project* (Includes the Boulder Brush Corridor) on April 2, 2019. An initial draft of the *2019 Focused Quino Checkerspot Surveys for the Torrey Wind and Boulder Brush Facilities Project* was submitted in July 2019 and a revised report submitted in August 2019 incorporating USFWS – recommended edits. Dudek held a meeting to discuss the BA analysis methods on July 2, 2019 and a follow-up meeting on July 16, 2019 to discuss the revised BA analysis methods. This meeting was attended by Dudek, USFWS, and the Tribe.

1.2 Summary of Proposed Action and Project

The Proposed Action is BIA's approval of the Campo Lease between Terra-Gen and the Tribe. The Campo Lease would allow the development, construction, operation, and decommissioning of the Project's Campo Wind Facilities, located on the Reservation in southeast San Diego County, California (Figure 1). The Boulder Brush Facilities would require a Major Use Permit from the County of San Diego (County) because the Boulder Brush Facilities would be located on adjacent private lands under the jurisdiction of the County. Located in southeastern San Diego County, approximately 50 miles east of the City of San Diego, California (Figure 1), the Project is largely sited on Reservation lands held in trust by the federal government, as administered by the BIA.

The Reservation covers over 16,000 acres, includes lands both north and south of Interstate 8 (I-8) along the Tecate Divide and is bordered by the Manzanita Indian Reservation to the north and is approximately 0.25 mile from the Mexico/U.S. international border to the south. The Project is located within the Campo, Cameron Corners, Live Oak Springs, and Tierra Del Sol U.S. Geological Survey 7.5-minute quadrangles.

The Campo Wind Facilities would be located within a corridor of approximately 2,200 acres of land (Campo Corridor) within the approximately 16,000 acres of Reservation land inside the Reservation Boundary. The Boulder Brush Facilities would be located within a corridor of approximately 320 acres of land (Boulder Brush Corridor) within the approximately 2,200 acres of Private Lease land inside the Boulder Brush Boundary adjacent to the northeast portion of the Reservation. For the purposes of this BA, the Action Area or Project Site is comprised of the land within both the Campo Corridor and Boulder Brush Corridor (approximately 2,520-acres) and includes all the impacts and components associated with the Project. The Action Area is surrounded by low-density rural commercial and residential developments throughout the Reservation and nearby communities; Church Road and I-8 bisect the Action Area.

The Project, as a whole, consists of a renewable wind energy generation project consisting of up to 60 wind turbines, three permanent meteorological (MET) towers, six temporary MET towers, a temporary concrete batch plant for use during construction, a temporary equipment staging and parking area for use during construction, an operations and maintenance (O&M) facility, water collection and septic systems, access roads, an electrical collection and communications system (ECCS), an approximately 8.5-mile-long generation transmission (gen-tie) line, a collector substation, a high-voltage substation, and a switchyard to interconnect the Project to the existing SDG&E Sunrise Powerlink (see Appendix B to the Draft Environmental Impact Statement [EIS], Project Description Details, for a detailed description of the Project components).

The Project Developer proposes to develop, finance, construct, own, operate, maintain, and ultimately decommission the wind turbines and other Project components on the Reservation (Campo Wind Facilities). The Project Developer would also develop, finance, and construct supporting transmission and interconnection infrastructure on private lands in southeastern San Diego County (Boulder Brush Facilities). The Project Developer would own, operate, maintain, and, ultimately decommission supporting Boulder Brush Facilities, except for the switchyard and incoming/outgoing connection lines components that would be owned and operated by SDG&E.

The Project would also require authorization from the Army Corps of Engineers (ACOE) under existing Nationwide Permits (NWPs) under Section 404 of the Clean Water Act for the discharge of fill to waters of the United States and a Clean Water Act, Section 401 Certification.

The compensatory mitigation is permittee-responsible mitigation that would occur off site. The mitigation shall focus on habitat preservation and creation for long-term conservation of metapopulation dynamics. Proposed mitigation is further described in *Campo Wind Project with Boulder Brush Facilities Biological Resources Technical Report* in September 2018 (Dudek 2018b).

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2 DESCRIPTION OF PROPOSED ACTION

2.1 Introduction

The Proposed Action consists of BIA approval of a 25-year lease of land (with the possibility of a 13-year extension) between the Tribe and Terra-Gen on the Reservation (Campo Lease). Approval of the Campo Lease would allow the development, construction, operation, and ultimate decommissioning of a renewable energy generation facility (Campo Wind Facilities) on land within the Reservation Boundary (Figure 1). The "Campo Wind Project with Boulder Brush Facilities" or "Project" for short, consists of both the Campo Wind Facilities on land within the Reservation and the Boulder Brush Facilities, which would be located on adjacent private lands within the Boulder Brush Boundary (Figure 2, Project Components). Pursuant to Federal law, 25 U.S.C. § 415, the Tribe has submitted the Campo Lease to BIA for its approval.

The Project Developer would commence construction of the Project as soon as practicable following an approval of the Campo Lease by the BIA and any necessary permitting approvals. Operation of the Project would begin immediately following the approximately 14-month construction period.

2.2 Project Location

The Project consists of both the Campo Wind Facilities and the Boulder Brush Facilities. The Campo Wind Facilities would be located on the Reservation in southeastern San Diego County, approximately 50 miles east of the City of San Diego, California. The Reservation is in the southern Laguna Mountains and surrounded by the unincorporated communities of Campo, Boulevard, and Live Oak Springs (Figure 1). The Reservation covers over 16,000 acres and includes lands both north and south of Interstate 8 (I-8) along the Tecate Divide and extends from the Manzanita Indian Reservation south to approximately 0.25 miles from the Mexico/U.S. international border.

The Boulder Brush Facilities would be located in the McCain Valley area of the unincorporated County, north of the community of Boulevard and I-8. Land within the Boulder Brush Boundary currently consists of largely undeveloped ranch land, a portion of which is grazed by cattle and a portion of which has been used by private off-road recreational vehicles. The surrounding area primarily consists of vacant land. The 500 kV Sunrise Powerlink traverses the northeast portion of the private land parcels, and the Kumeyaay Wind and Tule Wind facilities are located to the west and northeast, respectively. In addition, several rural residential homes are located to the south.

The Campo Wind Facilities would be located within a corridor of approximately 2,200 acres of land (Campo Corridor) within the approximately 16,000 acres of Reservation land inside the Reservation Boundary subject to lease approval by BIA and subject to environmental review under the National Environmental Policy Act with the BIA as lead agency. The Boulder Brush Facilities would be located within a corridor of approximately 320 acres of land (Boulder Brush Corridor) within the approximately 2,200 acres of Private Lease land inside the Boulder Brush Boundary subject to the land use jurisdiction of the County. For the purposes of this BA, the Action Area or Project Site is comprised of the land within both the Campo Corridor and Boulder Brush Corridor (approximately 2,520-acres) and includes all the impacts and components associated with the Project. Project disturbances associated with construction of the Campo Wind Facilities within the Campo Corridor are expected to be approximately 800 acres, whereas Project disturbances associated with the construction of the Boulder Brush Facilities within the Boulder Brush Corridor are expected to be approximately 130 acres (Figure 3, Impacts to Vegetation Communities and Landcovers – On Site, and Figure 4, Impacts to Vegetation Communities and Landcovers – Boulder Brush).

2.3 Project Components

For Project-specific details please see Appendix B, Project Details, to the Draft EIS. Since the release of the Draft EIS, modifications to the Boulder Brush Facilities have been made, specifically to the main access road. The modifications are accurately reflected in this BA.

2.4 Construction

The development footprint of the Project would be confined to the minimal amount of area necessary for construction and safe and reliable operation. Development of new access routes would be limited to the maximum extent practicable. All construction areas, staging areas, and access roads would be clearly delineated in the final engineering plans.

For Project-specific construction details please see Appendix B to the Draft EIS.

2.5 Operation

For Project-specific operations details please see Appendix B to the Draft EIS.

2.6 Action Area

For the purposes of Section 7 consultation, the effects of the action include direct and indirect effects of the action together with the effects of other actions that are interrelated or interdependent with that action (50 C.F.R. § 402.02). Interdependent actions are those having no independent utility apart from the proposed action; interrelated actions are those that are part of a larger action and depend on the larger action for their justification. (*Id.*) USFWS considers an activity to be

interrelated or interdependent with a federal action if the activity would not occur "but for" the federal action under consultation (USFWS and NMFS 1998, p. 4–27). The past and present impacts of other federal, state, and private actions and other human activities in an action area, as well as anticipated impacts of all proposed Federal projects in an action area that have already undergone Section 7 consultation, and the impacts of State or private actions that are contemporaneous with the consultation in process are part of the environmental baseline and are not considered effects of the action (50 C.F.R. § 402.02).

The Action Area for consultation under ESA Section 7 includes "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action"—in other words, the area where the effects of the action occur (50 C.F.R. § 402.02). Here, the proposed federal action is the BIA's approval of the Campo Lease for the Project, which would allow for the development of the wind farm and all associated infrastructure within the Reservation as detailed above. *See* §§ 2.3 through 2.5. As the Campo Wind Facilities would not be constructed without the Boulder Brush Facilities, the Action Area for this consultation thus includes all areas that may be affected by the Project on the Reservation (Campo Corridor) and on private lands (Boulder Brush Corridor).

The Action Area includes approximately 930 acres (approximately 800 acres on the Reservation and approximately 130 acres on private lands) of disturbance.

2.7 Minimization Measures

The following details the recommended mitigation measures from the EIS to avoid and minimize the potential adverse effects to the QCB resulting from the Project construction and operation:

MM-BIO-1 General Avoidance and Minimization Measures.

(a) Project Biologist(s). A Project biologist(s) approved by the U.S. Fish and Wildlife Service (USFWS) and the Campo Band of Diegueño Mission Indians (Tribe) shall be designated by the developer. The Campo Environmental Protection Agency shall enforce the duties of the Project biologist for all work conducted on the Reservation. The developer shall submit the names, documented experience, any relevant permit numbers, and resumes for the Project biologist(s) to USFWS and the Tribe for approval prior to initiation of construction. The Project biologist(s) shall be responsible for the following:

- Providing training to all construction workers (may take the form of any documentable training platform).

- Reviewing and/or designating the construction area in the field with the construction contractor in accordance with the final grading plan prior to clearing, grubbing, or grading.
- Conducting a field review of the staking to be set by the professional surveyor, designating the limits of all construction activity prior to clearing, grubbing, or grading.
- Flushing wildlife species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to (i.e., within 2 hours) brush-clearing and earthmoving activities.
- Regularly monitoring construction activities to verify that construction is proceeding in compliance with all permit requirements specific to biological resources.
- Overseeing the construction site so that cover and/or escape routes for wildlife from excavated areas are provided on a daily basis. All steep trenches, holes, and excavations during construction shall be covered at night with backfill, plywood, metal plates, or other means, and the edges covered with soils and plastic sheeting such that small wildlife cannot access them, and/or excavations shall provide an earthen ramp or boards to allow for a wildlife escape route at the ends and every 30 feet.
- Maintaining communication with the appropriate personnel (construction Project manager, resident engineer) so that issues relating to biological resources are appropriately and lawfully managed.
- Verifying that grading plans include a stormwater pollution prevention plan.
- Reporting any noncompliance issues to the Bureau of Indian Affairs, resident engineer, and the Tribe.

(b) Environmental Training Program. A worker environmental awareness program shall be developed and implemented prior to the start of construction. The Project biologist(s) shall use this program to conduct environmental training for construction personnel. All construction site personnel shall be required to attend the environmental training in conjunction with hazard and safety training prior to working on site.

(c) SWPPP. The stormwater pollution prevention plan (SWPPP) or equivalent shall include, at a minimum, the best management practices listed below. The combined implementation of these requirements shall protect adjacent

habitats and special-status species during construction to the maximum extent practicable. At a minimum, the following measures and/or restrictions shall be incorporated into the SWPPP and noted on construction plans, where appropriate, to avoid impacts to special-status species, special-status vegetation communities, and/or jurisdictional waters during construction. The measures described in the SWPPP are subject to enforcement by the Campo Environmental Protection Agency on the Reservation, and the County of San Diego for off-Reservation areas.

The Project biologist(s) shall verify the implementation of the following design requirements:

- No planting or seeding of invasive plant species (per the most recent version of the California Invasive Plant Council's California Invasive Plant Inventory for the Project region) shall be permitted.
- Construction activity shall not be permitted in jurisdictional waters of the United States except as authorized by applicable law and permit(s), including permits and authorizations approved by the U.S. Army Corps of Engineers.
- Silt settling basins installed during the construction process shall be located away from areas of ponded or flowing water to prevent discolored, silt-bearing water from reaching areas of ponded or flowing water during normal flow regimes.
- Temporary structures, staging, and storage areas for construction equipment and/or materials shall not be located in jurisdictional waters, including wetlands and riparian areas.
- Any equipment or vehicles driven and/or operated within jurisdictional waters of the United States shall be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
- No stationary equipment, such as motors, pumps, generators, and welders, or fuel storage tanks shall be located within 200 feet of jurisdictional waters of the United States.
- No debris, bark, slash sawdust, rubbish, cement, concrete, oil, or petroleum products shall be stored where it may be washed by rainfall or runoff into jurisdictional waters of the United States.

- When construction operations are completed, any excess materials or debris shall be removed from the work area.
- No equipment maintenance shall be performed within 200 feet of jurisdictional waters of the United States where petroleum products or other pollutants from the equipment may enter these areas.
- Fully covered trash receptacles that are animal-proof and weather-proof shall be installed and used by the construction contractor(s) to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Littering shall be prohibited and trash shall be removed from construction areas daily. All food-related trash and garbage shall be removed from the construction sites on a daily basis.

(d) Fugitive Dust Control Plan. The developer shall develop a fugitive dust control plan in compliance with San Diego County Air Pollution Control Regulations to reduce particulate matter less than 10 microns (PM_{10}) and fine particulate matter less than 2.5 microns ($PM_{2.5}$) emissions during construction and decommissioning. The fugitive dust control plan shall include names, addresses, and phone numbers of persons responsible for the preparation, submission, and implementation of the plan; description and location of operation(s); and a list of all fugitive dust emissions sources included in the operation.

The following dust control measures shall be implemented:

- All on-site unpaved roads shall be effectively stabilized using soil stabilizers that can be determined to be as efficient, or more efficient, for fugitive dust control than California Air Resources Board-approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation. Application of the soil stabilizer shall be undertaken strictly to the manufacturer's directions for application and cognizant of the weather forecast to avoid application immediately before a rain event.
- All material excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed areas.
- All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

- Soil loads shall be kept below 18 inches of the freeboard of the truck.
- Drop heights shall be minimized when loaders dump soil into trucks.
- Traffic speeds on unpaved roads shall be limited to 15 miles per hour.
- Disturbed areas shall be minimized.

(e) Revegetation. Disturbed areas that are not required to be clear for operations and maintenance activities shall be revegetated or stabilized using soil binders within 90 days of construction completion. If soil binders are used they shall be as efficient, or more efficient, for fugitive dust control than California Air Resources Board-approved soil stabilizers. Soil would be revegetated with native plant species found within adjacent habitats. Locally available seed will be used, and that seed from species that are unavailable for collection would not be incorporated into the final seed palette. Revegetation shall provide a minimum of 40 percent cover of plant species native to adjacent habitats within a two year time frame. If 40 percent cover of native species is not achieved within two years, adaptive management measures will be pursued until 40 percent cover of native species is achieved.

If the Campo Wind Facilities were to be decommissioned, a decommissioning plan would be prepared and implemented. The decommissioning plan shall include revegetation of the previously-impacted areas. Soil would be revegetated with native plant species found within adjacent habitats. Locally available seed will be used, and that seed from species that are unavailable for collection would not be incorporated into the final seed palette. Revegetation shall provide a minimum of 40 percent cover of plant species native to adjacent habitats within a two year time frame. If 40 percent cover of native species is not achieved within two years, adaptive management measures will be pursued until 40 percent cover of native species is achieved.

(f) Erosion and Runoff Control. During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This will protect jurisdictional resources from being inundated with sediment-laden runoff. Design of drainage facilities shall incorporate long-term control of pollutants and stormwater flow to minimize pollution and hydrologic changes.

(g) Weed Management. A weed management plan shall be developed and approved by the Tribe prior to the commencement of construction activities. The plan shall include the following:

- Weed inventory and risk assessment;
- Identification of problem areas and necessary preventative measures;
- Annual surveys within the temporary impact areas to document weed patches for two years post construction;
- Success standards, such as temporarily impacted areas have no more than a 10 percent increase in weed species;
- Adaptive management measures; and
- Reporting.

All herbicide application shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Adviser and implemented by a licensed applicator.

(h) Fire Protection. To minimize the potential exposure of the Project to fire hazards, a Campo Wind Project Fire Protection Plan shall be prepared and implemented in conjunction with development of the Project.

MM-BIO-3 Implementation of U.S. Fish and Wildlife Service-Issued Terms and Conditions. All terms and conditions developed as part of the Section 7 consultation process with the USFWS and provided in the Project's Biological Opinion shall be implemented. Terms and conditions shall apply to any ESA-listed species that may be impacted by the Project. Ratios for habitat-based mitigation (if any) shall be determined during the Section 7 consultation process. The mitigation shall focus on habitat preservation and creation for long-term conservation of metapopulation dynamics. Terms and conditions outlined in the Project's Biological Opinion shall take precedence over the measures outlined herein.

(a) Construction Fencing and Signage. Construction fencing and/or signage will be installed when construction of the Project occurs immediately adjacent to mapped occupied QCB habitat (i.e., within a 200-meter radius around host plant concentrations or QCB detections that are located within 1-kilometer of a mapped QCB location) to prevent unnecessary intrusion into occupied QCB habitat. Signage shall be installed where high-use areas of the lease area border

suitable QCB habitat to prevent intrusion into sensitive habitat and remind personnel of restrictions regarding activities within these areas.

(b) Seasonal Avoidance. To the extent practicable, all construction clearing and grubbing in mapped suitable QCB habitat (i.e., within a 200-meter radius around host plant concentrations or QCB detections that are located within 1-kilometer of a mapped QCB location) associated with construction of the Project shall occur when adult and larval activity is reduced and host plants are not generally flowering or germinating, as determined by the USFWS. Vegetation management during the operation and maintenance phase of the Project shall also occur when adult and larval activity is reduced and host plants are not generally flowering or germinating, to the extent practicable.

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3 Status of Species and Habitat

This chapter provides discussions of the protection status, physical description, habitat associations, behavior, geographic range, and other relevant information for the federally listed species analyzed in this BA: QCB. The official species list from the USFWS is located in Appendix B to this BA.

Federally listed species known to occur within the Campo, Cameron Corners, Live Oak Springs, and Tierra Del Sol U.S. Geological Survey quadrangles and surrounding quadrangles (i.e., Action Area Vicinity) (USFWS 2018; CNPS 2018; CDFW 2018a; SDNHM 2018) are summarized in Table 3-1. Although these other species are known to occur in the Action Area vicinity, the Proposed Action will not affect these species (other than QCB) and that as such we are seeking formal consultation only on the QCB and a concurrence of a "no effect" or a "not likely to adversely affect" determination for the others.

Table 3-1
Federally Listed Plant and Wildlife Species Known in the Action Area Vicinity

Common Name Scientific Name	ESA Status	Habitat	Potential to Occur
Plants			
San Bernardino blue grass *Poa atropurpurea*	Endangered	Meadows and seeps, elevation ranging from 4,460 to 8,055 feet	**Unlikely to Occur in Action Area: No potential.** The Action Area is outside of the species' known elevation range, and there is no suitable vegetation present. This species was not included in the USFWS official species list, and therefore not known to occur in the Action Area (Appendix B).
Amphibians			
Arroyo toad *Anaxyrus californicus*	Endangered	Semiarid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral, and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	**Unlikely to Occur in Action Area: Low potential.** There are no suitable perennial washes or stream channels for breeding present in the Action Area. The closest known arroyo toad occurrences are located approximately 5.5 miles west of the Action Area in the Cottonwood Creek area (USFWS 2018), a different watershed. There are no records of arroyo toad east of this location (USFWS 2018; CDFW 2018a). Surveys conducted for the 2010 biological survey area (BSA) were negative (AECOM 2012). This species is included in the USFWS official species list for the general area, and therefore was included here though there is low potential based on habitat and distance from known occupied areas (Appendix B).
Birds			
California condor *Gymnogyps californianus*	Endangered	Forages on open terrain, foothill grassland, and oak savannah; nests in cavities on steep rocks or burned hallows of old-growth conifers and giant sequoia trees	**Unlikely to Occur in Action Area: Very Low potential to forage and not expected to nest.** No suitable nesting habitat present and the only anecdotal records are at least 15 miles away from the Action Area from 2017 (other years are further from the site) (USFWS 2018). The species has been reintroduced into Baja California, Mexico and locations north of Los Angeles – both more than 100 miles away. This species was

Table 3-1
Federally Listed Plant and Wildlife Species Known in the Action Area Vicinity

Common Name Scientific Name	ESA Status	Habitat	Potential to Occur
			not included in the USFWS official species list, and therefore not known to occur in the Action Area (Appendix B).
Southwestern willow flycatcher *Empidonax traillii extimus*	Endangered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	**Unlikely to Occur in Action Area: Low potential.** Focused protocol surveys conducted in 2010 for this species were negative. The closest known CNDDB occurrence is 27.8 miles northwest of the Action Area (CDFW 2018a). There is marginal riparian habitat for this species, which prefers habitat along perennial streams and rivers. This species is included in the USFWS official species list for the general area, and therefore was included here though there is low potential based on habitat and distance from known occupied areas. (Appendix B).
Least Bell's vireo *Vireo bellii pusillus*	Endangered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	**Unlikely to Occur in Action Area: Low potential.** Focused protocol surveys conducted in 2010 for this species were negative. The closest known CNDDB occurrence is 6 miles west of the Action Area (CDFW 2018a). There is marginal riparian habitat for this species, which prefers habitat along perennial streams and rivers. This species is included in the USFWS official species list for the general area, and therefore was included here though there is low potential based on habitat and distance from known occupied areas. (Appendix B).
Mammals			
Peninsular bighorn sheep *Ovis canadensis nelsoni* pop. 2 DPS	Endangered	Dry, rocky, low-elevation desert slopes, canyons, and washes; females near water during lambing season	**Unlikely to Occur in Action Area: No potential.** The Reservation is located in the inner-montane zone of San Diego County, west of the desert slopes occupied by this species and approximately 6 miles (9.6 kilometers) from the western edge of the species' known range (CDFW 2018e). The closest CNDDB occurrence is 3.6 miles northeast of the Action Area within the Jacumba and In-Ko-Pah Mountains in more-suitable habitat (CDFW 2018a). The Action Area lacks the open dry, rocky desert habitat preferred by this species. This species is included in the USFWS official species list for the general area, and therefore was included here though there is low potential based on habitat and distance from known occupied areas. (Appendix B).
Invertebrates			
Quino checkerspot butterfly *Euphydryas editha quino*	Endangered	Annual forblands, grassland, open coastal scrub, and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta*, *Antirrhinum coulterianum*, and	**Known to occur.** Twenty-seven Quino observations were documented during 2010 USFWS protocol surveys. Approximately 3,803.1 acres (1,539.1 hectares) of suitable habitat was recorded. Observations were concentrated in the southern portion of the 2010 BSA (AECOM 2012). In 2018 and 2019, updated surveys were conducted for the Action Area. No occurrences of Quino were recorded during the focused surveys in 2018, but were recorded in 2019 within the Boulder Brush Corridor. This species is included in

Table 3-1
Federally Listed Plant and Wildlife Species Known in the Action Area Vicinity

Common Name Scientific Name	ESA Status	Habitat	Potential to Occur
		Plantago patagonica (Silverado Occurrence Complex)	the USFWS official species list, and therefore is known to occur or has an expected range overlapping the Action Area (Appendix B).
Laguna Mountains skipper *Pyrgus ruralis lagunae*	Endangered	Restricted to montane meadows of Laguna Mountains and Mount Palomar	**Unlikely to Occur in Action Area: No potential.** This species' range is restricted to the Laguna Mountains and Mount Palomar. The closest recorded occurrence is approximately 10 miles northwest of the Action Area (CDFW 2018a; USFWS 2018).

3.1 Quino Checkerspot Butterfly Status

This section describes the status, history, distribution, abundance, and habitat of the QCB as it relates to the Action Area. The section includes the results of surveys conducted by AECOM between 2005 and 2010, and Dudek in 2018 and 2019.

3.1.1 Status

QCB was listed as endangered on January 16, 1997 (62 FR 2313–2322). USFWS published the *Recovery Plan for the Quino Checkerspot Butterfly (Euphydryas editha quino)* on August 11, 2003 (USFWS 2003). The Recovery Plan provides recovery criteria to reclassify QCB from endangered to threatened. The Recovery Plan details the methods by which secure populations are to be determined and discusses the management plans necessary for each of the Recovery Units. Co-authored by a Technical Recovery Team of seven expert biologists and ecologists, the Recovery Plan provides a comprehensive scientific review and analysis of published and non-published information and data through 2002 relevant to conservation of QCB (USFWS 2003).

Critical habitat was first designated on April 15, 2002 (67 FR 18356–18395), revised on January 17, 2008 (73 FR 3328), and later finalized revisions on June 17, 2009 (74 FR 28776–28862). Critical habitat is defined as specific areas that have been found to be essential to the conservation of the species and that may require special management considerations or protection. The primary constituent elements for QCB occur in undeveloped areas that support various types of open-canopy woody and herbaceous plant communities that provide populations of host plant and nectar sources for the QCB (USFWS 2003).

Designated critical habitat for QCB borders the Reservation to the west and south. In accordance with ESA Section 4(b)(2); EO 13175, Consultation and Coordination with Indian Tribal Governments; and

Secretarial Order 3206, USFWS has excluded the Reservation from designated critical habitat. The Boulder Brush Corridor does not cross designated critical habitat on private land.

3.1.2 History/Distribution/Abundance

The QCB was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, the distribution of the QCB is limited to western Riverside County, southern San Diego County, and northern Baja California. It is found on sparsely vegetated hilltops, on ridgelines, and occasionally on rocky outcrops in open chaparral and coastal sage scrub habitat (typically at less than 3,000 feet above mean sea level). The QCB requires patchy scrub landscapes with openings of several meters between woody plants that provide open areas with high sun exposure to facilitate breeding and movement (USFWS 2009a). It also requires host plants within these vegetation communities for feeding and reproduction. The primary larval host plant is dotseed plantain; however, several other species have been documented as important larval host plants, including desert plantain, sometimes called woolly plantain (*Plantago patagonica*); thread-leaved bird's beak (*Cordylanthus rigidus*); white snapdragon (*Antirrhinum coulterianum*); owl's clover (*Castilleja exserta*); and Chinese houses (*Collinsia* spp.) (USFWS 2003). The QCB is generally found at sites where high densities of the host plants occur (67 FR 18356–18395).

3.1.3 Threats/Reasons for Decline

Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road vehicular use, the invasion of non-native plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322). Threats limiting the distribution of the species include loss of habitat to development and degradation of habitat. More than 75% of the QCB's historical range has been lost (Brown 1991), including more than 90% of its coastal mesa and bluff distribution (USFWS 2003a; USFWS GIS database). This reduction was primarily due to direct and indirect human impacts including habitat loss and fragmentation, invasion of nonnative plant species, and catastrophic natural events such as increased frequency of drought and wildfire (USFWS 1997, 62 FR 2313).

The recovery plan for QCB identified threats to QCB from loss and fragmentation of habitat and landscape connectivity, invasion by nonnative plants, off-road vehicle activity, grazing, fire, enhanced soil nitrogen, increasing atmospheric carbon dioxide concentration, and climate change. In the five-year review of the species, the USFWS identified two additional threats to QCB including habitat destruction (Factor A) and extinction vulnerability due to restricted range, localized distribution, and small population size (Factor E) (USFWS 2009). These threats to QCB identified by the USFWS are detailed as follows.

Factor A: Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range. A total of 147,359 acres of mapped occurrence complexes extant at the time of listing or documented post-listing. At the time that the 5-year review was completed, the USFWS determined that approximately 42% of mapped occurrences are on public lands or privately-owned preserves that are not subject to large-scale land-use conversion, 19% are privately owned lands likely to be conserved under a Habitat Conservation Plan (HCP), 24% are private and tribal lands where the likelihood of habitat loss is variable, and 15% have been destroyed by developed or land use changes (USFWS 2009). Based on these conditions, the USFWS determined that these factors still threaten QCB survival and recovery (USFWS 2009).

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes. In the final rule, the USFWS identified this factor as a threat to the subspecies. At the time of the five-year review, the USFWS concluded that this impact of overutilization for any purpose is not known at this time (USFWS 2009).

Factor C: Disease or Predation. Disease was not identified in the original listing or in the recovery plan, but the final rule stated there was evidence of predation by invasive nonnative species. At the time of the 5-year review, the USFWS presented additional information related to the disease and predation threat. The 5-year review concluded that impact to disease and predation remain unknown (USFWS 2009).

Factor D: Inadequacy of Existing Regulatory Mechanisms. The 5-year review identifies several regulatory mechanisms that afford protections to the QCB including the National Environmental Policy Act, the ESA, and the California Environmental Quality Act. The 5-year review provides examples of QCB current and planned protection under each of these regulatory mechanisms but acknowledges that the ESA remains the primary protection mechanism while noting that the joint CDFW and USFWS Natural Community Conservation Plan and regional HCPs have contributed to the protection of QCB (USFWS 2009).

Factor E: Other Natural or Manmade Factors Affecting Its Continued Existence. The 5-year review identifies extinction vulnerability due to restricted range, localized distribution, and small population sizes as a threat to QCB. These treats make QCB more vulnerable to stochastic events, such as drought and fire), climate change effects, and habitat loss. Vulnerability of QCB populations to prolonged drought is stated as a concern in the 5-year review (USFWS 2009).

3.2 Quino Checkerspot Butterfly Surveys

Focused QCB surveys within the Action Area were completed between 2005 and 2009 (AECOM 2012), in 2010 and 2011 (Appendix C), and in 2018 (Appendices D and E) and 2019 (Appendix F).

3.2.1 2010 AECOM Quino Checkerspot Butterfly Habitat Assessment and Protocol Surveys

In 2010, AECOM biologists completed a site habitat assessment in accordance with the 2002 Quino Checkerspot Butterfly Survey Protocol (USFWS 2002) to determine presence or absence of the species and identify potential QCB resources (i.e., suitable habitat and potential host plants) (Figure 2 of Appendix C). The 2010 USFWS protocol surveys conducted by AECOM overlapped with a large portion (63%) of the Action Area. In accordance with the then-current USFWS 2002 survey protocol for the QCB, the initial habitat assessment conducted by permitted biologists in March 2010 identified approximately 1,806 acres (731 hectares) that required adult USFWS protocol surveys (referred to as "Quino survey area") within what AECOM described as the "biological study area" (2010 BSA).

Following the initial habitat assessment, USFWS protocol surveys were conducted by permitted QCB biologists to determine presence or absence of the species within the "Quino survey area" (see Figure 2 of Appendix C). The "Quino survey area" was expanded by 516 acres (209 hectares) after additional suitable open habitat within chaparral and scrub communities was discovered. Therefore, the "Quino survey area" increased to approximately 2,322 acres (940 hectares). Detailed survey methods and results can be found in the QCB report submitted to USFWS (Appendix C).

3.2.2 2018 and 2019 Quino Checkerspot Butterfly Habitat Assessment and Protocol Surveys

Prior to the focused surveys, Dudek biologists conducted a site habitat assessment for QCB within the Action Area in 2018 and 2019 per the QCB survey guidelines published on December 15, 2014 (USFWS 2014). The purpose of the site habitat assessment was to identify suitable habitat and exclude unsuitable habitat. Excluded areas consisted of developed areas and densely vegetated chaparral with tall shrubs forming closed canopies. Host plant surveys were performed in concert with the habitat assessment and augmented during the focused survey effort.

In 2018, focused QCB surveys were conducted over 10 visits between March 3, 2018, and May 15, 2018, per the QCB survey guidelines published on December 15, 2014 (USFWS 2014).[3] The survey area consisted of suitable habitat for QCB (Figure 3 of Appendices D and E). Surveys were conducted by QCB-permitted biologists Anita Hayworth (TE-781084-9.1), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), Erin Bergman (TE-813545-5), Darin Busby (initially working under Melissa Busby's permit until permit renewal of TE-115373-4), Melissa Busby (TE-0807792-3), David Erik LaCoste (TE-027736-6), Paul M. Lemons (TE-051248-5), Margie Mulligan (TE-88969B-0), Jeff

[3] Only nine passes were completed at survey area 1 due to weather-related survey cancellations. These weather-related delays were discussed with USFWS staff who provided permission to edit the survey timing to better match climatic conditions at this higher-elevation site.

Priest (TE-840619-6), Diana Saucedo (TE-221287-1), Patricia Schuyler (TE-27502B-1), and Tricia Wotipka (working under TE-840619-6) (Appendices D and E).

In 2019, focused QCB surveys were conducted over nine visits between March 15, 2019, and May 13, 2019, within the Boulder Brush Corridor per the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines (USFWS 2014). The survey area consisted of suitable habitat for QCB (Figure 3 of Appendix F). The Campo Corridor was not resurveyed in 2019 because much work had already been conducted on Reservation lands. Surveys were conducted by QCB-permitted biologists Antonette Gutierrez (TE-50992B), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-813545-5), Jeff Priest (TE-840619-6), Lindsay Willrick (TE-61175B-0), Margie Mulligan (TE-88969B-0), Patricia Schuyler (TE-27502B-1), and Victor Novik (TE-069534).

The biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the survey area. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. Surveys also focused on identifying QCB host plants before the survey effort started in accordance with the survey protocol and supplemented as detected during the actual focused survey. However, no live plants were detected in 2018, and only dried host plants from the previous year were observed. Therefore, no host plants were mapped on site in 2018. In 2019, Dudek biologists conducted 2 passes of QCB host plant mapping surveys between March 5 and April 22, 2019 (Appendix F). Host plant mapping surveys focused on the identification and location of all seven recognized host plants for Quino: dwarf plantain, woolly plantain, Coulter's snapdragon, rigid bird's beak, purple owl's clover (*Castilleja exserta*), Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) (USFWS 2014; BIA 2016).

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitats within the approximately 1,200-acre QCB 2019 survey area of the Boulder Brush Corridor. The QCB survey area was divided into 8 survey areas, ranging from 62 to 82 acres (Figures 2 through 6, Survey Results, of Appendices D, E, and F). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 5 to 10 acres per person-hour.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 mph measured 4 to 6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the QCB survey are shown in Table 1 of the focused survey reports provided in Appendices D, E, and F.

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4 ENVIRONMENTAL BASELINE

This chapter first describes the environmental setting in which the Project will occur and discusses the pre-action conditions for the QCB including the results of several focused surveys conducted in the Action Area. Thereafter, it discusses the environmental baseline as that term is defined in the ESA implementing regulation. *See* 50 C.F.R. 402.02.

4.1 Environmental Setting

4.1.1 Overview

The Action Area is located in the inner-montane zone of southeastern San Diego County, west of a desert transition zone associated with the Sonoran Desert. Elevation within the entire Action Area ranges from 3,000 feet above mean sea level to 4,450 feet above mean sea level. Topography of the Action Area exhibits a range from moderate to steep ridges, to semiarid plateaus and valleys. The area is in a desert transition zone, supporting desert and high desert habitats and vegetative communities. The Action Area is in the central area of the Peninsular Ranges geomorphic province. Altitude and relief generally decrease from east to west towards the Pacific Ocean. Seismicity is common throughout the Southern California region, with the San Andreas Fault located approximately 65 miles east-northeast near the Salton Sea. Although, areas like the Action Area appear to be relatively quiescent compared to nearby fault lines.

4.1.2 Habitat/Vegetation

The Action Area supports large, intact expanses of relatively undisturbed habitats characteristic of the region. Dense chaparral covers much of the undeveloped portions of the Action Area, with oak woodlands and riparian habitats present along scattered canyons. A series of north–south-oriented ridges separated by the occasional broad valley or narrow drainages dominate the topography, and various large rock outcrops occur primarily along the ridgelines. Scattered, low-density commercial and residential developments are located within and adjacent to the Action Area. Other development features present include major transportation corridors (I-8 and State Route [SR] 94), asphalt and compacted earthen roads, trails, and fencing.

Drainage patterns on the Action Area vary greatly across topographic changes. Campo Creek flows in an east–west direction through the southern portion of the Action Area. There are numerous tributaries to Campo Creek as well as seeps and springs on the Action Area. Surface water on the Action Area is not sufficient to support domestic uses; therefore, domestic water resources are solely from groundwater wells.

4.1.3 Threatened and Endangered Species

Federally listed plant species were not identified during surveys of the Action Area conducted in 2010, 2018, or 2019. Similarly, the only federally listed wildlife species identified was the QCB. The sources of these results were discussed in Chapter 3, Status of Species and Habitat. Key findings from these sources is described below. Please see the focused surveys reports for additional information.

4.1.3.1 Literature Review and Floristic Surveys for Suitable Habitat

Special-status plant and wildlife species present or potentially present within the Action Area were identified through an extensive literature search using the following sources: USFWS Critical Habitat and Occurrence Data (USFWS 2018), CDFW's California Natural Diversity Database (CNDDB) (CDFW 2018a, 2018b, 2018c), California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2018), and the San Diego Plant Atlas (SDNHM 2018). In addition, previous work conducted by AECOM that overlaps with the current Action Area was reviewed and incorporated into this analysis where appropriate.

In 2010, AECOM conducted the following surveys within a larger "action area" (note that this encompassed their study area for that project – their "action area" differs in geographic extent from this Project's Action Area) on the Reservation: vegetation mapping; jurisdictional delineation; rare plant surveys; general wildlife surveys; and protocol surveys for QCB, arroyo toad, least Bell's vireo, and southwestern willow flycatcher. Between 2017 and 2019, Dudek conducted a QCB habitat assessment and focused surveys, vegetation mapping, and a jurisdictional delineation within the Action Area in support of the Project. These surveys and conditions are outlined in the Campo Wind Project with Boulder Brush Facilities Biological Resources Technical Report (Dudek 2019) and Biological Resources Technical Report for the Campo Wind with Boulder Brush Facilities Project (Appendix G).

Vegetation communities and existing land uses within the Action Area were mapped in the field using a GIS application or directly onto a 200-foot-scale (1 inch = 200 feet) aerial photograph–based field map of the Action Area. Following completion of the fieldwork, vegetation polygons were transferred to a topographic base and digitized using ArcGIS, and a GIS coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present within the Action Area was determined. Vegetation community classifications used in this report follow Holland (1986) and Oberbauer et al. (2008).

Plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California

(CNPS 2018). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2018), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service PLANTS Database (USDA 2018).

Wildlife species observed or detected during the field surveys were recorded. In addition to species actually detected, expected wildlife use of the Action Area was determined based on known habitat preferences of local species and knowledge of their relative distributions in the area. Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithological Society for birds (AOS 2017), the North American Butterfly Association for butterflies (NABA 2016), and Wilson and Reeder (2005) for mammals.

4.1.3.2 Literature Review Results

A total of 339 vascular plant species, consisting of 305 native species (90%), and 34 non-native species (10%), were recorded within the Action Area during surveys conducted in 2017, 2018, and 2019 (Attachment E-2 of Dudek 2019). Fifty-six families are represented, with nearly half of species coming from the *Asteraceae*, *Boraginaceae*, *Poaceae*, *Polemoniaceae*, *Fabaceae*, and *Brassicaceae* families. There were 159 species observed in the Action Area during surveys conducted for the site. Of the total species observed, 22 of these are considered special status. Species observed within the Action Area were recorded during focused surveys, habitat assessments, vegetation mapping, and sensitive plant surveys.

4.2 Results of Surveys in Action Area

4.2.1 Habitat and Occurrence in the 2005 through 2009 Survey Areas – Campo Landfill Project

As referenced in AECOM 2012, between 2005 and 2009, Pacific Southwest Biological Services biologists conducted USFWS protocol surveys for QCB in the southeastern portion of the Reservation for the then-proposed, but no longer under consideration, Campo Regional Landfill Project (BIA 2010). Protocol surveys were conducted within an approximate 394-acre (159-hectare) area of open vegetation characteristic of QCB habitat (BIA 2010). There were 23 QCB detections recorded between March and April during these surveys (14 detections in 2005, one detection in 2006, and eight detections in 2009) (PSBS 2005, 2009). No QCB detections were made during protocol surveys in 2007 and 2008 (PSBS 2007, 2008). Potential QCB host plants recorded during this previous survey effort included owl's clover, thread-leaved bird's beak, and Chinese houses (BIA 2010).

4.2.2 Habitat and Occurrence in the 2010 BSA and Vicinity

In 2010, USFWS protocol surveys were conducted for QCB in the southeastern portion of the 2010 BSA (AECOM 2012). There were 27 QCB observations recorded within the Reservation (Figure 9 of Appendix C). Nineteen observations were made within in the southern portion of the 2010 BSA, and eight observations were documented from outside the 2010 BSA but within the Reservation (Figure 9 of Appendix C).

Three potential QCB larval host plant species were observed within the 2010 BSA during the 2010 focused surveys: Chinese houses, white snapdragon, and thread-leaved bird's beak (Figure 9 of Appendix C). Observations of QCB and locations of larval host plants made previously for the Campo Landfill Project and those made during 2010 surveys suggest that the southern portion of the Reservation supports a higher density of QCB as compared to northern portions of the Reservation (i.e., north of SR-94).

4.2.3 Habitat and Occurrence in the 2018 and 2019 Dudek Survey Area

No QCB or their host plants were observed during the 2018 focused surveys within the Action Area. Approximately 1,200 acres were considered potential suitable habitat within the Action Area (Figure 3 of Appendices D and E). A total of five QCB were observed during the 2019 focused surveys on April 10, 2019 within the Boulder Brush Corridor. The QCB were observed in an area with open decomposed granite soils, hilltops, ridges, numerous granitic rock outcrops, and various nectar sources. No host plants were observed within the immediate survey area. QCB spent much of the observation time nectaring on Clearwater cryptantha (*Cryptantha intermedia* var. *intermedia*) and pointed cryptantha (*Cryptantha muricata* var. *jonesii*) for short periods of time (a few seconds), landing on bare ground (a few seconds) and performing hill topping behaviors the majority of the time. These QCB were only observed during this one survey week on this one day. No other QCB were observed during the protocol surveys. Please see Appendix F for more detail.

4.2.4 Quino Checkerspot Butterfly Occupied Habitat

QCB populations vary yearly based on a variety of factors, including rainfall, temperature, timing of rain events, and host plant growth patterns, among others. Low rainfall and other factors can cause larva to extend diapause and delay emergence. Lack of adult QCB observations in one year may not be considered adequate evidence that a site is unoccupied. Therefore, potentially occupied habitat was modeled based on QCB records and host plants observed in 2010. The USFWS has suggested a number of modeling methods over the years (e.g., County of San Diego Quino Amendment; Santee Subarea Plan). One model that includes the following parameters is included for reference:

- 200-meter buffer around QCB locations
- 200-meter buffer around "significant" plant populations (i.e., >20 individuals)
- Hilltops
- Ridgelines (centerline with 100-foot [31.2-meter] buffer)

Plant population buffers, hilltops, and ridgelines were added to the QCB detection polygon or each other as they would connect. If the link was broken by distance or unsuitable habitat, then the potentially occupied patch would end.

Figure 5, Quino Checkerspot Butterfly Modeled Habitat, shows the modeled and estimated occupied QCB habitat on the Reservation. Based on the single QCB positive identification within the Boulder Brush Corridor, QCB habitat was also modeled within the Boulder Brush Corridor (Figure 5). This information is described in Appendices E and F.

Based on the July 2, 2019, meeting with the USFWS, Dudek revised the analysis methods to include all Project components that occurred within 1 km of any QCB observation where suitable habitat occurred (Figure 6, Quino Checkerspot Butterfly 1 km Modeled Habitat). In order to generate this figure, a 1 km buffer was applied to all known (CNDDB or USFWS) data points from the Project vicinity. QCB suitable habitat was then identified where it overlapped the 1 km buffer. The acreage of these resulting areas were then calculated. Areas that were excluded only included habitat that was either excluded by both AECOM and Dudek or unique habitat assessment areas that were excluded by either AECOM or Dudek. Areas excluded by one entity, but not the other were included in the model as potentially suitable habitat. This model resulted in approximately 332.62 acres of suitable, potentially occupied habitat within the Action Area (Figure 7, Impacts to Potentially Suitable Quino Checkerspot Surveyed Areas).

4.3 Environmental Baseline Summary

The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in an action area, the anticipated impacts of all proposed federal projects in an action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process (USFWS and NMFS 1998; 50 C.F.R. § 402.02).

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5 EFFECTS OF THE PROPOSED ACTION

5.1 Introduction

This section includes an analysis of the potential direct, indirect, and cumulative effects to the QCB from the Proposed Action, and any interrelated and interdependent actions to QCB.

The discussion of effects for QCB includes an analysis of the potential direct effects of approval of the Campo Lease and County Major Use Permit, a direct effect of which would be the construction and operation of the Project.

Direct effects are those caused by the Proposed Action and occur at both the same time and place as the action. Construction of the Project could result in potential direct impacts to the QCB including the loss of or harm to individuals, loss of suitable habitat, and construction-related effects within the Action Area (e.g., noise, ground vibration, lighting, dust). Indirect effects are those that may result from the Proposed Action at a later time with reasonable certainty. Project O&M may result in temporary and long-term indirect effects to QCB in areas in proximity to the Action Area. Cumulative impacts are those that are caused by the combination of this and other projects in the vicinity or region that may affect QCB. These affects would be scaled to match the population or dispersal capabilities of QCB.

The following analysis supports the discussion in Sections 5.2 through 5.5. In order to prepare the analysis, each component of the Project was separately reviewed and compared to known information regarding QCB locations, host plant concentrations, type of activity, and survey history.

Exclusion Areas

Prior to performing focused surveys, Dudek biologists conducted host plant mapping as well as a habitat assessment within the Action Area in order to identify suitable habitat and exclude unsuitable habitat. Excluded areas consisted of developed areas and densely vegetated chaparral with tall shrubs forming closed canopies. AECOM utilized a similar method when excluding areas for their surveys. A review of the AECOM (Appendix C) exclusion areas versus Dudek (Appendices D and E) exclusion areas found a few differences (Figure 8, 2010, 2011, and 2018 Quino Checkerspot Butterfly Survey Areas). Table 5-1 depicts the various acreages for permutations of excluded versus surveyed habitat between the two survey efforts. Primary areas of difference occur in the vicinity of the C-19 to C-26 string, C-27 to C34 string, C-1, C-8, and C-9 turbines on the Dudek side, and C-4 to C-7 and C-10 to C-12 plus miscellaneous areas on the AECOM side. Within overlapping survey boundaries, these differences can be attributed to time between surveys and growth of plants and possibly observer bias. In no instances did the Dudek

exclusion areas overlap with known QCB locations; however, some of the AECOM and Dudek exclusion areas came close to known QCB observations (i.e., vicinity of C-1, C-34, A-67).

Table 5-1
Exclusion Area Differences Between the AECOM 2010 and Dudek 2018 Survey Efforts

Permutation	Acres
Areas surveyed by Dudek but not addressed by AECOM	258.94
Areas surveyed by Dudek, but excluded by AECOM	54.27
Areas surveyed by AECOM, but excluded by Dudek	258.03
Areas surveyed by both	358.48
Areas excluded by both	61.49

Quino Checkerspot Butterfly Impact Assessment Summary

The following analysis reviews each Project component for relative importance to QCB and assesses the potential effects of the Proposed Action (see also Table 5-2). Mutual or exclusive exclusion areas are assumed to not be suitable for QCB presence for the purposes of this analysis. Areas that were determined by one entity to be excluded but not by the other, were included.

Direct Impacts

In summary (see Appendix I, Quino Checkerspot Butterfly Impact Sheets), direct impacts to QCB are assumed when impacts will occur within 200 m of known QCB locations and within 200 m of host plant populations. Based on the analysis, the following components will cause direct effects to QCB and impact approximately 242.13 acres of QCB habitat:

- Turbine C-1 (2.88 acres)
- Turbine C-8 (2.88 acres)
- Turbine C-9 (2.88 acres)
- Turbine C-12 (2.88 acres)
- Turbine C-34 (2.88 acres)
- Turbine C-35 (2.88 acres)
- Turbine C-36 (2.88 acres)
- Turbine C-37 (2.88 acres)
- Turbine C-38 (2.88 acres)
- Turbine C-39 (2.88 acres)

- Turbine C-56 (2.88 acres)
- Turbine C-57 (2.88 acres)
- Turbine C-58 (2.88 acres)
- Turbine C-59 (2.88 acres)
- Turbine C-60 (3.31 acres)
- Turbine C-67 (2.88 acres)
- Turbine C-68 (2.88 acres)
- Turbine C-69 (2.88 acres)
- Turbine C-70 (2.88 acres)
- Turbine C-71 (2.88 acres)
- Turbine C-72 (2.88 acres)
- Turbine C-73 (2.88 acres)
- Road segments within 1 km of QCB and within 200 m of host plants (81.8 acres)
- Road segments within 200 m of QCB and plants (24.63 acres)
- Road segments within 200 m of QCB only (3.14 acres)
- Gen-tie segments within 1 km of QCB and within 200 m of host plants (32.75 acres)
- Gen-tie segments within 200 m of QCB and plants (0 acres)
- Gen-tie within 200 m of QCB only (7.57 acres)
- Temporary Batch Plant (8.60 acres)
- Temporary Staging Areas (19.85 acres)

Indirect Impacts

An additional 90.49 acres of potential QCB habitat (i.e., habitat that is within 1 km of known QCB locations but is not within 200 m of host plants or QCB observations) is present as well. These include the following:

- Turbine C-32 (2.88 acres)
- Turbine C-33 (2.88 acres)
- Turbine C-40 (2.88 acres)

- Turbine C-41 (2.88 acres)
- Turbine C-42 (2.88 acres)
- Turbine C-66 (2.88 acres)
- Turbine C-75 (2.88 acres)
- Road segments within 1 km of QCB locations only (56.64 acres)
- Gen-tie segments within 1 km of QCB locations only (5.9 acres)
- O&M Facility (7.79 acres)

These areas are not expected to incur direct QCB impacts because they do not otherwise include necessary host plant or nectar plant concentrations, but might incur indirect impacts if appropriate management practices are not maintained.

Table 5-2
Project Component Analysis

Component	Acres	Analysis
Turbines		
Turbines are not expected to affect QCB through collision, noise, or other factors. Impacts related to turbines involve construction and longer-term O&M only. Areas that will be temporarily impacted during construction will be revegetated with a native seed mix and then not impacted further. Therefore, the acreages noted below equal a worst-case scenario.		
C-1	2.88	C-1 occurs in a chaparral area that was considered to be too dense[4] by Dudek to require focused surveys but was surveyed by AECOM. It is located within the 1-km buffer of known QCB locations and within 200 m of host plant concentrations. Considered to be a direct and permanent impact to potentially occupied habitat.
C-2	2.88	C-2 occurs in a chaparral area that was considered to be too dense by both Dudek and AECOM to require focused surveys and is not suitable habitat. It is located within the 1 km buffer of known QCB locations, however. Therefore, no direct impacts are anticipated during construction, but longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures.
C-3	2.88	C-3 occurs in a chaparral area that was considered to be too dense by both Dudek and AECOM to require focused surveys and is not suitable habitat. It is located within the 1 km

[4] Per the December 15, 2014, USFWS survey guidelines:
Excluded Areas not recommended for Quino surveys:
- Orchards, developed areas, or small in-fill parcels (plots smaller than an acre completely surrounded by urban development) largely dominated by non-native vegetation;
- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation or that are completely without any fallowed or unplowed areas;
- Closed-canopy woody vegetation including forests, riparian areas, shrub-lands, and chaparral. "Closed-canopy woody vegetation" describes shrubs or trees growing closely together in which the upper portions of the vegetation converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Closed canopy shrub-land and chaparral are defined as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation (branches).

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		buffer of known QCB locations, however. Therefore, no direct impacts are anticipated during construction, but longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures.
C-4	2.88	C-4 occurs in a chaparral area that was considered to be too dense by AECOM to require focused surveys, but Dudek surveyed. Surveys were negative for both QCB and host plants. No impacts to QCB are anticipated.
C-5	2.88	C-5 occurs in an area of more open chaparral that was considered to be too dense by AECOM, but only portions were considered to be too dense by Dudek. This area is located near a hilltop, but is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-6	2.88	C-6 occurs in an area of more open chaparral that was considered to be too dense by AECOM, but only portions were considered to be too dense by Dudek. This area is located near a hilltop, but is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-7	2.88	C-7 occurs in an area of more open chaparral that was considered to be too dense by AECOM, but only portions were considered to be too dense by Dudek. This area is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-8	2.88	C-8 occurs in a chaparral area that was considered to be too dense by Dudek to require focused surveys, but was surveyed by AECOM. Surveys were negative. It is located within the 1 km buffer of known QCB locations, on a hilltop, and close to host plants, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-9	2.88	C-9 occurs in a chaparral area that was considered to be too dense by Dudek to require focused surveys but was surveyed by AECOM. Surveys were negative. It is located within the 1 km buffer of known QCB locations, on a hilltop, and close to host plants, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-10	2.88	C-10 occurs in a chaparral area that was considered to be too dense by both Dudek and AECOM to require focused surveys and is not suitable habitat. It is located within the 1 km buffer of known QCB locations, however. Therefore, no direct impacts are anticipated during construction, but longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures.
C-11	2.88	C-11 occurs in a chaparral area that was considered to be too dense by both Dudek and AECOM to require focused surveys and is not suitable habitat. It is located within the 1 km buffer of known QCB locations and on a ridgeline, however. Therefore, no direct impacts are anticipated during construction, but longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures.
C-12	2.88	C-12 occurs in a chaparral area that was considered to be too dense by Dudek to perform surveys but AECOM did. Surveys were negative. It is located within the 1 km buffer of known QCB locations, on a hilltop, and close to host plants, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-13	2.88	C-13 occurs in an area that was determined to be suitable habitat, was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated on

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-14	2.88	C-14 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated on a ridgeline and near known host plant concentrations, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-15	2.88	C-15 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated on a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-16	2.88	C-16 occurs in an area that was determined to be suitable and was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated on a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-17	2.88	C-17 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated on a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-18	2.88	C-18 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-19	2.88	C-19 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-20	2.88	C- 20 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is located near a hilltop, but is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-21	2.88	C-21 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-22	2.88	C-22 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not known to support host plants and is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-23	2.88	C-23 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is close to known

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		concentrations of host plants but is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-24	2.88	C-24 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is close to known concentrations of host plants but is more than 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-25	2.88	C-25 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is located on a hilltop, but is not located near concentrations of host plants or within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-26	2.88	C-26 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not located on a hilltop, near concentrations of host plants or within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-27	2.88	C-27 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not located on a hilltop, near concentrations of host plants or within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-28	2.88	C-28 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is located near concentrations of host plants, but is not within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-29	2.88	C-29 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is located near concentrations of host plants, but is not within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-30	2.88	C-30 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not located on a hilltop, near concentrations of host plants or within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-31	2.88	C-31 occurs in an area of chaparral that was considered to be too dense by Dudek but was surveyed by AECOM. Surveys were negative. This area is not located on a hilltop, near concentrations of host plants or within 1 km from known QCB locations. Therefore, no impacts to QCB are anticipated.
C-32	2.88	C-32 occurs in an area that was considered to be suitable habitat. Focused surveys were performed in 2018 and were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-33	2.88	C-33 occurs in an area that was considered to be suitable habitat. Focused surveys were performed in 2018 and were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-34	2.88	C-34 occurs in an area that was not considered to be suitable habitat by Dudek (AECOM did not analyze this area) due to the density of the chaparral. It is located within 200 m of known QCB locations, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-35	2.88	C-35 occurs in an area that was not considered to be suitable habitat by Dudek (AECOM did not analyze this area), due to the density of the chaparral. It is located within the 1 km buffer of known QCB locations, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-36	2.88	C-36 occurs in an area that was considered to be suitable habitat by Dudek. Focused surveys were performed in 2018 and were negative for both QCB and host plants. However, it is located proximate to three known QCB locations. Direct impacts are anticipated during construction and longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures.
C-37	2.88	C-37 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-38	2.88	C-38 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-39	2.88	C-39 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. Considered to be a direct and permanent impact to potentially occupied habitat.
C-40	2.88	C-40 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-41	2.88	C-41 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of known QCB locations, however. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-42	2.88	C-42 occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018. These surveys were negative for both QCB and host

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		plants. It is located within the 1 km buffer of known QCB locations, however. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-43	2.88	C-43 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is situated at the edge of a hilltop, but is not located near host plant concentrations or within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-44	2.88	C-44 occurs in an area that was determined to be a mix of suitable and unsuitable habitat due to the density of chaparral. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is located near host plant concentrations but not within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-45	2.88	C-45 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is located near host plant concentrations but not within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-46	2.88	C-46 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is located near host plant concentrations but not within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-47	2.88	C-47 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is located near host plant concentrations but not within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-48	2.88	C-48 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-49	2.88	C-49 occurs in an area that was determined to be a mix of suitable habitat and unsuitable habitat due to the density of chaparral in the area. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is located on a hilltop, but not within 1 km of known QCB or near concentrations of host plants. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-50	2.88	C-50 occurs in an area that was determined to be a mix of suitable habitat and unsuitable habitat due to the density of chaparral in the area. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not within 1 km of known QCB or near concentrations of host plants. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-51	2.88	C-51 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		location is not within 1 km of known QCB or near concentrations of host plants. No impacts are anticipated to occur as a result of construction or long-term O&M.
C-52	2.88	C-52 occurs in an area that was determined to be a mix of suitable habitat and unsuitable habitat due to the density of chaparral in the area. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not within 1 km of known QCB or near concentrations of host plants. No impacts are anticipated to occur as a result of construction or long-term O&M.
C-53	2.88	C-53 occurs in an area that was determined to be unsuitable by Dudek (AECOM did not analyze this area) due to the density of chaparral. Therefore, it was not surveyed. The location is not within 1 km of known QCB or near known concentrations of host plants. No impacts are anticipated to occur as a result of construction or long-term O&M.
C-54	2.88	C-54 occurs in an area that was determined to be a mix of suitable habitat and unsuitable habitat due to the density of chaparral in the area. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not within 1 km of known QCB or near known concentrations of host plants. No impacts are anticipated to occur as a result of construction or long-term O&M.
C-55	2.88	C-55 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 with negative results. No QCB or host plants were observed. The location is not within 1 km of known QCB or near concentrations of host plants. No impacts are anticipated to occur as a result of construction or long-term O&M.
C-56	2.88	C-56 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of a QCB detected in 2019 on the Boulder Brush Corridor. Considered to be a direct and permanent impact to potentially occupied habitat.
C-57	2.88	C-57 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. No QCB or host plants were observed. The location is situated near known host plant concentrations, on a ridgeline, and within 1 km of a QCB detected in 2019 on the Boulder Brush Corridor. Considered to be a direct and permanent impact to potentially occupied habitat.
C-58	2.88	C-58 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. No QCB or host plants were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of a QCB detected in 2019 on the Boulder Brush Corridor. Considered to be a direct and permanent impact to potentially occupied habitat.
C-59	2.88	C-59 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. No QCB or host plants were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of a QCB detected in 2019 on the Boulder Brush Corridor. Considered to be a direct and permanent impact to potentially occupied habitat.
C-60	3.31	C-60 occurs in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. No QCB or host plants were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of a QCB detected in 2019 on the Boulder Brush Corridor. Considered to be a direct and permanent impact to potentially occupied habitat.

Table 5-2
Project Component Analysis

Component	Acres	Analysis
C-61	2.88	C-61 occurs in an area that appears to be suitable habitat for QCB and is near areas surveyed by AECOM in 2010, but were not surveyed. The AECOM surveys were negative. Dudek did not survey these areas in 2018. The location is not located on a hilltop or ridgeline, or within 1 km of known QCB and there are no known concentrations of host plants nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-62	2.88	C-62 occurs in an area that appears to be suitable habitat for QCB and is near areas surveyed by AECOM in 2010, but were not surveyed. The AECOM surveys were negative. Dudek did not survey these areas in 2018. The location is not located on a hilltop or ridgeline, or within 1 km of known QCB and there are no known concentrations of host plants nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-63	2.88	C-63 occurs in an area that appears to be suitable habitat for QCB and is near areas surveyed by AECOM in 2010, but were not surveyed. The AECOM surveys were negative. Dudek did not survey these areas in 2018. The location is not located on a hilltop or ridgeline, or within 1 km of known QCB and there are no known concentrations of host plants nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-64	2.88	C-64 occurs in an area that appears to be suitable habitat for QCB and is near areas surveyed by AECOM in 2010, but were not surveyed. The AECOM surveys were negative. Dudek did not survey these areas in 2018. The location is not located on a hilltop or ridgeline, or within 1 km of known QCB and there are no known concentrations of host plants nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-65	2.88	C-65 occurs in an area that appears to be suitable habitat for QCB and is near areas surveyed by AECOM in 2010, but were not surveyed. The AECOM surveys were negative. Dudek did not survey these areas in 2018. The location is not located on a hilltop or ridgeline, or within 1 km of known QCB and there are no known concentrations of host plants nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-66	2.88	C-66 occurs in an area that was determined to be suitable habitat and was surveyed in 2010 by AECOM with negative results. The area was not surveyed by Dudek in 2018. No QCB or host plants were observed. The location is located within 1 km of known QCB. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-67	2.88	C-67 occurs in an area that was determined to be suitable habitat and was surveyed in 2010 by AECOM. The area was not surveyed by Dudek in 2018. It is located proximate (within 200 m) to one known QCB location. Considered to be a direct and permanent impact to potentially occupied habitat.
C-68	2.88	C-68 occurs in an area that was determined to be suitable habitat and was surveyed in 2010 by AECOM. The area was not surveyed by Dudek in 2018. It is located proximate (within 200 m) to one known QCB location. Direct impacts are anticipated during construction and longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures

Table 5-2
Project Component Analysis

Component	Acres	Analysis
C-69	2.88	C-69 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of known QCB. Considered to be a direct and permanent impact to potentially occupied habitat.
C-70	2.88	C-70 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of known QCB. Considered to be a direct and permanent impact to potentially occupied habitat.
C-71	2.88	C-71 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of known QCB. Considered to be a direct and permanent impact to potentially occupied habitat.
C-72	2.88	C-72 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of known QCB. Considered to be a direct and permanent impact to potentially occupied habitat.
C-73	2.88	C-73 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB were observed. The location is situated near known host plant concentration, on a ridgeline, and within 1 km of known QCB. Considered to be a direct and permanent impact to potentially occupied habitat.
C-74	2.88	C-74 occurs in an area that was determined to be suitable habitat and surveyed in 2010 by AECOM with negative results (area was not surveyed by Dudek in 2018). No QCB or host plants were observed. The location is situated on a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
C-75	2.88	C-75 occurs in an area that was determined to be suitable habitat and was surveyed in 2010 by AECOM with negative results. The area was not surveyed by Dudek in 2018, but focused surveys were conducted along the C-55 through C-60 string with negative results. No QCB or host plants were observed. The location is situated on a ridgeline, and located within 1 km of known QCB. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
C-76	2.88	C-76 occurs in an area that was determined to be suitable habitat and was surveyed in 2010 by AECOM with negative results. The area was not surveyed by Dudek in 2018, but focused surveys were conducted along the C-55 through C-60 string with negative results. No QCB or host plants were observed. The location is situated on a ridgeline, but not located within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.

Table 5-2
Project Component Analysis

Component	Acres	Analysis
Road Segments		
Roads are not anticipated to affect QCB once the roads are constructed because proper best management practice (BMP's) measures will be implemented to maintain the roads free of vegetation and margins are not impacted further. The traffic levels due to the Project will remain low as there is little required on-site maintenance and it is sporadic. Dust and noise are not anticipated to affect QCB. Direct impacts are only anticipated in areas that are within 200 m of known QCB locations AND directly impacts host plant concentrations. Additionally, roads intersect with host plant concentrations south of C-1.		
Roads	19.37 (Boulder Brush Corridor Perm) + 58.83 (Boulder Brush Corridor Temp) + 32.12 Campo 12-foot buffer) + 430.01 (Campo) = 540.03	Project roads occur throughout the Action Area. Most of the proposed roads were surveyed by Dudek in 2018, some in 2011 and 2019. Most of these areas were also surveyed by AECOM in 2010. Some areas were considered suitable habitat, while others not due to dense chaparral vegetation and boulders. For the purposes of this analysis, the acreage breakout is as follows, by category: Not suitable habitat (116.25 acres) – no impacts anticipated Suitable, not within 1 km of known QCB (125.80 acres) – no impacts anticipated Within 1 km of known QCB, within 200 m of host plants (81.08 acres) – Considered to be a direct and permanent impact to potentially occupied habitat. Within 1 km of QCB, not within 200 m of host plants (56.64 acres) – While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat. Within 200 m of known QCB location and directly impacts host plant concentration (24.63 acres/5 locations) – Direct impacts are anticipated during construction and longer-term impacts might occur without implementation of minimization and mitigation measures. An additional 3.14 acres occurs within 200 m of known QCB, but host plants are not present within 200 m.
Gen-Tie		
Gen-tie		The gen-tie component includes temporary work areas, pull sites, permanent pole locations, and access roads on the Reservation and on private lands. The proposed gen-tie components occurred in both suitable and unsuitable (due to dense chaparral and boulders) habitat. Focused surveys were performed over all suitable habitat in 2018 by Dudek and the Boulder Brush Corridor in 2019. Some of the Boulder Brush Corridor was also surveyed in 2011 by Dudek. Some of the Campo Corridor was surveyed by AECOM in 2010. One QCB and multiple host plant locations were identified by Dudek during the 2019 surveys at the corner gen-tie pole. Of the 73 poles, five occur within 200 m of a known QCB and 22 additional ones occur within 1 km of known QCB occurrences. Of these 22, 18 also are proximate to host plant concentrations. For the purpose of this analysis, the acreage breakout is as follows, by category: Not suitable habitat (22.50 acres) – no impacts anticipated Suitable, not within 1 km of known QCB (27.91 acres) – no impacts anticipated Within 1 km of known QCB, within 200 m of host plants (32.75 acres) – Considered to be a direct and permanent impact to potentially occupied habitat. Within 1 km of QCB, not within 200 m of host plants (5.90 acres) – While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.

Table 5-2
Project Component Analysis

Component	Acres	Analysis
		Within 200 m of known QCB location (7.57 acres) – Included within the 1 km acreages. Direct impacts are anticipated during construction and longer-term impacts might occur without implementation of minimization and mitigation measures.
Other Components		
High-Voltage Substation (in Boulder Brush Corridor only)	1.77	The high-voltage substation included areas that were not suitable for QCB due to dense chaparral or boulders and areas that were suitable. The suitable areas were surveyed in 2011, 2018 and again in 2019. Surveys were negative for both QCB and host plants. The High-Voltage Substation site is not within 1 km on a known QCB and no known host plant concentrations occur nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
Switchyard (in Boulder Brush Corridor only; Temp impacts include substation temp impacts)	5.38 Permanent + 15.10 Temporary = 20.48 total	The switchyard occurs to the immediate southeast of the high-voltage substation. This includes areas that are suitable for QCB. The suitable areas were surveyed in 2011, 2018 and again in 2019. Surveys were negative for both QCB and host plants. The Switchyard site is not within 1 km on a known QCB and no known host plant concentrations occur nearby. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
Temporary Batch Plant	8.60	The temporary batch plant is located immediately to the north of the temporary staging area. The area was considered to be suitable habitat for QCB and was surveyed by AECOM in 2010 with negative results. Dudek did not survey the area in 2018. It is located within 1 km of several known QCB locations and within 200 m of the closest QCB location. It is located proximate (within 200 m) to one known QCB location. Direct impacts are anticipated during construction and longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures
Temporary Staging Area	19.85	The temporary staging area occurs in an area that was considered to be suitable habitat by Dudek and focused surveys were performed in 2018 and by AECOM in 2010. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of several known QCB locations and just over 200 m from the closest known location. This area has experienced some historical disturbance based on a review of aerial imagery. Considered to be a direct and permanent impact to potentially occupied habitat due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. This area will be revegetated with a native seed mix and then left alone.
O&M Building	7.79	The O&M building occurs in an area that was considered to be suitable habitat and focused surveys were performed by AECOM in 2010. These surveys were negative for both QCB and host plants. It is located within the 1 km buffer of several known QCB locations. This area has experienced some historical disturbance based on a review of aerial imagery. While no direct impacts are anticipated during construction because attractive resources are more distant, longer-term impacts might occur due to the creation of attractive open habitat without the implementation of minimization and mitigation measures. Therefore, this is considered to be a potential indirect impact to suitable occupied habitat.
Collector Substation	10.07	The collector substation is located in an area that was determined to be suitable habitat. This area was surveyed in 2018 and 2010 with negative results. No QCB or host plants were observed. The site is located near host plant concentrations but not within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
Fuel Modification Zones (within	??	Acreage is for the Boulder Brush Corridor only. For the Campo Corridor, it is assumed that these areas have been incorporated into the Project component disturbance area.

Table 5-2
Project Component Analysis

Component	Acres	Analysis
Boulder Brush Corridor only)		
Paved Access Road (on Boulder Brush Corridor and off-site only)	15.50	The paved access road is located partially within the Boulder Brush Corridor (11.54 acres) and off-site (3.96 acres) on existing roads. It is located within areas that were mostly considered to be suitable habitat requiring surveys. Dudek performed focused surveys in these areas in 2018 and 2019 with negative results. No QCB or host plants were observed. The site is not located near host plant concentrations or within 1 km of known QCB. Therefore, no impacts are anticipated to occur as a result of construction or long-term O&M.
Temporary Impacts	N/A	Temporarily impacted areas occur throughout the entire project and are generally included within the other impact acreages noted elsewhere in this table. After construction, these areas will be seeded with a complementary native seed mix and then left alone. Future maintenance or impacts are not anticipated in these areas. These areas were all surveyed by Dudek in 2018, some in 2011 and 2019. Most of these areas were also surveyed by AECOM in 2010. Some areas were considered suitable habitat, while others not due to dense chaparral vegetation and boulders.

5.2 Direct Effects

Direct effects are those caused by the proposed action and occur at both the same time and place as the action. As noted above, a direct effects of the Proposed Action would be from the construction, O&M and decommissioning of the Project.

No federally-listed plants occur within the Action Area; therefore, no direct effects to listed plants are expected to occur from Project implementation. In addition, no other listed wildlife species beyond the QCB occur within the Action Area. Thus, there are no direct effects to species other than QCB. Similarly, there is no critical habitat for any listed species within the Action Area. Therefore, there are no direct effects on critical habitat as a result of the Proposed Action.

Focused surveys completed in 2010 within the Action Area confirmed the presence of QCB (AECOM 2012) within concentrated populations of the species' host plant. The loss of or harm to individuals cannot be accurately quantified due to the mobility of adults and the potential larvae and diapausing pupae within the Action Area. Adult QCB are anticipated to be avoided due to their presumed mobility; however, there is a potential for direct injury or loss of individuals from grading activities, which is likely to result in the removal or burial of QCB larvae with the removal of their host plant and substrate.

Direct effects to QCB associated with the Project will result from Project activities, including those related to limits of grading for the some of the wind turbines, access roads, and some of the associated Project components (i.e., gen-tie, temporary batch plant, fuel modification zones, and temporary impacts) as discussed in Table 5-2 and increased vehicle collision resulting from increased traffic in the area. Temporary impacts include potential suitable QCB habitat that is impacted during the

construction period only. Those areas will be allowed to recover naturally after being impacted. Other Project components (i.e., high voltage substation, switchyard, temporary staging areas, O&M facility, collector substation, and SDG&E access road) are not expected to cause direct effects to QCB as discussed in Table 5-2. As a result of these Project components, direct adverse effects to QCB will include the removal of host plants and substrate close to known QCB locations, which is anticipated to result in the removal or burial of larvae potentially present on host plants as well as potential diapausing pupae in the soil. Adult QCB, if present, are presumed to be capable of moving out of harm's way to adjacent suitable habitat. Temporary effects to individual QCB are not anticipated within the Action Area due to a lack of host plants within the temporary impact area.

The Project contains several measures to minimize or eliminate specific effects to QCB. Project mitigation measures MM-BIO-1(a) (provision of a project biologist to review construction area, review protective staking, flush special-status species, monitor construction activities, and reporting), MM-BIO-1(b) (environmental training of personnel), MM-BIO-1(c)(SWPPP implementation including restrictions on invasive species and wetland BMPs during construction), MM-BIO-1(d)(dust control program during construction), MM-BIO-1(e)(erosion and runoff controls during construction), MM-BIO-1(f)(weed management throughout life of project including construction), MM-BIO-1(g)(fire protection throughout the life of the Project including construction), and MM-BIO-3 (implementation of USFWS-issued terms and conditions) would minimize the effects from the direct loss of the host plant for QCB. Additional recommended conservation measures are provided in Chapter 6. These include vehicle speed reductions and restricted activities during specific time periods in the event of detections.

In conclusion, although avoidance, minimization, and compensatory measures are incorporated into the Project, direct effects could still result in the potential loss of QCB from direct grading impacts. QCB would possibly experience a temporally brief loss of portions of up to two generations of eggs, larvae, and pupae on host plants and in the soil in the affected area.

5.3 Indirect Effects

Indirect effects are those that may result from the Proposed Action at a later time with reasonable certainty. Project O&M may result in indirect effects to QCB.

No federally listed plants occur within the Action Area; therefore, no indirect effects to listed plants are expected to occur from Project implementation. In addition, no other listed wildlife species beyond the QCB occur within the Action Area. Thus, there are no indirect effects to species other than QCB. Similarly, there is no critical habitat for any listed species within the Action Area. Therefore, there are no indirect effects on critical habitat as a result of the Proposed Action.

Temporary indirect effects to QCB individuals or suitable habitat within the Action Area may include dust accumulation on individual host plants; changes in hydrology resulting from construction, including sedimentation and erosion; herbicide overspray affecting individual host plants; and pesticide application affecting individuals and host plant pollinators associated with construction activities. These indirect effects may result in habitat avoidance by QCB individuals.

Long-term indirect effects to QCB individuals or suitable habitat within the Action Area could result from the proximity of the Project to vegetation communities after construction, including impacts related to O&M. O&M activities would occur within the limits of grading; indirect impacts to vegetation communities could occur from generation of fugitive dust from vehicles, habitat fragmentation, accidental additional clearing of adjacent habitat, chemical pollutants if used for operation-related activities, non-native invasive species, and alteration of the natural fire regime. Increased human activity during O&M could result in the potential for trampling of vegetation outside of the limits of grading, as well as soil compaction, and could affect the viability of plant communities. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and in some cases, result in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Keeley 1987; Malanson and O'Leary 1982; O'Leary et al. 1992). Potential indirect effects to QCB individuals may also include creation of attractive nuisance sink habitats by allowing host plants to grow in maintained areas and then clearing these areas after the adult breeding season. These indirect effects may result in habitat avoidance by QCB individuals or mortality. Long-term indirect effects to the species may include invasive species establishment and wildfire, which may result in habitat conversion and reduced occupancy rates of QCB individuals. In addition, if O&M activities utilize herbicides or pesticides for the control of invasive weeds or insect pests, these chemicals may indirectly affect QCB individuals.

Project facilities are not expected to place QCB at risk through collision or additional loss of habitat. In addition, traffic levels are anticipated to be low after construction and therefore not expected to affect QCB by collision, either. Increased lighting is not expected to affect QCB. Likewise, increased predator facilitation by increased trash potential or perch potential is not expected to affect QCB. Project components are not expected to alter potential QCB movement as they should be able to fly over, through or around Project components.

The Project contains several measures to minimize or eliminate specific indirect effects to QCB. Project mitigation measures MM-BIO-1(c) (SWPPP implementation including restrictions on invasive species and wetland BMPs during construction), MM-BIO-1(e)(erosion and runoff controls during construction), MM-BIO-1(f)(weed management throughout life of project including construction), MM-BIO-1(g)(fire protection throughout the life of the project including construction), and MM-BIO-3 (implementation of USFWS-issued terms and conditions) would minimize the effects from the direct loss of the host plant for QCB. Additional recommended

conservation measures are provided in Chapter 6. These include vehicle speed reductions, restricted activities during specific time periods in the event of detections, marking and flagging to indicate construction, O&M, habitat areas, and seeding of areas after construction.

In conclusion, through avoidance, minimization, and compensatory measures incorporated into the Project, indirect effects are not expected to cause adverse effects to QCB.

5.4 Cumulative Effects

Cumulative effects are of those future state and private activities, excluding federal activities that are reasonably foreseeable.

Direct

In order for a cumulative impact to special-status wildlife species to occur, the cumulative projects would have to result in the loss of the same special-status wildlife species or their habitat as the Project such that those species become more limited in their distribution, population size, or available suitable habitat within the analysis area. Here, the only listed species that will be directly impacted by the Project is QCB. The Project would directly impact 242.13 acres of potentially occupied QCB habitat. As with this Project, projects within the cumulative impact study area, listed in Appendix H, that have impacts to QCB habitat would be required to mitigate for these impacts through habitat mitigation and other measures specified during the ESA consultation process triggered by the County review and or federal permitting such as ACOE Section 404 permitting. Therefore, the cumulative impacts would not be adverse with implementation of measures in the Section 7 process.

Indirect

The project is anticipated to indirectly impact up to 90.49 acres of QCB habitat. Given the nature, location, and timing of the reasonably foreseeable projects, the potential for cumulatively significant indirect construction-related impacts to special-status wildlife species is low. Here, the only listed species that may be indirectly affected by the Project is the QCB. Future private or state projects within the biological cumulative analysis study area involve a variety of project types. Projects within a few miles of the Project are generally not anticipated to be constructed simultaneously (see discussion above).

However, construction of some listed cumulative projects in close proximity to the Project may overlap, in which case noise, human presence, and erosion and altered hydrology could cause wildlife behavior modifications and avoidance of the area during construction activities. These disruptions could result in changes in habitat usage and potentially affect species fitness and productivity. The potential mortality resulting from increased vehicle use in the area and construction area hazards (e.g., trenches) across the Project site and listed cumulative project site

areas could lead to decreased population numbers and reduced productivity. The Project and other reasonably foreseeable projects are located in a rural area and adjacent properties provide available habitat for QCB host plants. Permanent indirect impacts to wildlife habitat from increased fire regime could result in an adverse effect.

However, with implementation of the mitigation measures for the Project, along with the minimization and mitigation measures for the cumulative projects, these impacts would be reduced to no adverse effect on the QCB. Additionally, there is suitable habitat available for wildlife species, including federally protected species, on portions of the Project Site and throughout the biological cumulative analysis study area.

5.5 Determination of Effects

After evaluating the potential for effects, one of the following three determinations is made for the species addressed in this BA and any designated critical habitat:

- **No effect** means there are no effects, positive or negative, on listed species or critical habitat from the proposed action. "No effect" does not mean a small effect or an effect that is unlikely to occur. If effects are insignificant (small in size) or discountable (extremely unlikely), a "may affect, but not likely to adversely affect" determination is appropriate. A "no effect" determination does not require Section 7 consultation with the USFWS.
- **May affect, but not likely to adversely affect** means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated and should never reach the scale where "take" occurs. Discountable effects are those extremely unlikely to occur. Based on the best scientific and commercial information available, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects or expect discountable effects to occur. This determination requires only informal consultation with and written concurrence from the USFWS.
- **May affect, and is likely to adversely affect** means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure. This determination means that (1) effects to species and habitat are not insignificant in size and avoidance of "take" cannot be guaranteed and (2) effects are not extremely unlikely to occur. Adverse effects do not meet the definition of insignificant (small in size) even though they may be less than major. Adverse effects do not qualify as discountable simply because of lack of certainty that they will occur. The probability of occurrence must be extremely small to achieve discountability (extremely unlikely to occur). A combination of beneficial and adverse effects is still "likely to

adversely affect," even if the net effect is neutral or positive. This determination triggers formal consultation with USFWS.

The only species that may be affected by the Project is the QCB. As noted above, all other listed species in the vicinity of the Project will not be affected by the Project. While the loss of individual QCB cannot be accurately quantified, the potential permanent and temporary direct effects to suitable habitat for QCB present within the Action Area totals 242.13 acres of the suitable habitat within the Action Area. Direct effects to suitable habitat are anticipated to result in the removal or burial of eggs, larvae and pupae potentially present on concentrations of host plants as well as potential diapausing pupae in the soil.

The potential indirect effects to 90.49 acres of suitable QCB habitat that may result from the Project include the introduction of invasive species and wildfire (both prevention activities and more intense and shorter interval fires) and the creation of attractive nuisance (or sink habitat), having the potential to affect both QCB individuals and suitable habitat. Project Developer-proposed measures for the Project design are presented in Section 2.7, Minimization Measures. In consideration of the aforementioned analysis, it has been determined that the Proposed Action ***may affect, and is likely to adversely affect***, QCB.

Recommended conservation measures are described in Chapter 6.

6 CONSERVATION MEASURE RECOMMENDATIONS

Conservation measures are actions that benefit or promote the recovery of listed species. While the Project Developer has committed to implementing the Project Developer-proposed measures in Section 2.7 as part of the Project, the Project Developer is also recommending conservation measures in addition to the Project Developer-proposed measures for consideration by the USFWS in preparing the Biological Opinion. Conservation measures in this chapter apply to QCB addressed in this BA.

Additional Measures Addressing Quino Checkerspot Butterfly

The following Additional Measures (AM) addressing QCB will mitigate for effects identified within scope of analysis:

AM-QCB-1 In order to minimize the potential for direct effects due to vehicle collisions, vehicle speeds during construction and operations will not exceed 15 mph from February 15 through May 15 of any calendar year ("QCB Flight Period").

AM-QCB-2 Clearing and grubbing during Project construction within a 200-meter radius around host plant concentrations or QCB detections ("QCB Focal Areas") that are located within 1-kilometer of a mapped QCB ("QCB Area") will not be conducted during the QCB Flight Period. Clearing and grubbing during Project construction that occurs within these QCB Focal Areas shall be conducted in one continuous time period.

AM-QCB-3 Fire brush maintenance will not be conducted during the QCB Flight Period for the life of the Project.

AM-QCB-4 During the clearing and grubbing phase of Project construction, and during the QCB Flight Period, temporary stakes and flagging will be installed around QCB Focal Areas (including the 200-meter buffer).

AM-QCB-5 New Project access roads in QCB Areas will have 15 mph speed limit and "No OHV Use Allowed" signage posted at their entrance.

AM-QCB-6 A 5-foot buffer, cleared of vegetation, between Project facilities and any adjacent QCB Focal Areas shall occur beyond the Project facilities and associated 5-foot buffer areas located within QCB Focal Areas. If Project O&M activities require disturbance in previously undisturbed areas within QCB Focal Areas, coordination with USFWS would be required prior to initiation of said maintenance activities. That coordination may result in additional minimizing or mitigating measures to be

deployed to protect QCB or to compensate for QCB impacts. Should there be an emergency, and immediate maintenance is required to prevent death, injury or failure of project, etc., then only those activities that are reasonably necessary to abate the emergency may be taken prior to coordination with USFWS; coordination will occur as soon as possible thereafter.

AM-QCB-7 Temporary impact areas will be seeded after construction. In accordance with USFWS guidance, the Project will use: (a) a native seed mix that includes QCB host plants throughout impact areas; (b) a native seed mix that entirely excludes QCB host plants in order to provide a buffer between suitable habitat and the Project facilities (thereby reducing the chance of host plants growing in these areas); or (c) a native seed-mix that does not entirely exclude host plants, but instead includes a set-back before including QCB host plants into the mix (e.g., 5- or 10 -foot setback) so that additional QCB habitat value is obtained while reducing sink habitat risk.

AM-QCB-8 Permanent visible markers will demarcate the border between Project facilities and QCB Focal Areas as shown on Figure 9, AM-QCB-10 Marker/Signage Location Map. Markers will be placed every 30 feet along the border, and signage will be placed every 300 feet or to the extent required, depending on the length of the border.

AM-QCB-9 The Project Developer will acquire appropriate mitigation land that fully meets the compensation needs for QCB.

7 PREPARERS AND REVIEWERS

This BA was prepared by Dudek senior biologist Brock Ortega and biologist Janice Wondolleck, with a review by Dudek CEQA/NEPA senior project manager Matthew Valerio. Graphics were provided by Randy Deodat, Andrew Greis, and Mark McGinnis; Chelsea Ringenback provided formatting.

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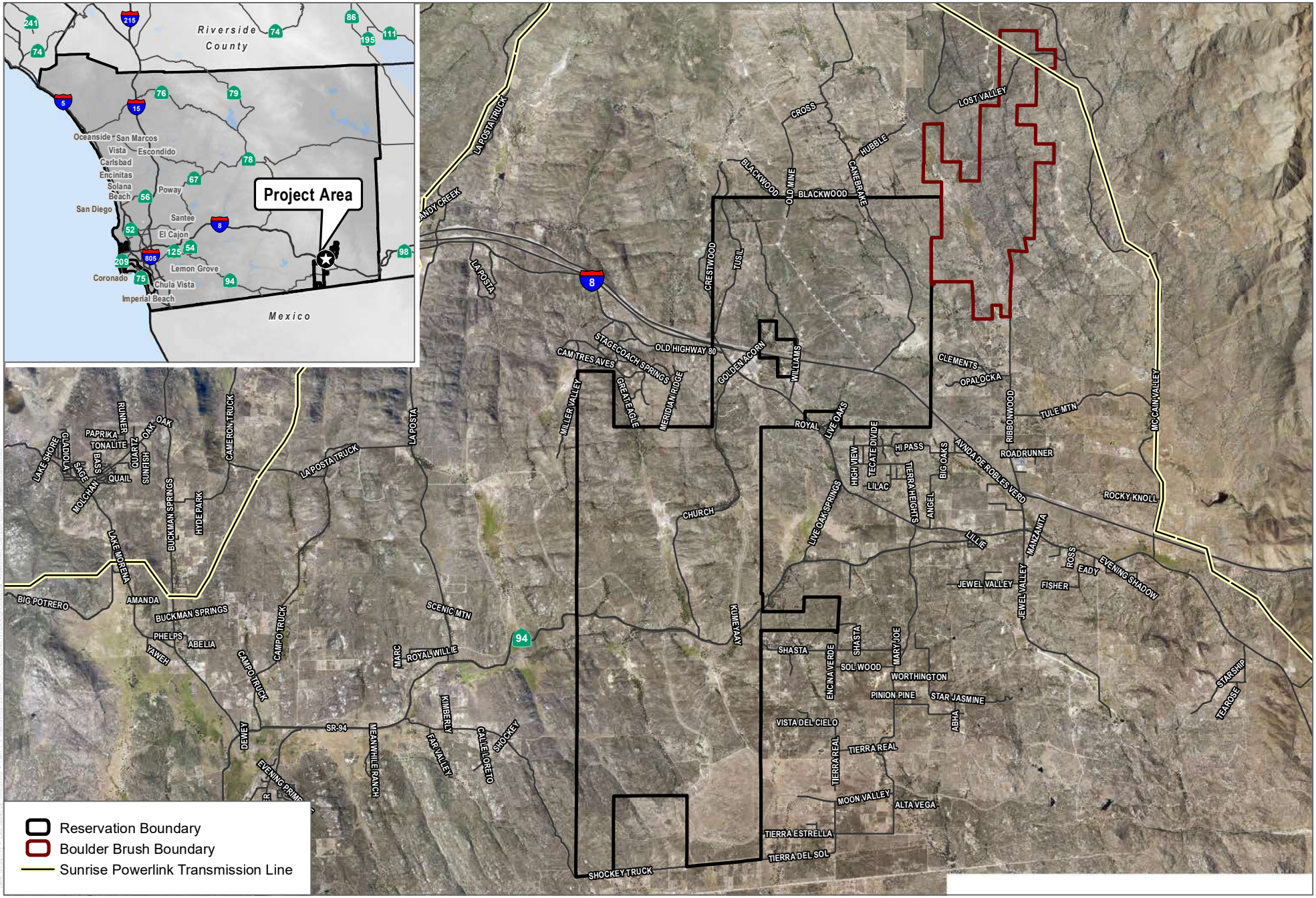
APPENDIX A

Figures



SOURCE: SANGIS 2017

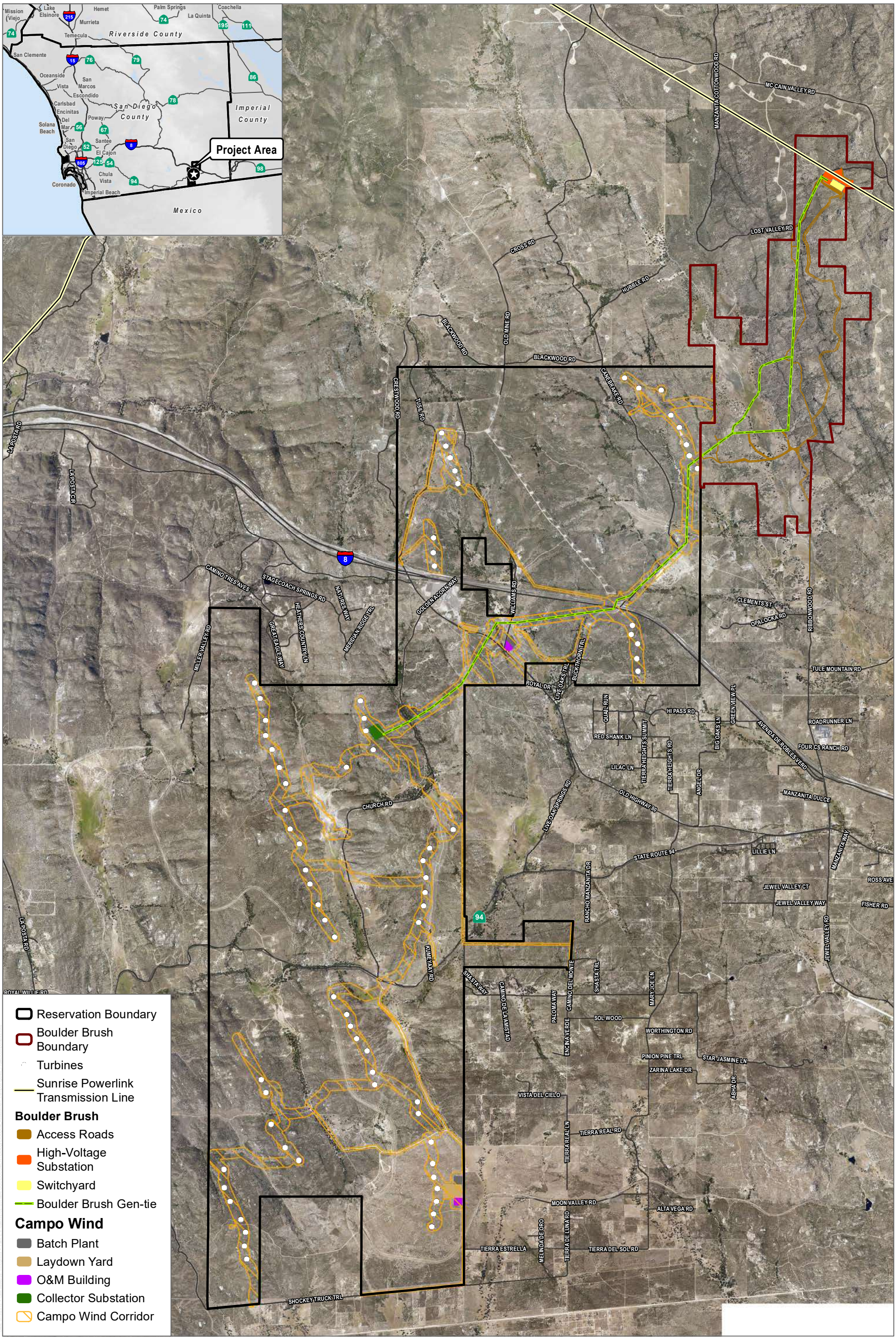
DUDEK

0 3,000 6,000 Feet

FIGURE 1

Project Location

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



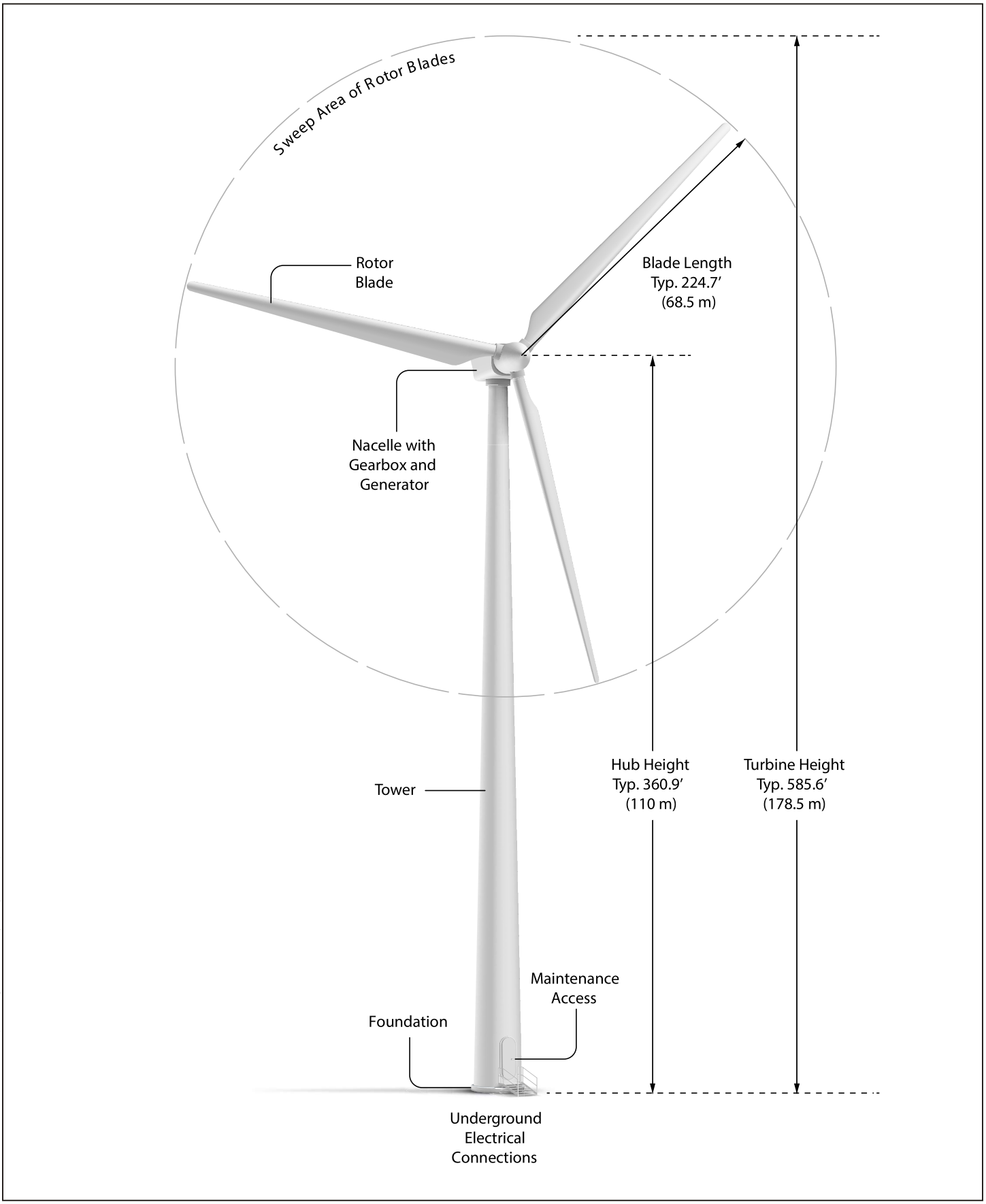
SOURCE: SANGIS 2017

DUDEK

FIGURE 2

Project Components

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: Dudek

FIGURE 2a

Typical Wind Turbine Specifications

DUDEK NOT TO SCALE

Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-FEHA, Ferruginous hawk
- B-MERL, Merlin
- B-SSHA, Sharp-shinned hawk
- B-NOHA, Northern harrier
- B-LOSH, Loggerhead shrike
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLORF, Coast Live Oak Riparian Forest
- CLOW, Coast Live Oak Woodland
- CLOWD, Dense Coast Live Oak Woodland
- CLOWO, Open Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- EW, Emergent Wetland
- FWM, Freshwater Marsh
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- MFS, Mulefat Scrub
- NNG, Non-Native Grassland
- NNGB, Non-Native Grassland Broadleaf-Dominated
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral
- SWS, Southern WIllow Scrub
- SWS, Southern Willow Scrub
- USS, Upper Sonoran Subshrub Scrub
- VSG, Valley Sacaton Grassland
- dBSS, Disturbed Big Sagebrush Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Non-wetland Water - Intermittent
- Wetland or Riparian
- Data Stations

SOURCE: SANGIS 2017

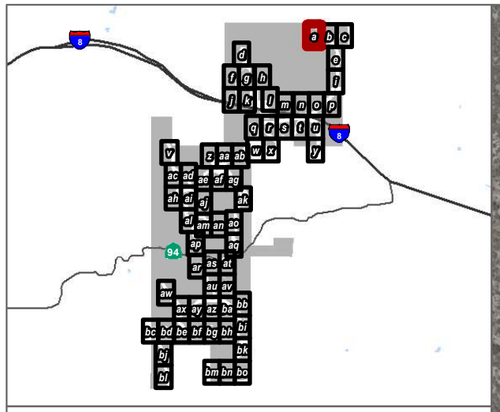
DUDEK

0 1,750 3,500 Feet

FIGURE 3

Impacts to Vegetation Communities and Landcovers - On Site - Index

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-SSHA, Sharp-shinned hawk
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Data Stations

SOURCE: SANGIS 2017

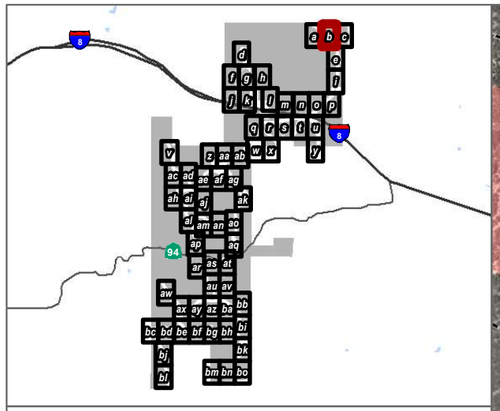
DUDEK

0 162.5 325 Feet

FIGURE 3a

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-SSHA, Sharp-shinned hawk
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral
- USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Data Stations

SOURCE: SANGIS 2017

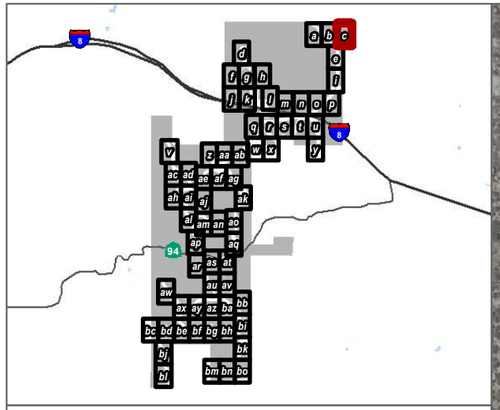
DUDEK

0 162.5 325 Feet

FIGURE 3b

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub

SOURCE: SANGIS 2017

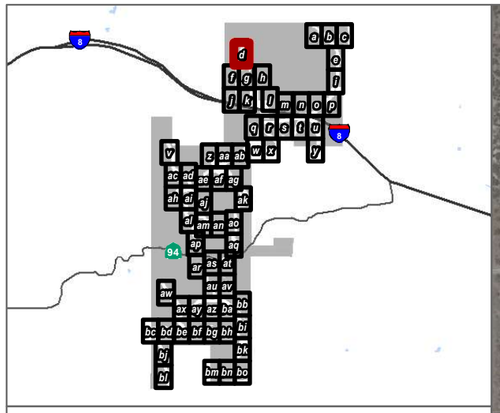
DUDEK

0 162.5 325 Feet

FIGURE 3c

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

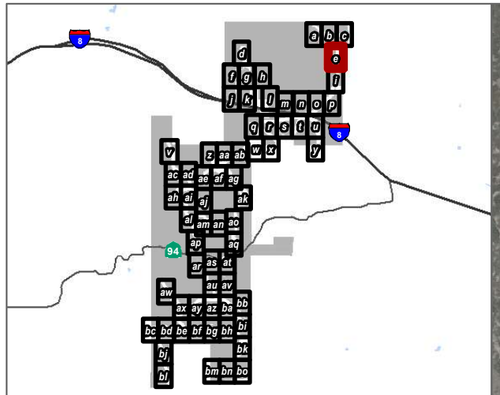
DUDEK

0 162.5 325 Feet

FIGURE 3d

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-SSHA, Sharp-shinned hawk
B-NOHA, Northern harrier
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
RSC, Red Shank Chaparral

SOURCE: SANGIS 2017

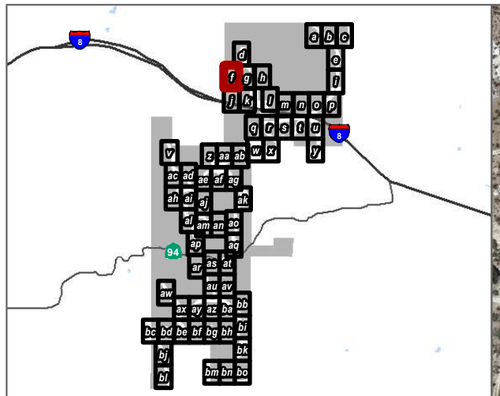
DUDEK

0 162.5 325 Feet

FIGURE 3e

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

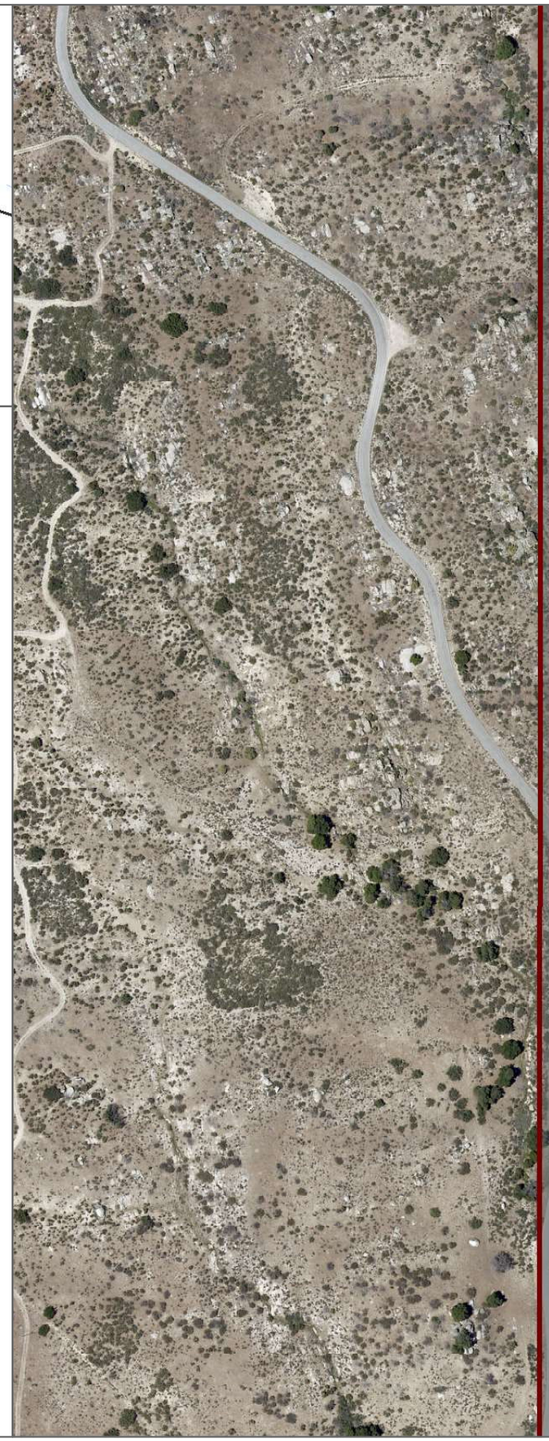
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral



SOURCE: SANGIS 2017

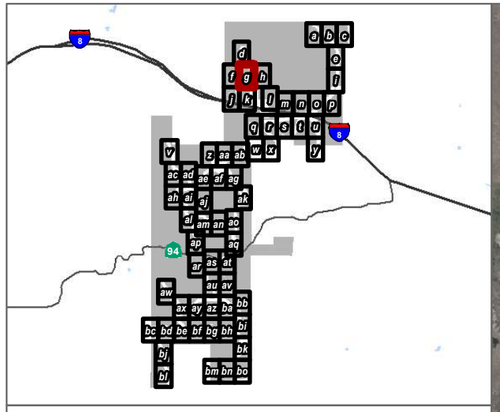
DUDEK

0 162.5 325 Feet

FIGURE 3f

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Data Stations

SOURCE: SANGIS 2017

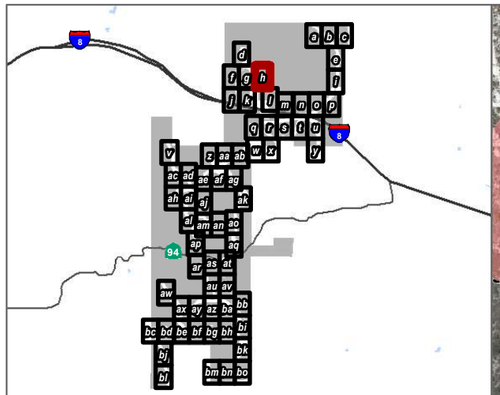
DUDEK

0 162.5 325 Feet

FIGURE 3g

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
NVC, Unvegetated Stream Channel

Jurisdictional Delineations

Non-wetland Water - Ephemeral
Data Stations

GNMX
CLOW
GNMX
DH
GNMX
NVC
DS 4
CLOW
CLOW
NVC
CLOW
NVC
CLOW
CLOW
DH
GNMX
GNMX
GNMX
GCC

SOURCE: SANGIS 2017

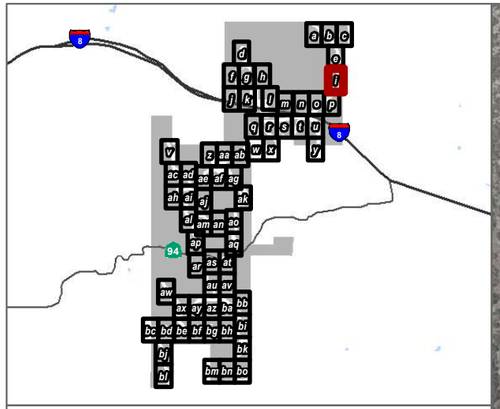
DUDEK

0 162.5 325 Feet

FIGURE 3h

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



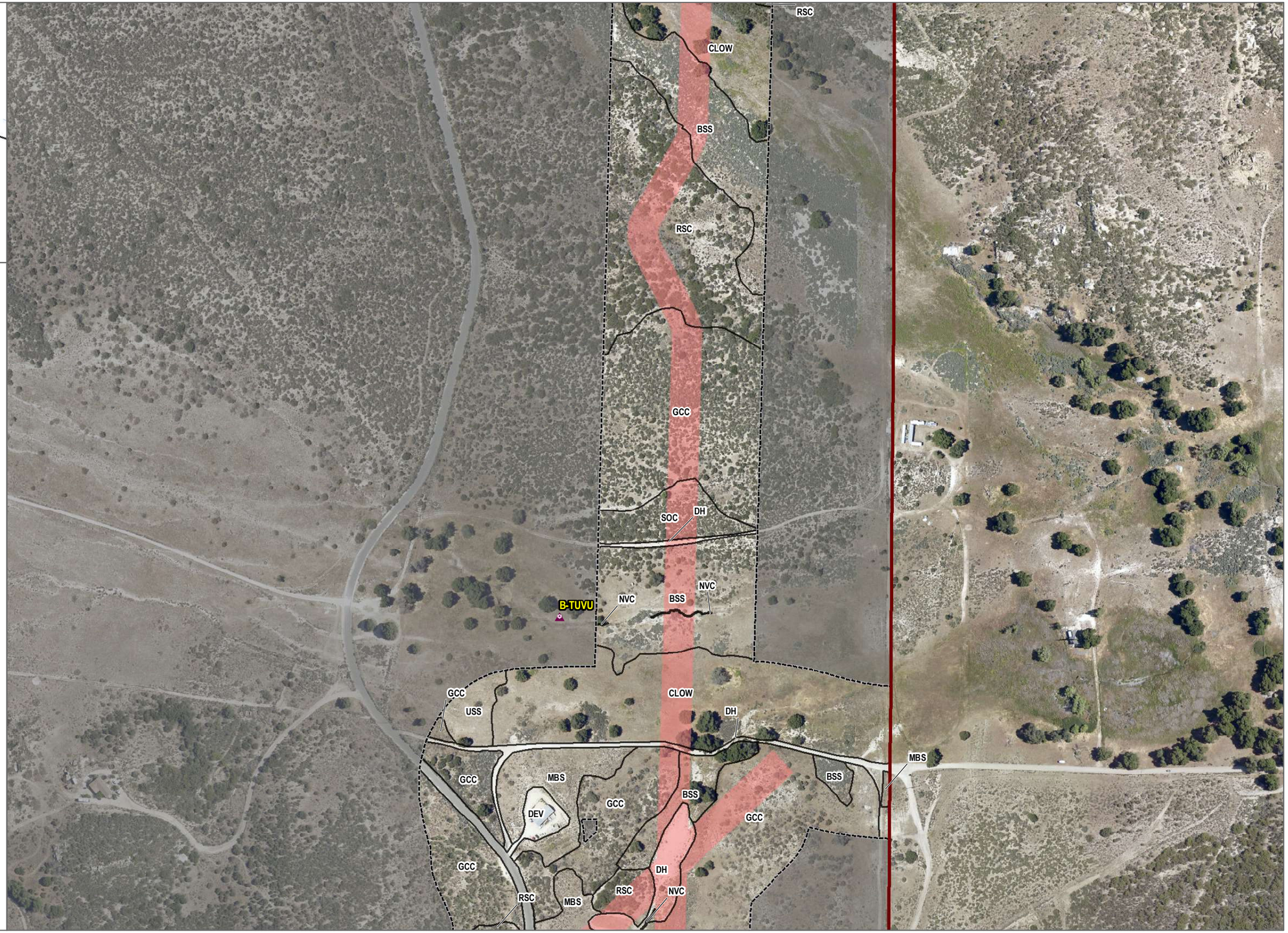
Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub



SOURCE: SANGIS 2017

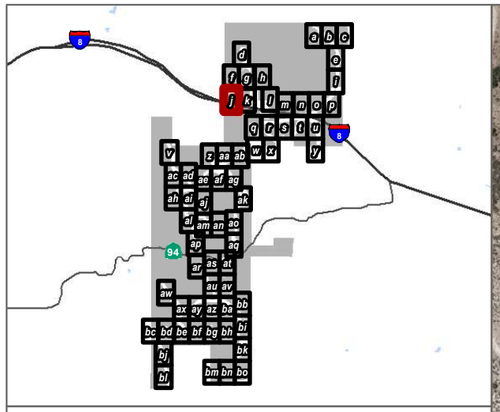
DUDEK

0 162.5 325 Feet

FIGURE 3i

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel

SOURCE: SANGIS 2017

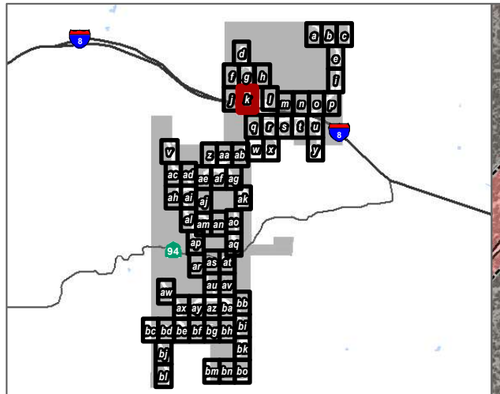
DUDEK

0 162.5 325 Feet

FIGURE 3j

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral

SOURCE: SANGIS 2017

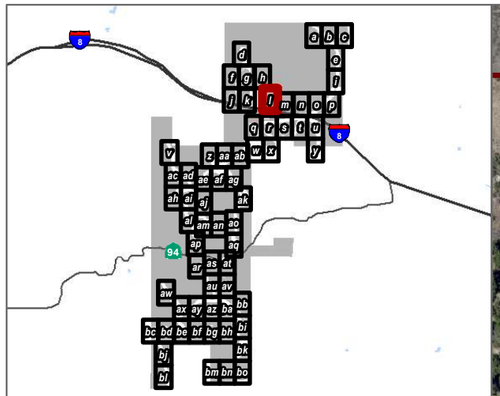
DUDEK

0 162.5 325 Feet

FIGURE 3k

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

- CLOW, Coast Live Oak Woodland
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral

SOURCE: SANGIS 2017

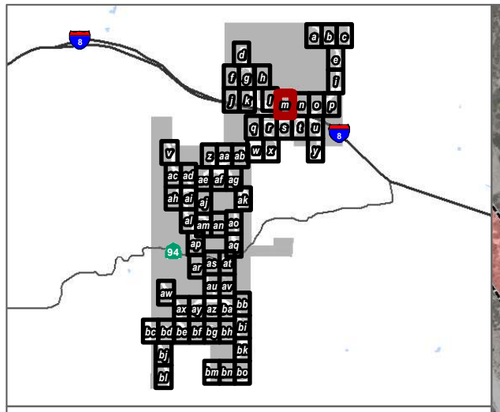
DUDEK

0 162.5 325 Feet

FIGURE 3I

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



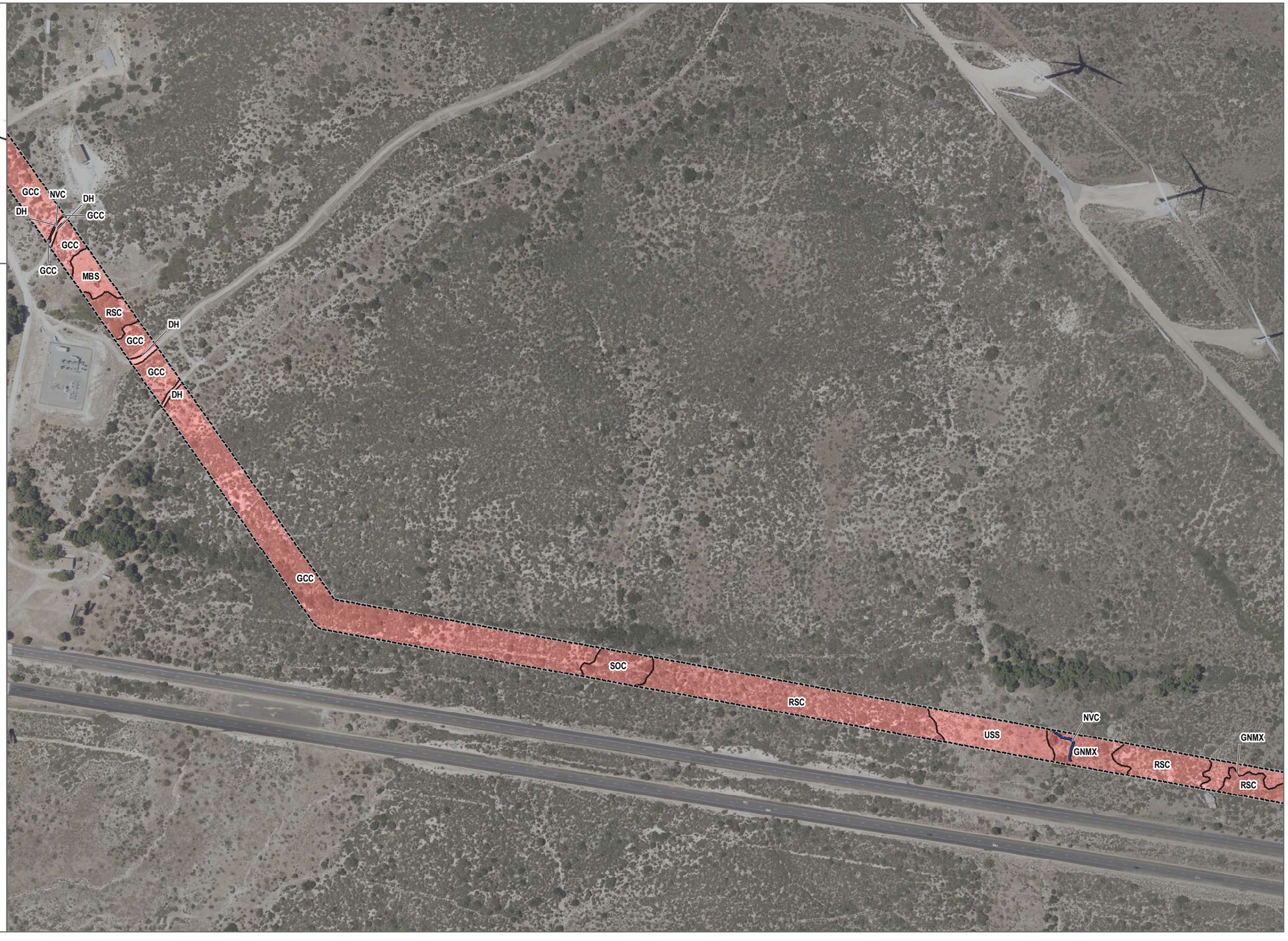
Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral



SOURCE: SANGIS 2017

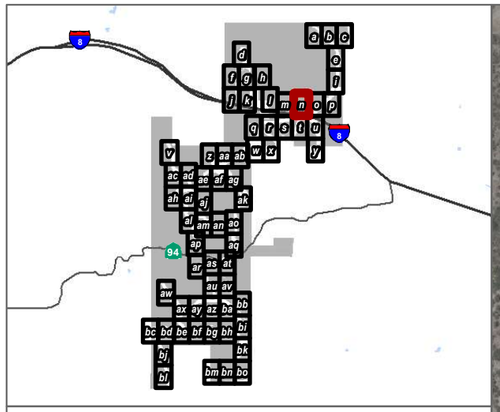
DUDEK

0 162.5 325 Feet

FIGURE 3m

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

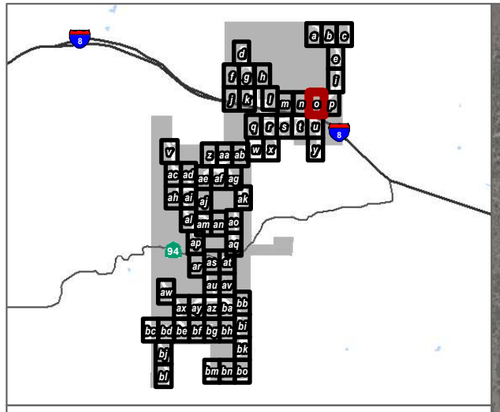
DUDEK

0 162.5 325 Feet

FIGURE 3n

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

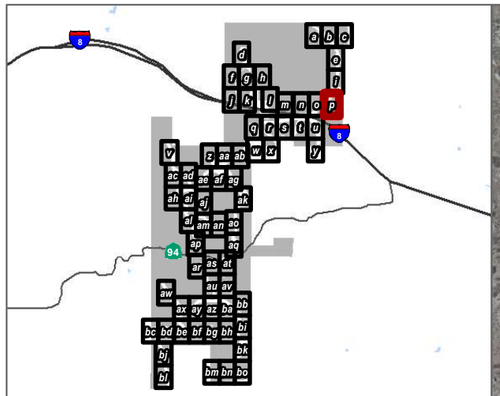
DUDEK

0 162.5 325 Feet

FIGURE 3o

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

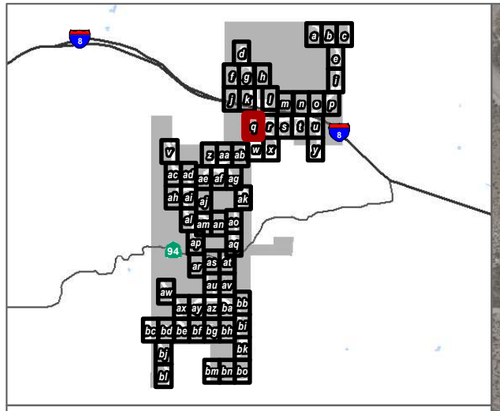
DUDEK

0 162.5 325 Feet

FIGURE 3p

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

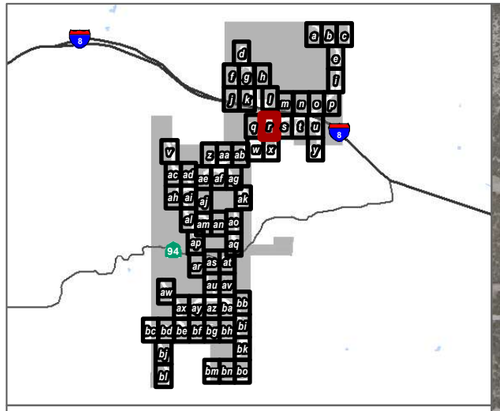
DUDEK

0 162.5 325 Feet

FIGURE 3q

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NNGB, Non-Native Grassland Broadleaf-Dominated
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

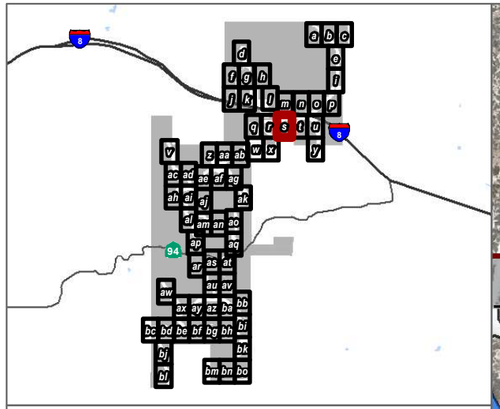
DUDEK

0 162.5 325 Feet

FIGURE 3r

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- CLOWD, Dense Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- EW, Emergent Wetland
- FWM, Freshwater Marsh
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NNGB, Non-Native Grassland Broadleaf-Dominated
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Wetland or Riparian
- Data Stations

SOURCE: SANGIS 2017

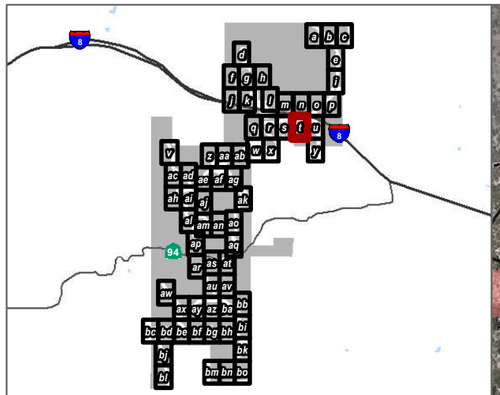
DUDEK

0 162.5 325 Feet

FIGURE 3s

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
EW, Emergent Wetland
FWM, Freshwater Marsh
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NNGB, Non-Native Grassland Broadleaf-Dominated
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral
Wetland or Riparian
Data Stations

SOURCE: SANGIS 2017

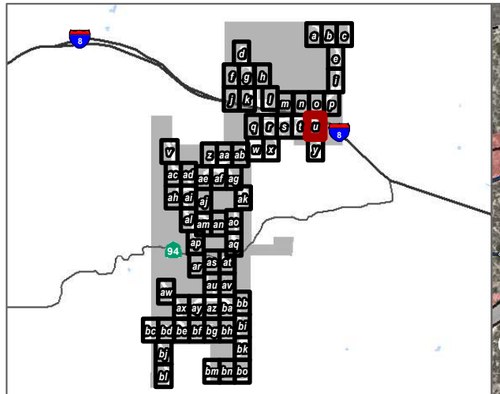
DUDEK

0 162.5 325 Feet

FIGURE 3t

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

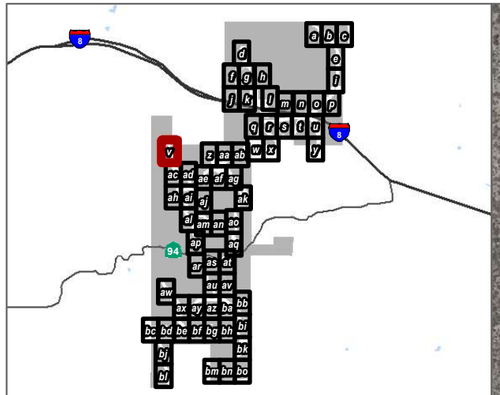
DUDEK

0 162.5 325 Feet

FIGURE 3u

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
USS, Upper Sonoran Subshrub Scrub

GCC
MBS
B-TUVU
MBS
B-TUVU
B-TUVU
GCC
B-TUVU
B-COHA
B-TUVU
B-TUVU
B-TUVU
B-COHA
USS
MBS
B-TUVU
B-TUVU

SOURCE: SANGIS 2017

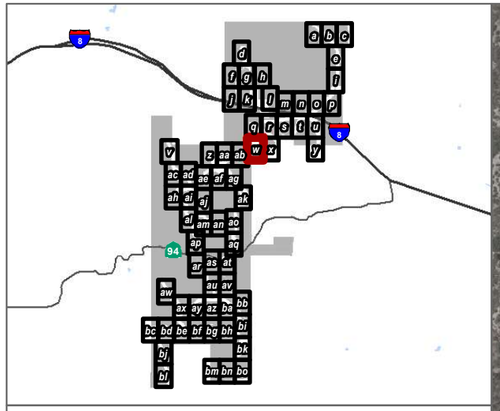
DUDEK

0 162.5 325 Feet

FIGURE 3v

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-COHA, Cooper's hawk

Vegetation and Land Cover Types in Project Study Area

- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

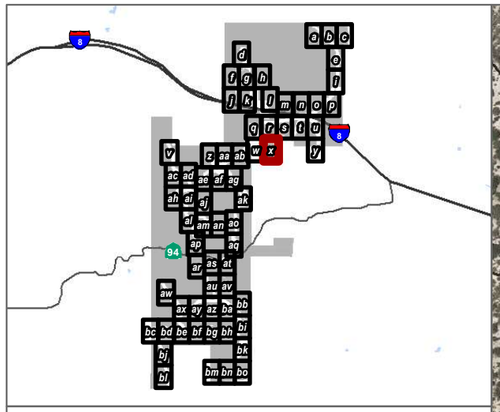
DUDEK

0 162.5 325 Feet

FIGURE 3w

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary

Campo Corridor

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

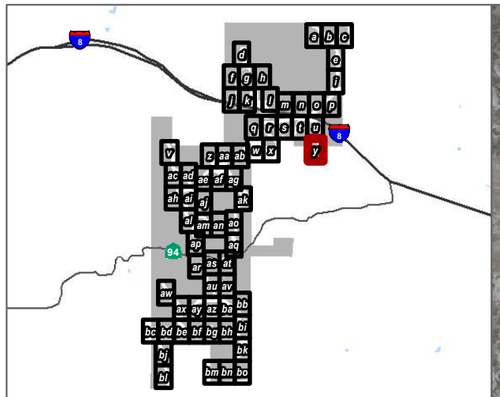
DUDEK

0 162.5 325 Feet

FIGURE 3x

Impacts to Vegetation Communities and Landcovers - Reservation

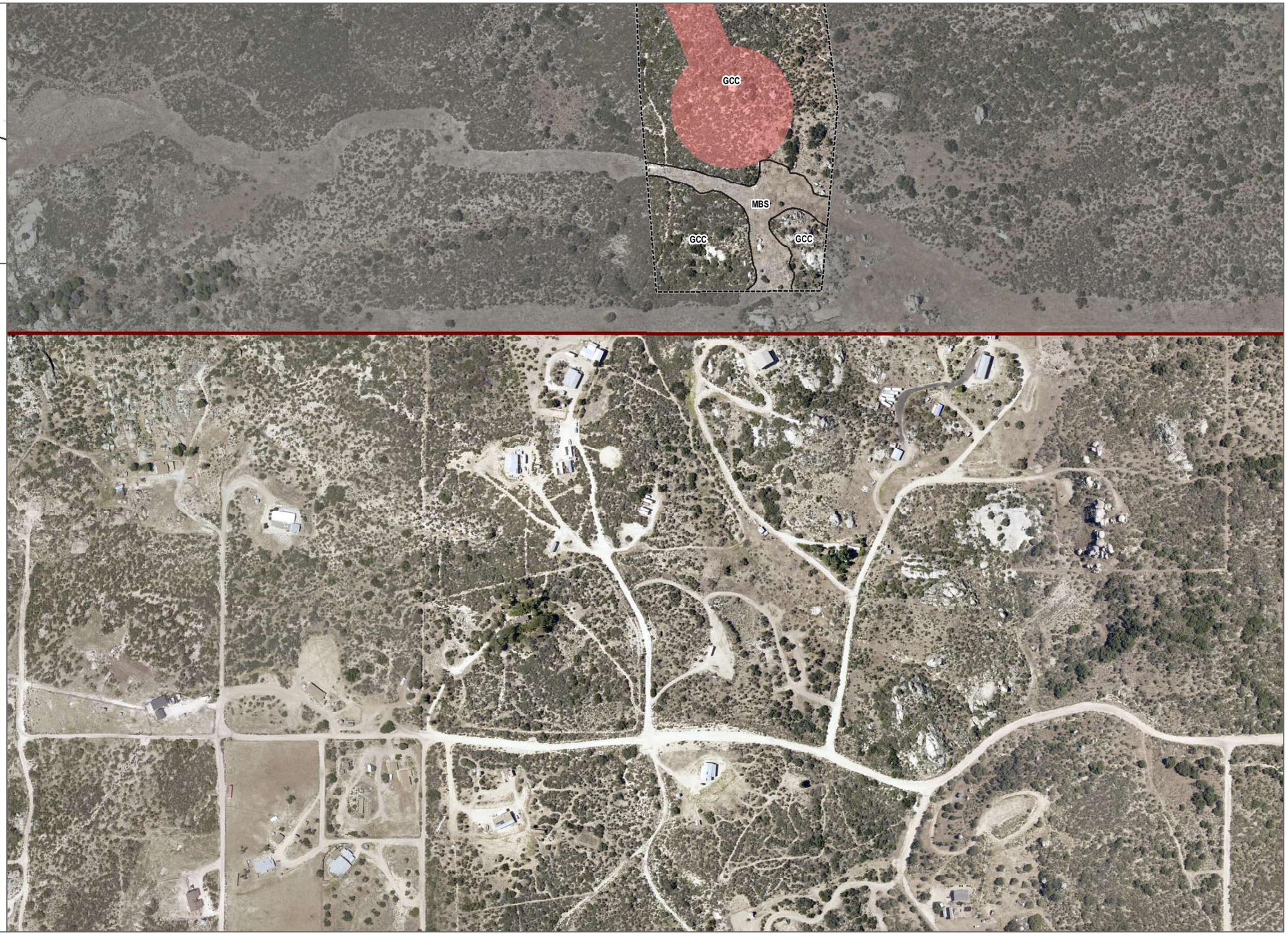
Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub



SOURCE: SANGIS 2017

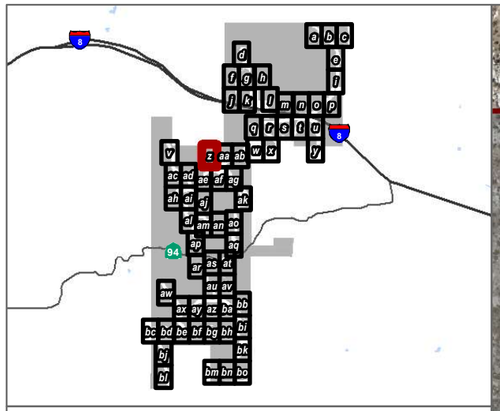
DUDEK

0 162.5 325 Feet

FIGURE 3y

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-SSHA, Sharp-shinned hawk
- B-NOHA, Northern harrier
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- CLOW, Coast Live Oak Woodland
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

GNMX
GCC
CLOW
B-COHA
B-COHA
B-SSHA
B-NOHA
NVC
RSC
MBS
GNMX
GNMX
MBS
MBS
B-TUVU
NVC
GNMX
NVC
GCC
NVC
B-TUVU

SOURCE: SANGIS 2017

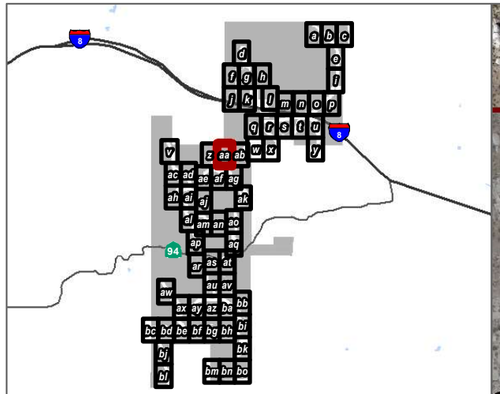
DUDEK

0 162.5 325 Feet

FIGURE 3z

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-NOHA, Northern harrier
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

B-TUVU
B-NOHA
GCC
DH
MBS
NVC
CLOW
GNMX
RSC
DEV

SOURCE: SANGIS 2017

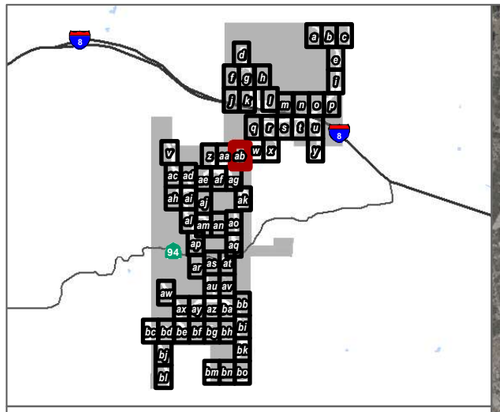
DUDEK

0 162.5 325 Feet

FIGURE 3aa

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

B-TUVU
NVC
SOC
MBS
DH
GNMX
GCC
CLOW
RSC
DEV

SOURCE: SANGIS 2017

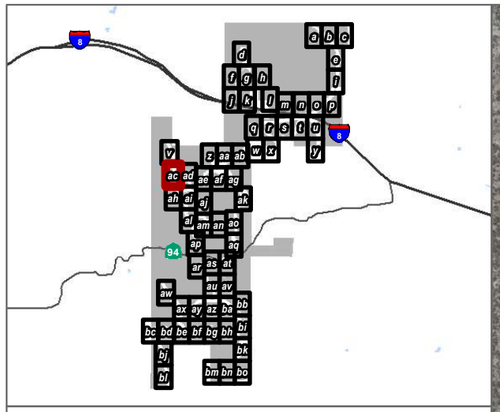
DUDEK

0 162.5 325 Feet

FIGURE 3ab

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-FEHA, Ferruginous hawk
- B-MERL, Merlin
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- USS, Upper Sonoran Subshrub Scrub

SOURCE: SANGIS 2017

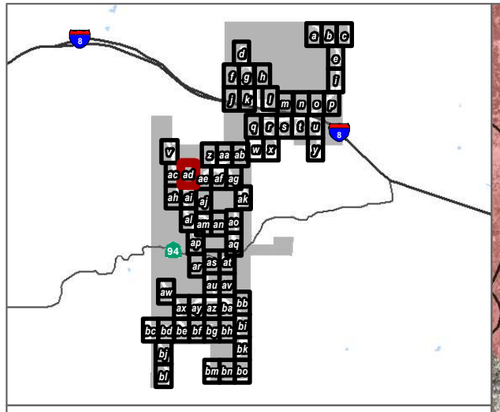
DUDEK

0 162.5 325 Feet

FIGURE 3ac

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-FEHA, Ferruginous hawk
B-MERL, Merlin
B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

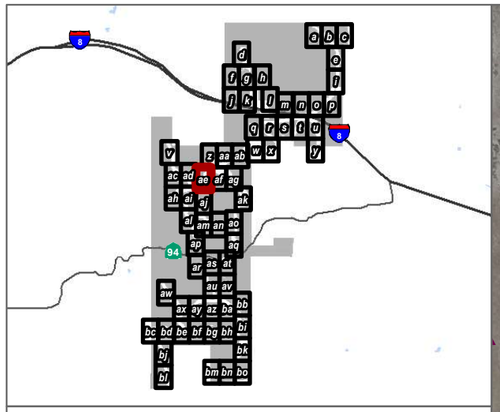
DUDEK

0 162.5 325 Feet

FIGURE 3ad

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-FEHA, Ferruginous hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

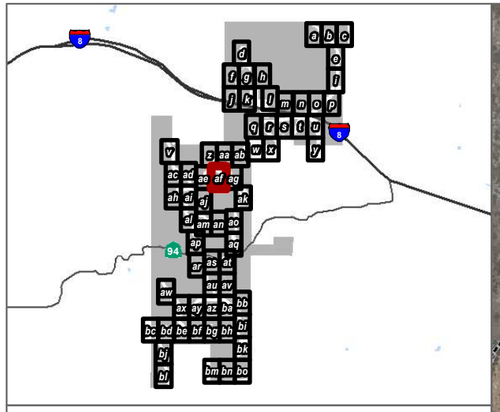
DUDEK

0 162.5 325 Feet

FIGURE 3ae

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLORF, Coast Live Oak Riparian Forest
CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

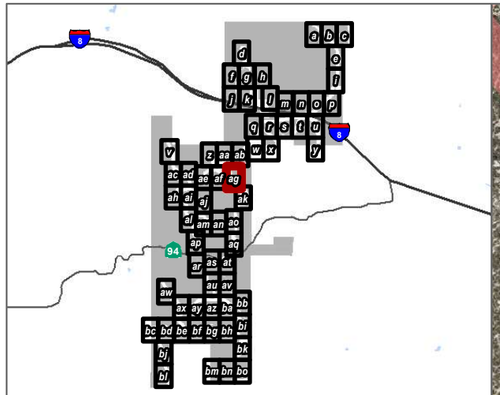
DUDEK

0 162.5 325 Feet

FIGURE 3af

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLORF, Coast Live Oak Riparian Forest
CLOW, Coast Live Oak Woodland
DEV, Developed
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

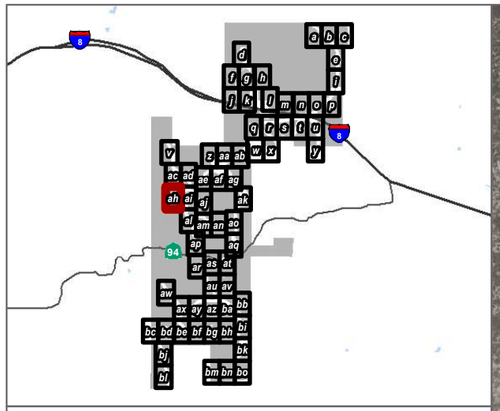
DUDEK

0 162.5 325 Feet

FIGURE 3ag

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

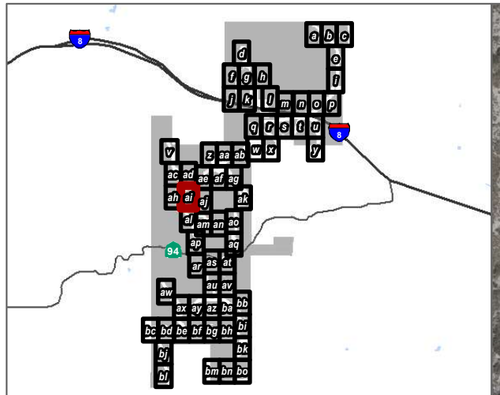
DUDEK

0 162.5 325 Feet

FIGURE 3ah

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-FEHA, Ferruginous hawk
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- DEV, Developed
- DH, Disturbed Habitat
- EW, Emergent Wetland
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- MFS, Mulefat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SWS, Southern Willow Scrub
- USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Wetland or Riparian
- Data Stations

SOURCE: SANGIS 2017

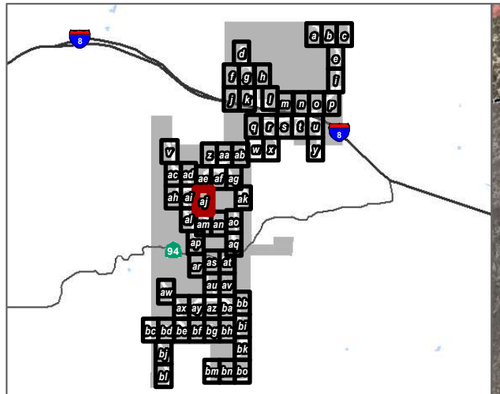
DUDEK

0 162.5 325 Feet

FIGURE 3ai

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- DEV, Developed
- DH, Disturbed Habitat
- EW, Emergent Wetland
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MFS, Mulefat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SWS, Southern Willow Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Wetland or Riparian
- Data Stations

SOURCE: SANGIS 2017

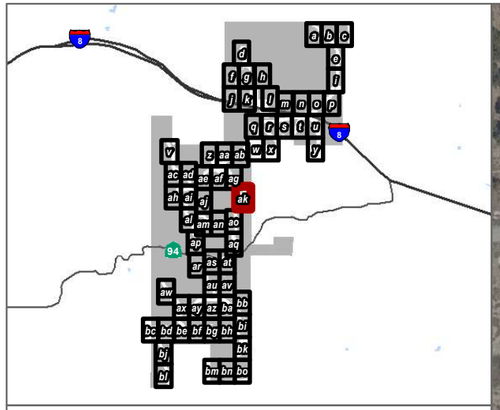
DUDEK

0 162.5 325 Feet

FIGURE 3aj

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-NOHA, Northern harrier
- B-LOSH, Loggerhead shrike
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLORF, Coast Live Oak Riparian Forest
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- USS, Upper Sonoran Subshrub Scrub

SOURCE: SANGIS 2017

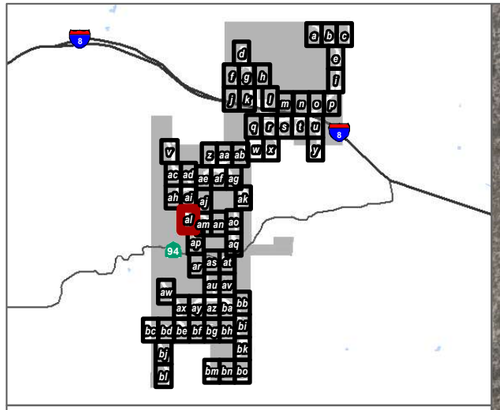
DUDEK

0 162.5 325 Feet

FIGURE 3ak

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

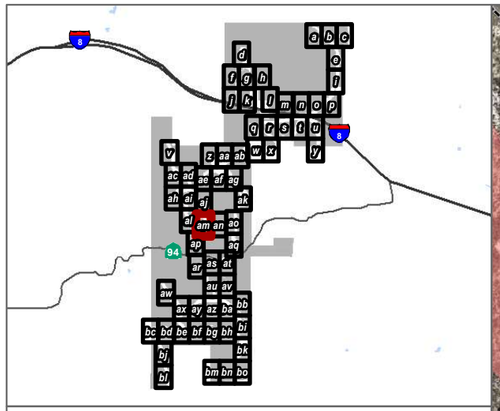
DUDEK

0 162.5 325 Feet

FIGURE 3al

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-FEHA, Ferruginous hawk
- B-MERL, Merlin
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral
- dBSS, Disturbed Big Sagebrush Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

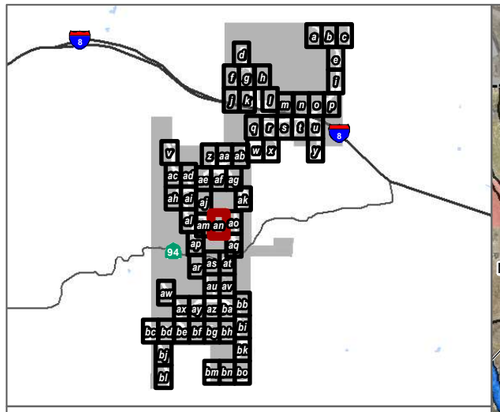
DUDEK

0 162.5 325 Feet

FIGURE 3am

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

- B-FEHA, Ferruginous hawk
- B-MERL, Merlin
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- dBSS, Disturbed Big Sagebrush Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

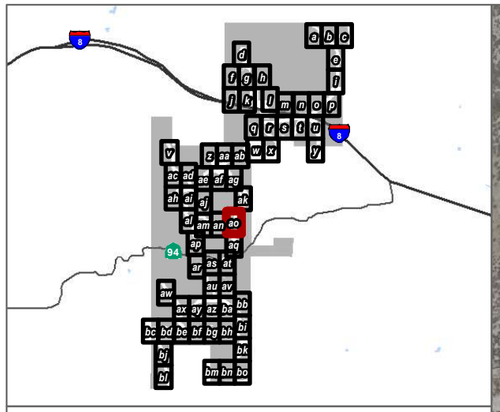
DUDEK

0 162.5 325 Feet

FIGURE 3an

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
SOC, Scrub Oak Chaparral

SOURCE: SANGIS 2017

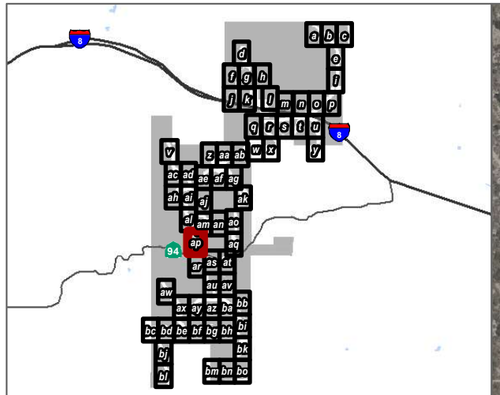
DUDEK

0 162.5 325 Feet

FIGURE 3ao

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

GCC, Granitic Chamise Chaparral
NVC, Unvegetated Stream Channel

Jurisdictional Delineations

Non-wetland Water - Ephemeral

B-TUVU
NVC
NVC
GCC
NVC
NVC
B-TUVU

SOURCE: SANGIS 2017

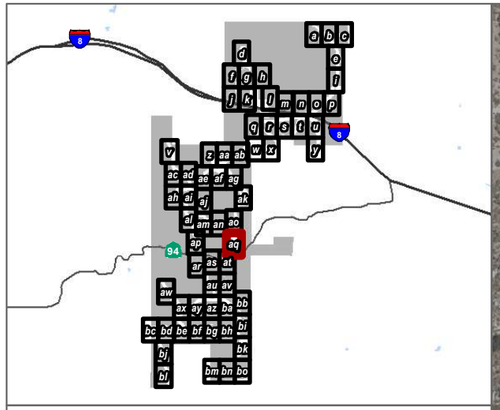
DUDEK

0 162.5 325 Feet

FIGURE 3ap

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

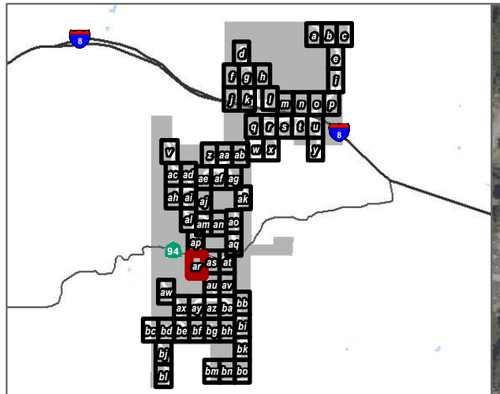
DUDEK

0 162.5 325 Feet

FIGURE 3aq

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
DH, Disturbed Habitat
EW, Emergent Wetland
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NNGB, Non-Native Grassland Broadleaf-Dominated
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SWS, Southern WIllow Scrub
VSG, Valley Sacaton Grassland

Jurisdictional Delineations

Wetland or Riparian
Data Stations

SOURCE: SANGIS 2017

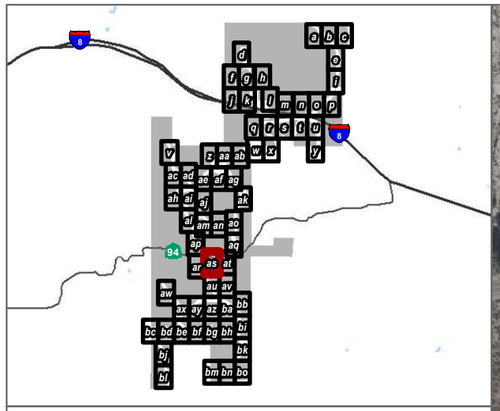
DUDEK

0 162.5 325 Feet

FIGURE 3ar

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- CLOWO, Open Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- EW, Emergent Wetland
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NNGB, Non-Native Grassland Broadleaf-Dominated
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- SWS, Southern WIllow Scrub
- USS, Upper Sonoran Subshrub Scrub
- VSG, Valley Sacaton Grassland

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Non-wetland Water - Intermittent
- Wetland or Riparian
- Data Stations

SOURCE: SANGIS 2017

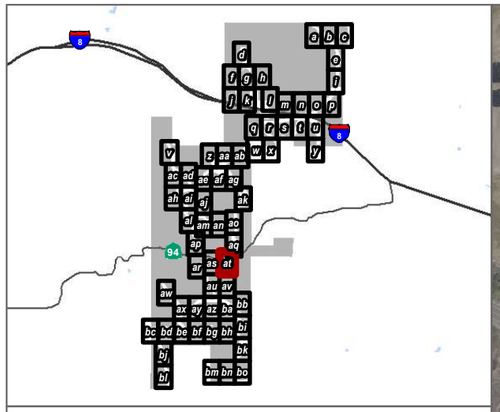
DUDEK

0 162.5 325 Feet

FIGURE 3as

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



- Reservation Boundary
- Campo Corridor
- Permanent Impacts

Wildlife

- B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- CLOWO, Open Coast Live Oak Woodland
- DEV, Developed
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- NNGB, Non-Native Grassland Broadleaf-Dominated
- NVC, Unvegetated Stream Channel
- SOC, Scrub Oak Chaparral
- USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

- Non-wetland Water - Ephemeral
- Non-wetland Water - Intermittent

SOURCE: SANGIS 2017

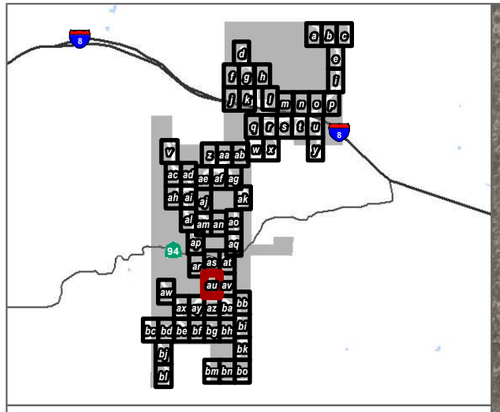
DUDEK

0 162.5 325 Feet

FIGURE 3at

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-SSHA, Sharp-shinned hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWO, Open Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub

SOURCE: SANGIS 2017

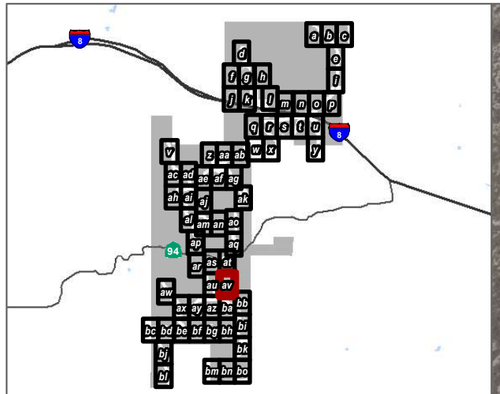
DUDEK

0 162.5 325 Feet

FIGURE 3au

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-SSHA, Sharp-shinned hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
CLOWO, Open Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral
USS, Upper Sonoran Subshrub Scrub

SOURCE: SANGIS 2017

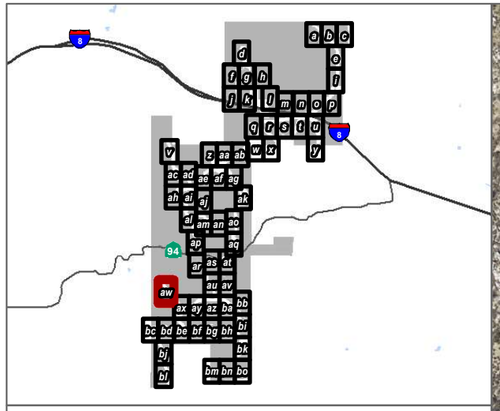
DUDEK

0 162.5 325 Feet

FIGURE 3av

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
NVC, Unvegetated Stream Channel

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

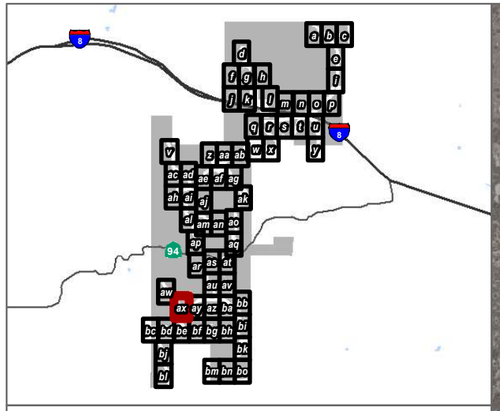
DUDEK

0 162.5 325 Feet

FIGURE 3aw

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
CLOWO, Open Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

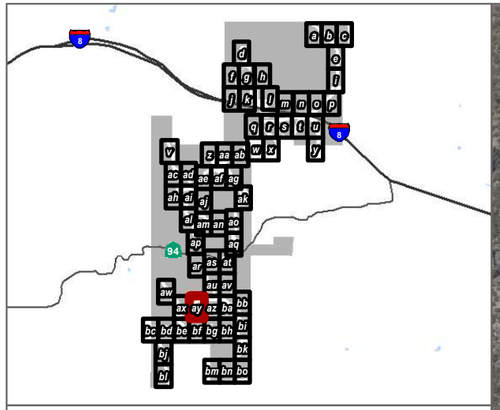
DUDEK

0 162.5 325 Feet

FIGURE 3ax

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
CLOWO, Open Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

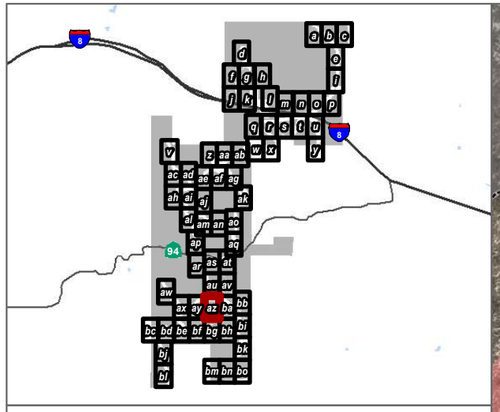
DUDEK

0 162.5 325 Feet

FIGURE 3ay

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
CLOWO, Open Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

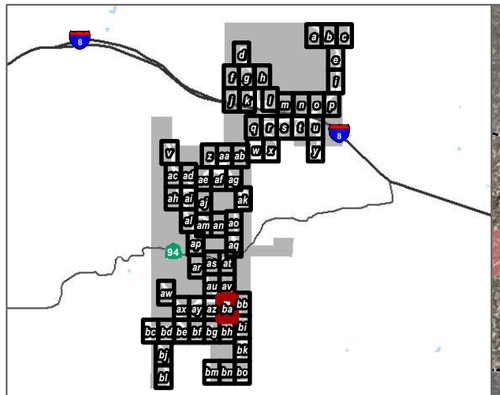
DUDEK

0 162.5 325 Feet

FIGURE 3az

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

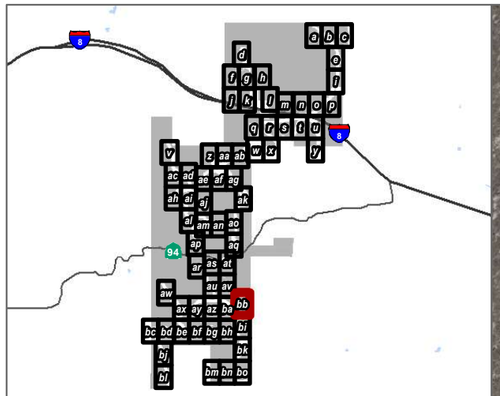
DUDEK

0 162.5 325 Feet

FIGURE 3ba

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub
CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
SOC, Scrub Oak Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

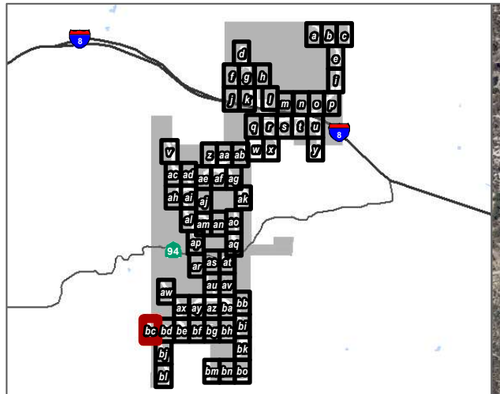
DUDEK

0 162.5 325 Feet

FIGURE 3bb

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

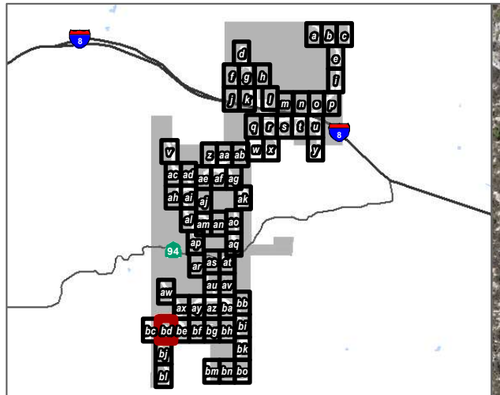
DUDEK

0 162.5 325 Feet

FIGURE 3bc

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

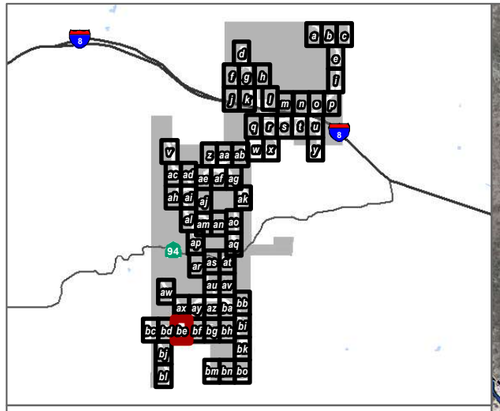
DUDEK

0 162.5 325 Feet

FIGURE 3bd

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

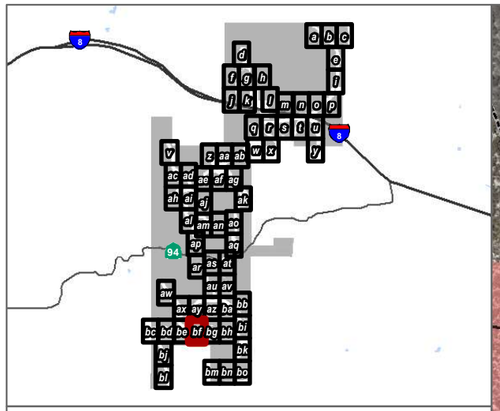
DUDEK

0 162.5 325 Feet

FIGURE 3be

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

CLOW, Coast Live Oak Woodland
CLOWD, Dense Coast Live Oak Woodland
DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NNG, Non-Native Grassland
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

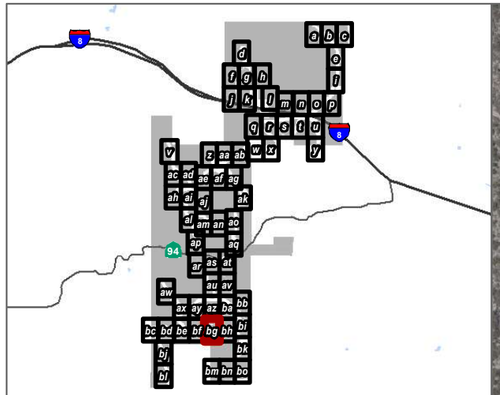
DUDEK

0 162.5 325 Feet

FIGURE 3bf

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

- CLOW, Coast Live Oak Woodland
- CLOWD, Dense Coast Live Oak Woodland
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NNG, Non-Native Grassland
- RSC, Red Shank Chaparral
- SOC, Scrub Oak Chaparral

SOURCE: SANGIS 2017

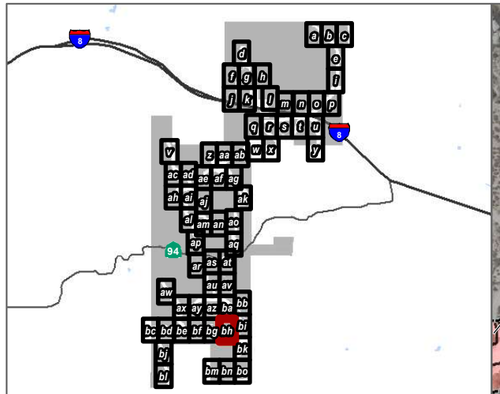
DUDEK

0 162.5 325 Feet

FIGURE 3bg

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-MERL, Merlin
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
GNMX, Granitic Northern Mixed Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral

SOURCE: SANGIS 2017

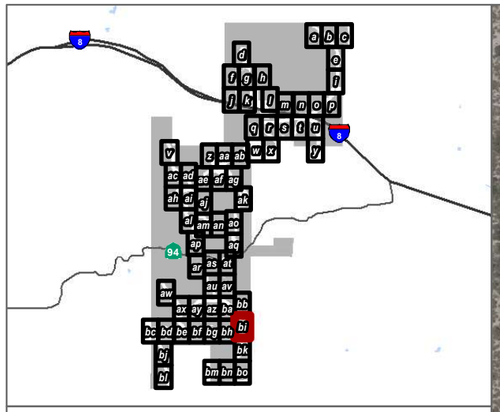
DUDEK

0 162.5 325 Feet

FIGURE 3bh

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-MERL, Merlin
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
MBS, Montane Buckwheat Scrub
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral
SOC, Scrub Oak Chaparral

Jurisdictional Delineations

Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

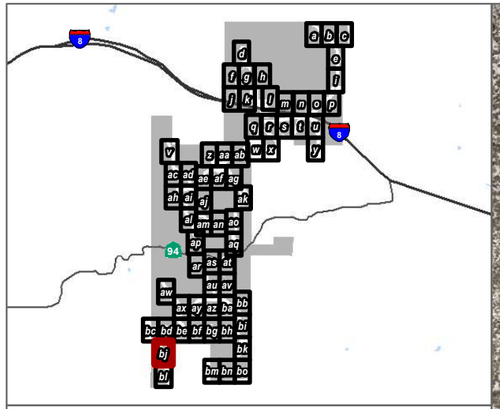
DUDEK

0 162.5 325 Feet

FIGURE 3bi

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictional Delineations

Non-wetland Water - Ephemeral

B-TUVU
B-TUVU
GCC
B-TUVU
DH
B-TUVU
B-TUVU
B-COHA
NVC
GCC
GCC
NVC
NVC
B-TUVU
NVC
USS
USS
NVC

SOURCE: SANGIS 2017

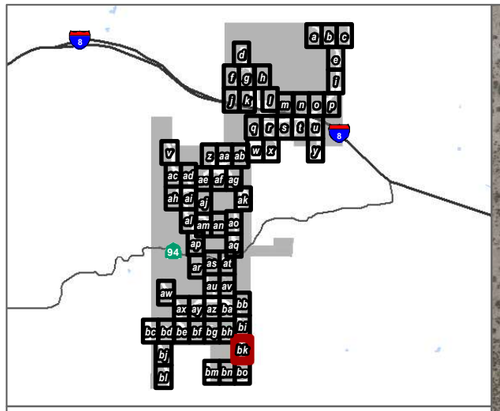
DUDEK

0 162.5 325 Feet

FIGURE 3bj

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

B-COHA, Cooper's hawk
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
NVC, Unvegetated Stream Channel
RSC, Red Shank Chaparral

SOURCE: SANGIS 2017

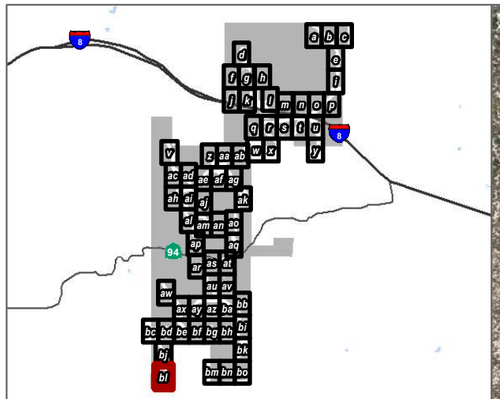
DUDEK

0 162.5 325 Feet

FIGURE 3bk

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Wildlife

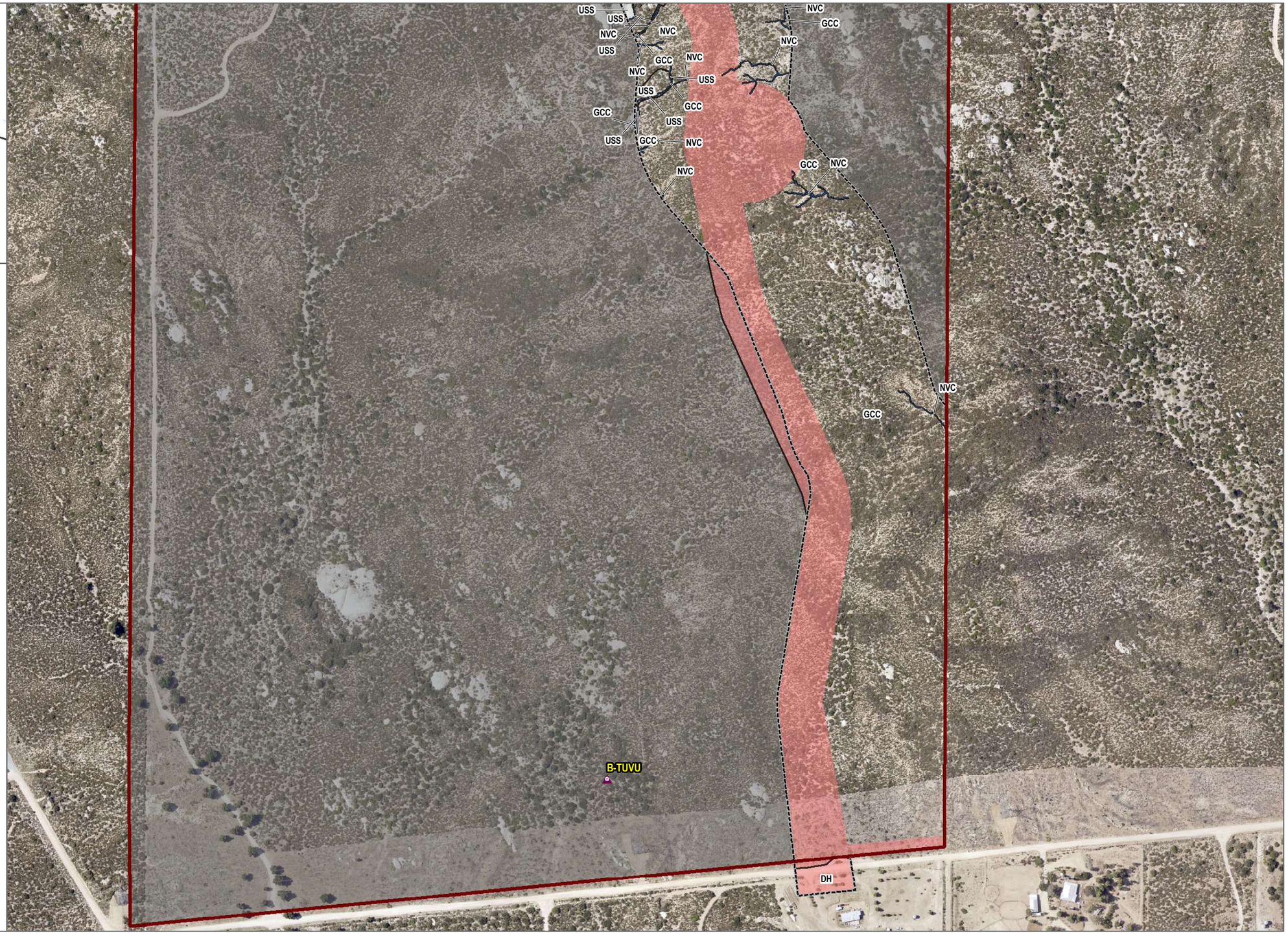
B-TUVU, Turkey vulture

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral
NVC, Unvegetated Stream Channel
USS, Upper Sonoran Subshrub Scrub

Jurisdictiona Delineations

Non-wetland Water - Ephemeral



SOURCE: SANGIS 2017

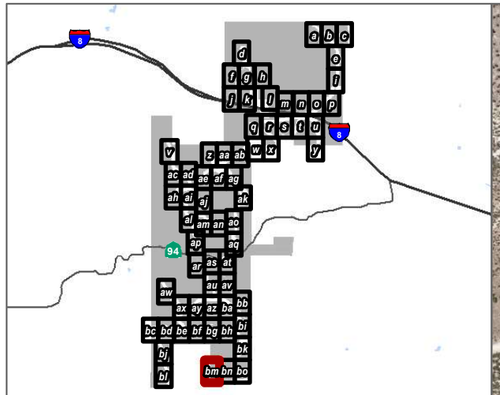
DUDEK

0 162.5 325 Feet

FIGURE 3bI

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral

SOURCE: SANGIS 2017

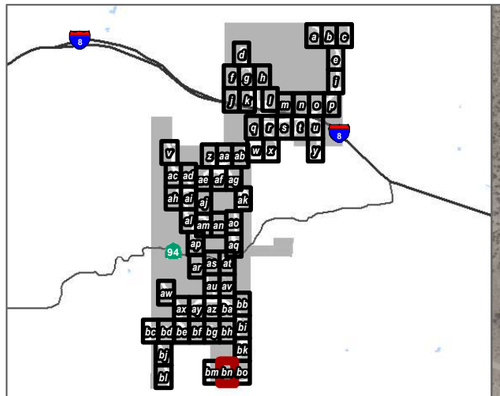
DUDEK

0 162.5 325 Feet

FIGURE 3bm

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary
Campo Corridor
Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat
GCC, Granitic Chamise Chaparral

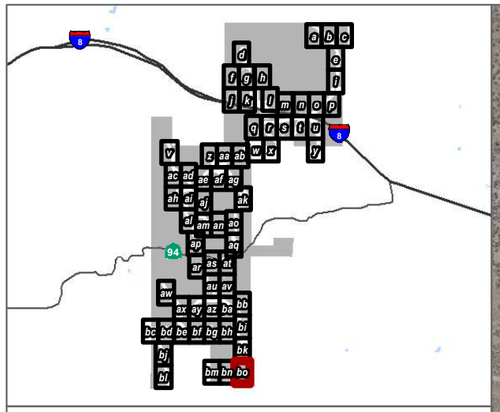
SOURCE: SANGIS 2017

0 162.5 325 Feet

FIGURE 3bn

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Reservation Boundary

Campo Corridor

Permanent Impacts

Vegetation and Land Cover Types in Project Study Area

DH, Disturbed Habitat

GCC, Granitic Chamise Chaparral

SOURCE: SANGIS 2017

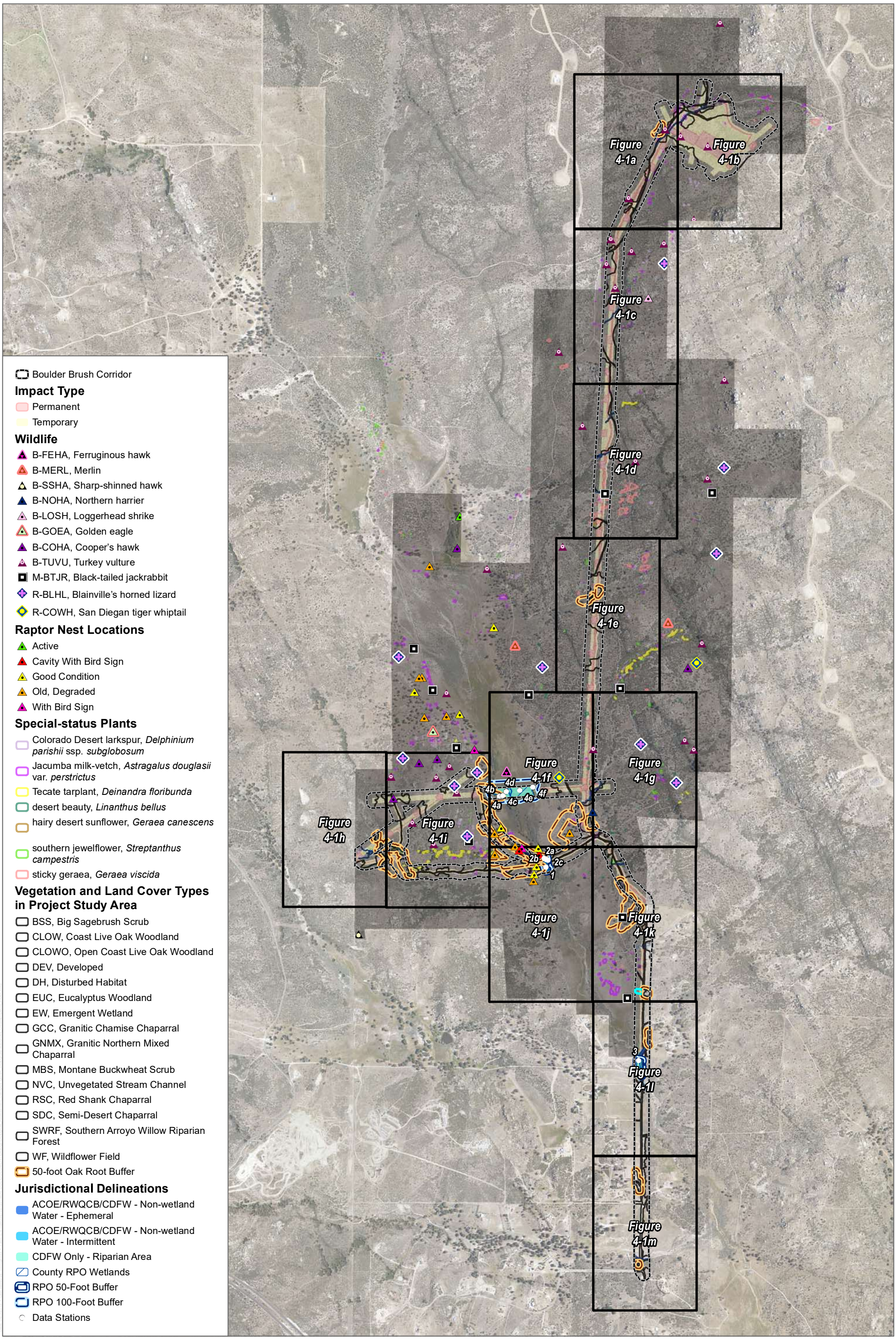
DUDEK

0 162.5 325 Feet

FIGURE 3bo

Impacts to Vegetation Communities and Landcovers - Reservation

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



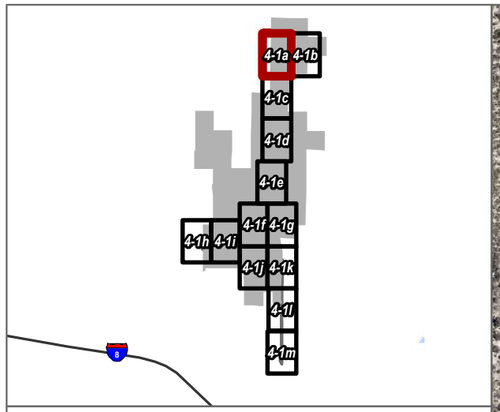
SOURCE: SANGIS 2017

DUDEK

0 850 1,700 Feet

FIGURE 4

Impacts to Vegetation Communities and Landcovers - Boulder Brush - Index



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-TUVU, Turkey vulture
- R-COWH, San Diegan tiger whiptail

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DH, Disturbed Habitat
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SDC, Semi-Desert Chaparral
- 50-foot Oak Root Buffer

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

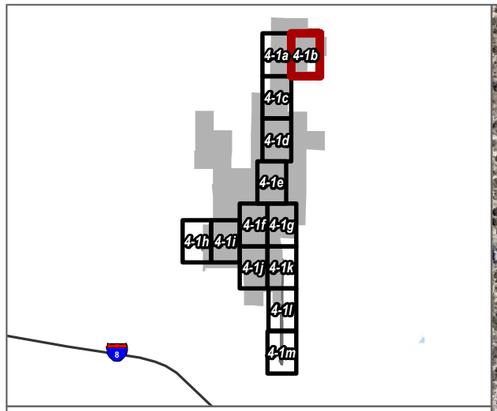
DUDEK

0 200 400 Feet

FIGURE 4a

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-TUVU, Turkey vulture
- R-COWH, San Diegan tiger whiptail

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DH, Disturbed Habitat
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SDC, Semi-Desert Chaparral
- 50-foot Oak Root Buffer

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

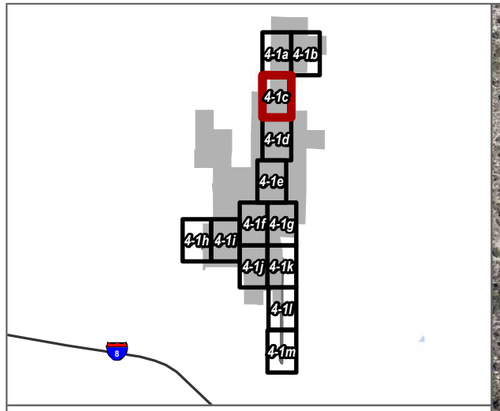
DUDEK

0 200 400 Feet

FIGURE 4b

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-LOSH, Loggerhead shrike
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- R-BLHL, Blainville's horned lizard
- R-COWH, San Diegan tiger whiptail

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- Tecate tarplant, *Deinandra floribunda*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- DH, Disturbed Habitat
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

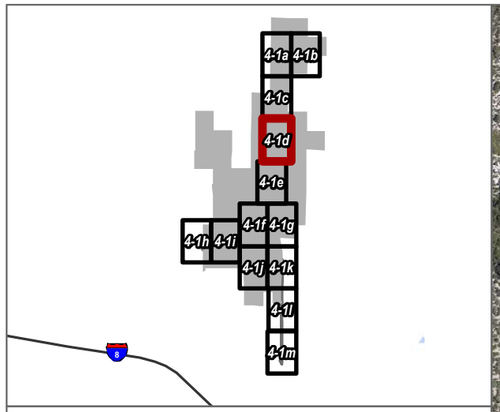
DUDEK

0 200 400 Feet

FIGURE 4c

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-TUVU, Turkey vulture
- M-BTJR, Black-tailed jackrabbit
- R-BLHL, Blainville's horned lizard

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- Tecate tarplant, *Deinandra floribunda*
- desert beauty, *Linanthus bellus*
- hairy desert sunflower, *Geraea canescens*
- southern jewelflower, *Streptanthus campestris*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- DH, Disturbed Habitat
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral

SOURCE: SANGIS 2017

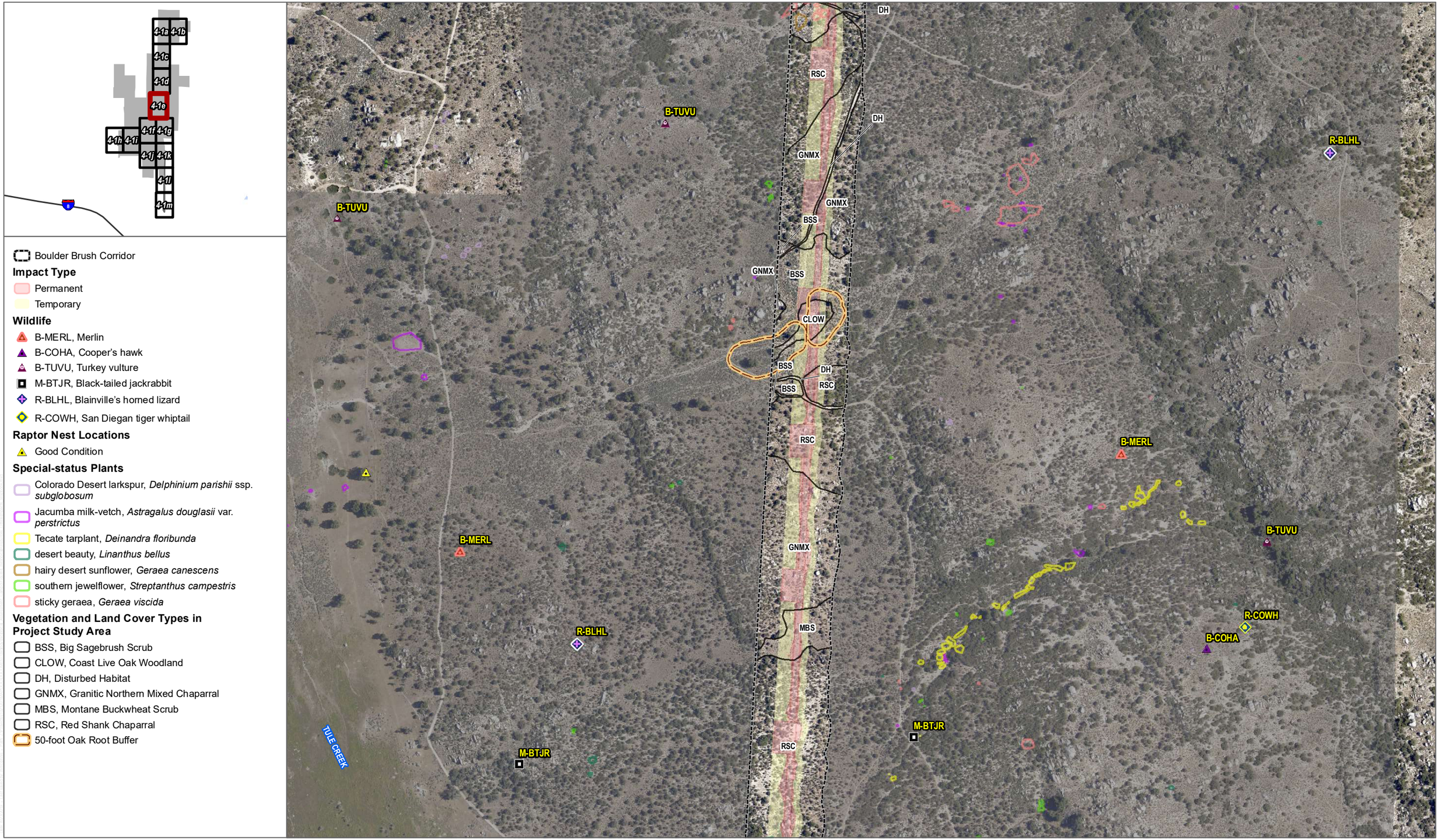
DUDEK

0 200 400 Feet

FIGURE 4d

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017

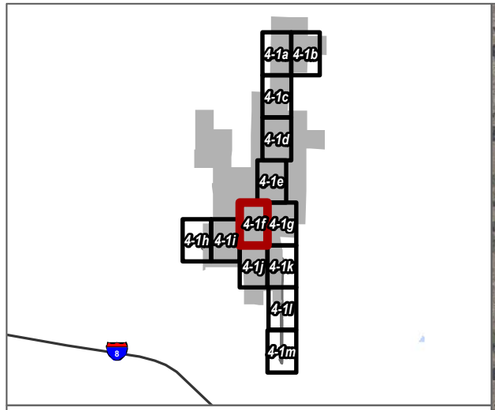
DUDEK

0 200 400 Feet

FIGURE 4e

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-FEHA, Ferruginous hawk
- B-NOHA, Northern harrier
- B-GOEA, Golden eagle
- B-COHA, Cooper's hawk
- B-TUVU, Turkey vulture
- M-BTJR, Black-tailed jackrabbit
- R-BLHL, Blainville's horned lizard
- R-COWH, San Diegan tiger whiptail

Raptor Nest Locations

- Cavity With Bird Sign
- Good Condition
- Old, Degraded
- With Bird Sign

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- Tecate tarplant, *Deinandra floribunda*
- desert beauty, *Linanthus bellus*
- southern jewelflower, *Streptanthus campestris*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- DH, Disturbed Habitat
- EW, Emergent Wetland
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SDC, Semi-Desert Chaparral
- SWRF, Southern Arroyo Willow Riparian Forest
- WF, Wildflower Field
- 50-foot Oak Root Buffer

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral
- ACOE/RWQCB/CDFW - Non-wetland Water - Intermittent
- CDFW Only - Riparian Area
- County RPO Wetlands
- RPO 50-Foot Buffer
- RPO 100-Foot Buffer
- Data Stations

SOURCE: SANGIS 2017

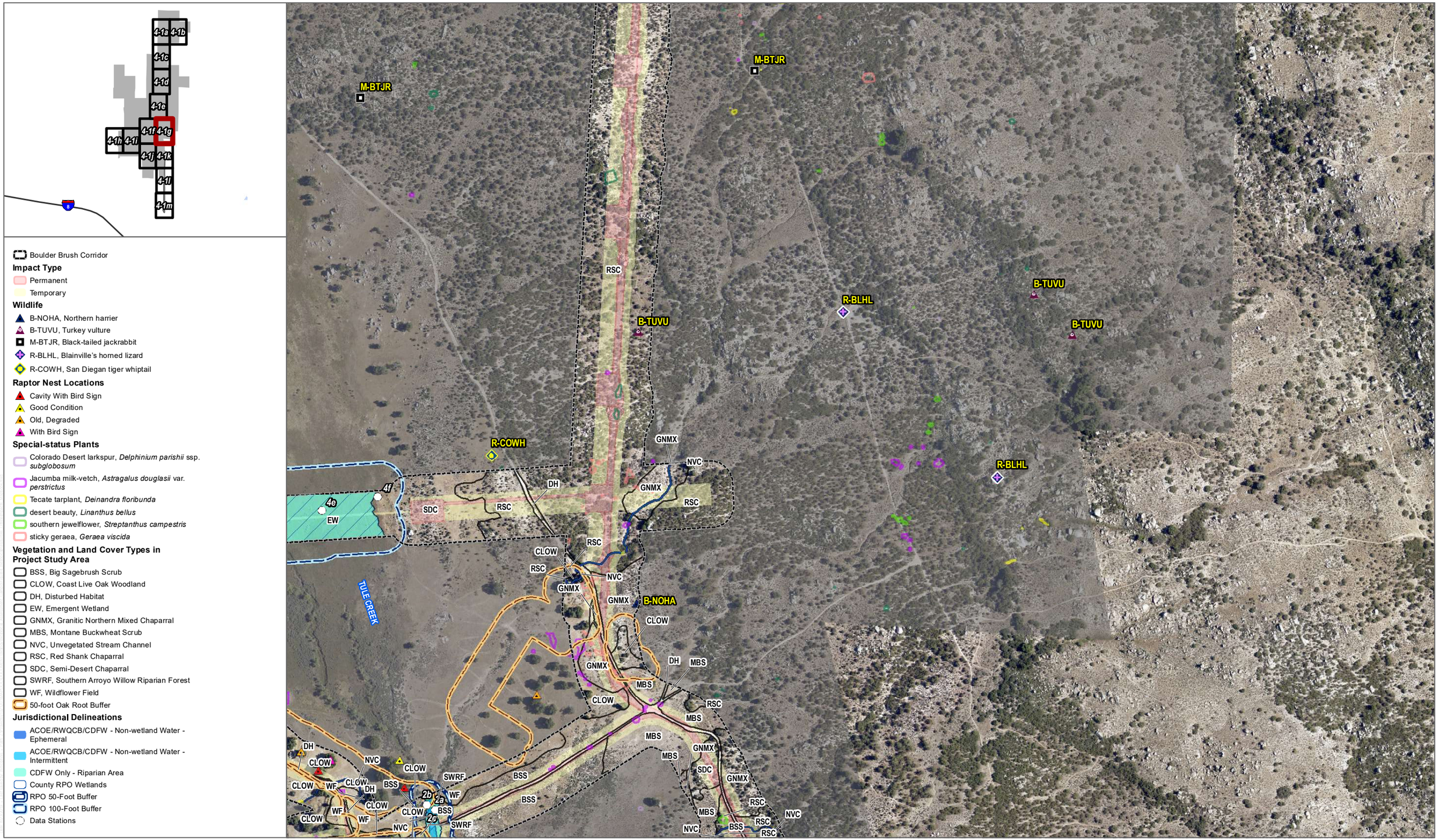
DUDEK

0 200 400 Feet

FIGURE 4f

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017

DUDEK

0 200 400 Feet

FIGURE 4g

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities

SOURCE: SANGIS 2017

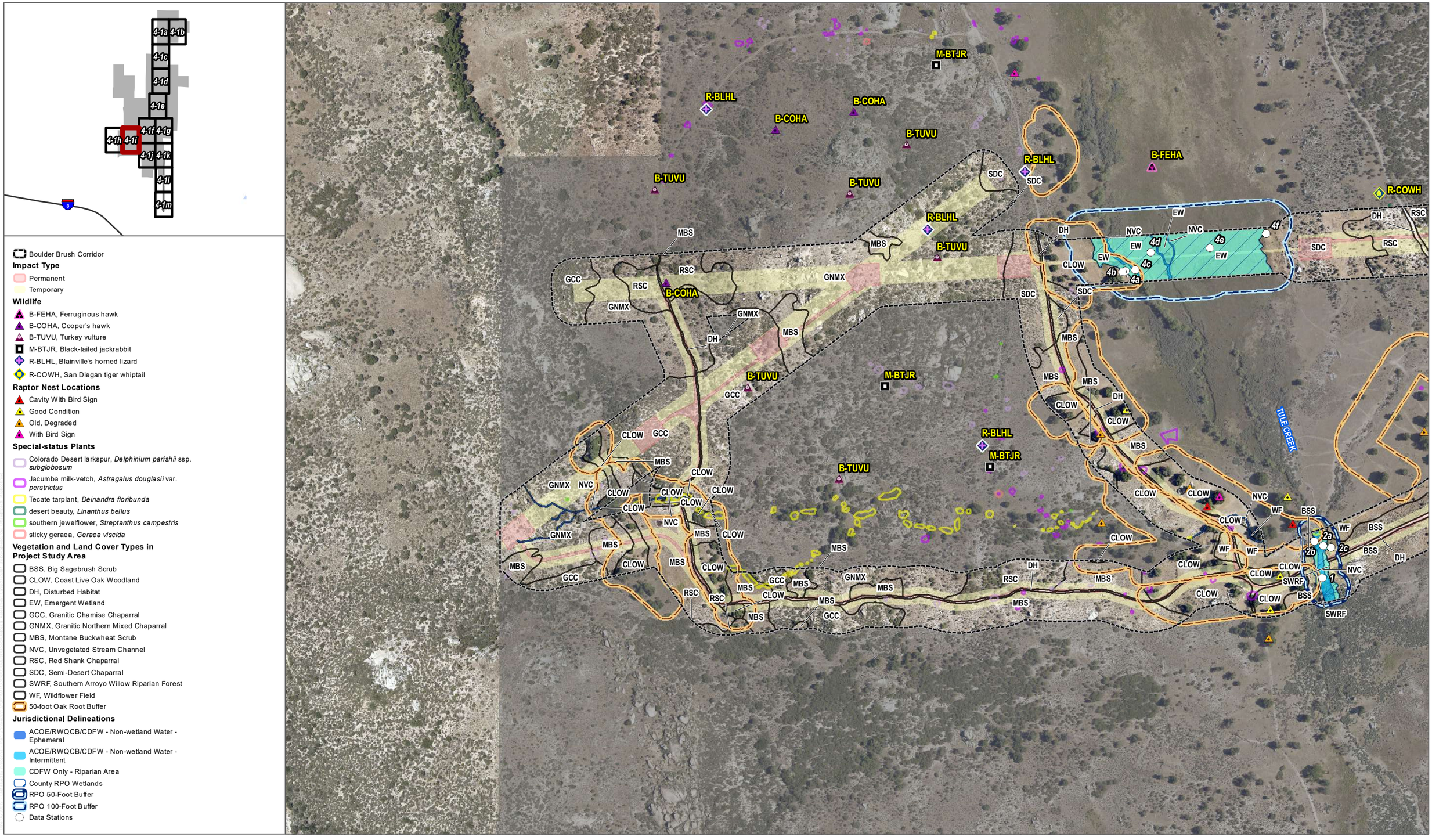
DUDEK

0 200 400 Feet

FIGURE 4h

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017

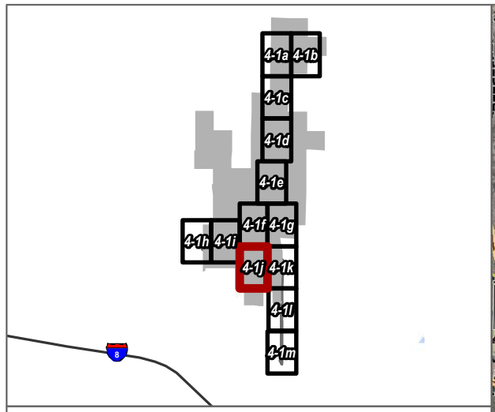
DUDEK

0 200 400 Feet

FIGURE 4i

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

- Permanent
- Temporary

Wildlife

- B-TUVU, Turkey vulture
- M-BTJR, Black-tailed jackrabbit
- R-BLHL, Blainville's horned lizard

Raptor Nest Locations

- Cavity With Bird Sign
- Good Condition
- Old, Degraded
- With Bird Sign

Special-status Plants

- Colorado Desert larkspur, *Delphinium parishii* ssp. *subglobosum*
- Jacumba milk-vetch, *Astragalus douglasii* var. *perstrictus*
- Tecate tarplant, *Deinandra floribunda*
- desert beauty, *Linanthus bellus*
- southern jewelflower, *Streptanthus campestris*
- sticky geraea, *Geraea viscida*

Vegetation and Land Cover Types in Project Study Area

- BSS, Big Sagebrush Scrub
- CLOW, Coast Live Oak Woodland
- CLOWO, Open Coast Live Oak Woodland
- DH, Disturbed Habitat
- GCC, Granitic Chamise Chaparral
- GNMX, Granitic Northern Mixed Chaparral
- MBS, Montane Buckwheat Scrub
- NVC, Unvegetated Stream Channel
- RSC, Red Shank Chaparral
- SDC, Semi-Desert Chaparral
- SWRF, Southern Arroyo Willow Riparian Forest
- WF, Wildflower Field
- 50-foot Oak Root Buffer

Jurisdictional Delineations

- ACOE/RWQCB/CDFW - Non-wetland Water - Ephemeral
- ACOE/RWQCB/CDFW - Non-wetland Water - Intermittent
- CDFW Only - Riparian Area
- County RPO Wetlands
- RPO 50-Foot Buffer
- Data Stations

SOURCE: SANGIS 2017

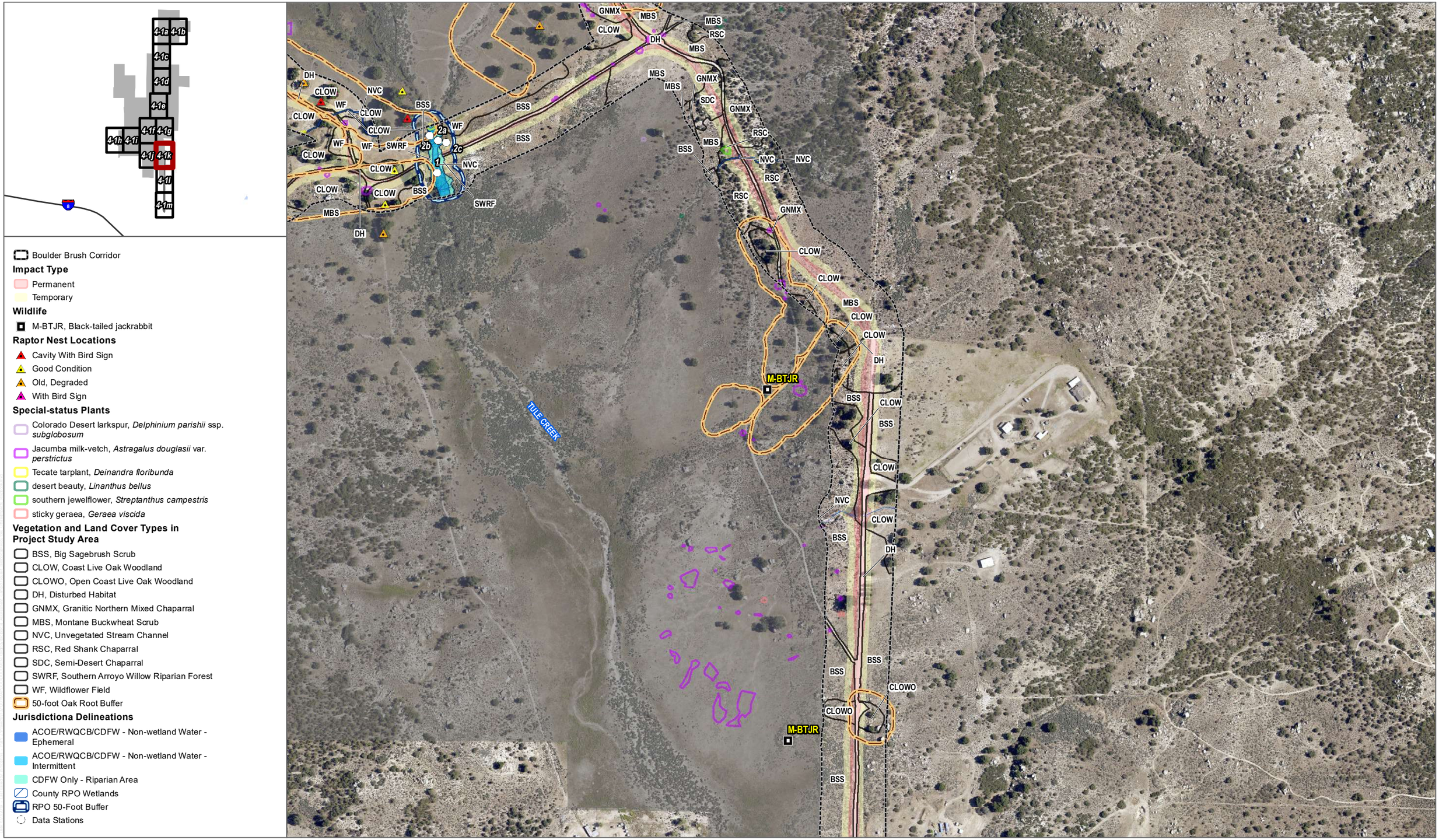
DUDEK

0 200 400 Feet

FIGURE 4j

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



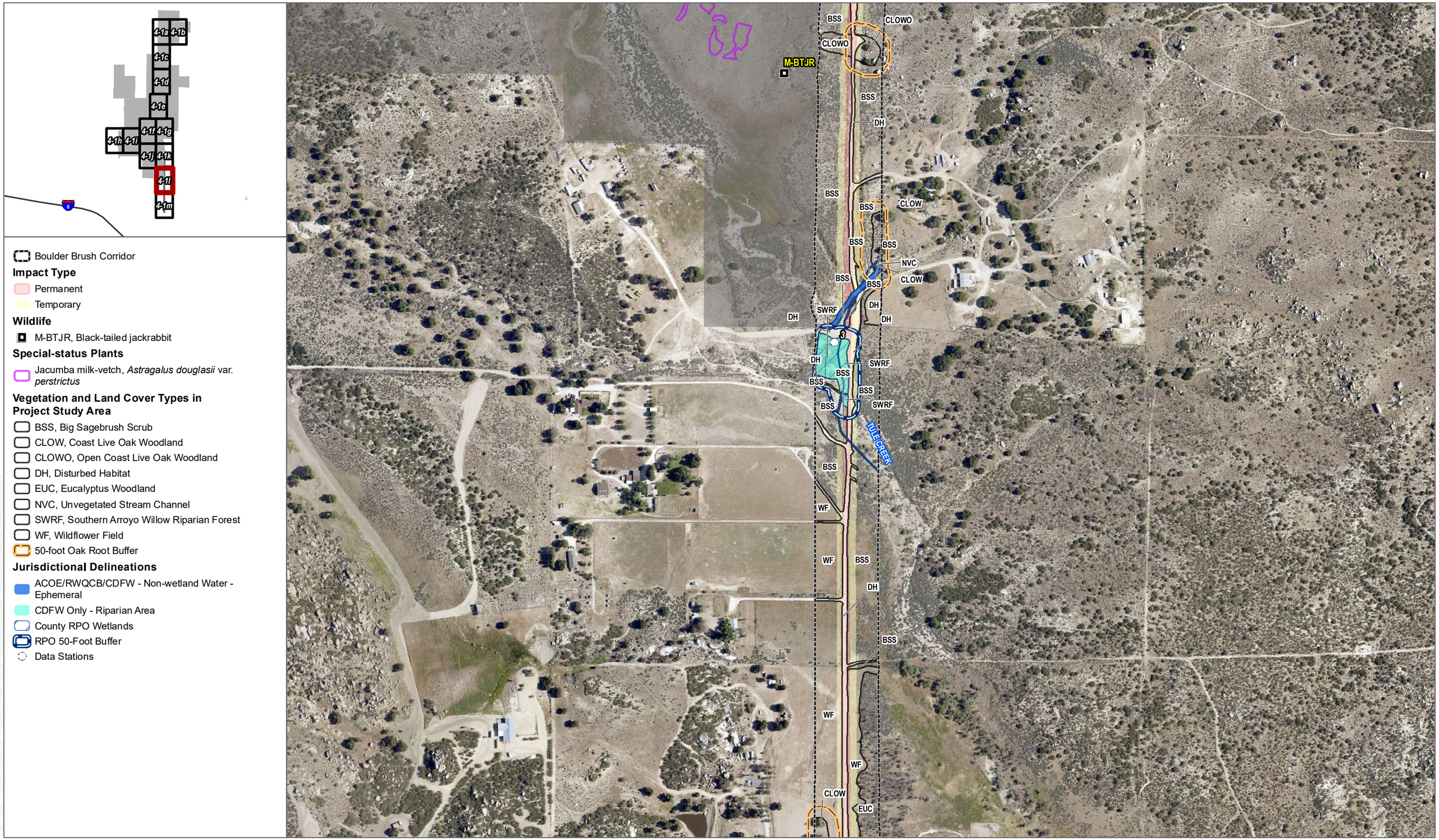
SOURCE: SANGIS 2017

DUDEK

FIGURE 4k

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017

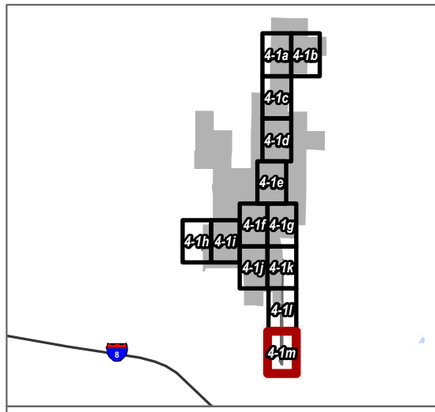
DUDEK

0 200 400 Feet

FIGURE 4I

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



Boulder Brush Corridor

Impact Type

Permanent

Temporary

Vegetation and Land Cover Types in Project Study Area

BSS, Big Sagebrush Scrub

CLOW, Coast Live Oak Woodland

DEV, Developed

DH, Disturbed Habitat

EUC, Eucalyptus Woodland

GNMX, Granitic Northern Mixed Chaparral

NVC, Unvegetated Stream Channel

RSC, Red Shank Chaparral

WF, Wildflower Field

50-foot Oak Root Buffer

Jurisdictional Delineations

ACOE/RWQCB/CDFW - Non-Wetland Water -Ephemeral

SOURCE: SANGIS 2017

DUDEK

0 200 400 Feet

FIGURE 4m

Impacts to Vegetation Communities and Landcovers - Boulder Brush

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities

Reservation Boundary
Boulder Brush Boundary
Quino Checkerspot Butterfly Observation
USFWS QCB Occurrence
AECOM QCB Occurrence
Major Plant Population (>10 Individuals)
Non-Major Plant Population (<10 Individuals)
Exclusion Ridgeline
40 ft Buffer
Ridge 100 ft Buffer
USFWS 200 m Buffer
Host Plant 200 m Buffer
Hilltops
QCB Habitat Modeling
40' Contours

SOURCE: SANGIS 2017; AECOM 2010

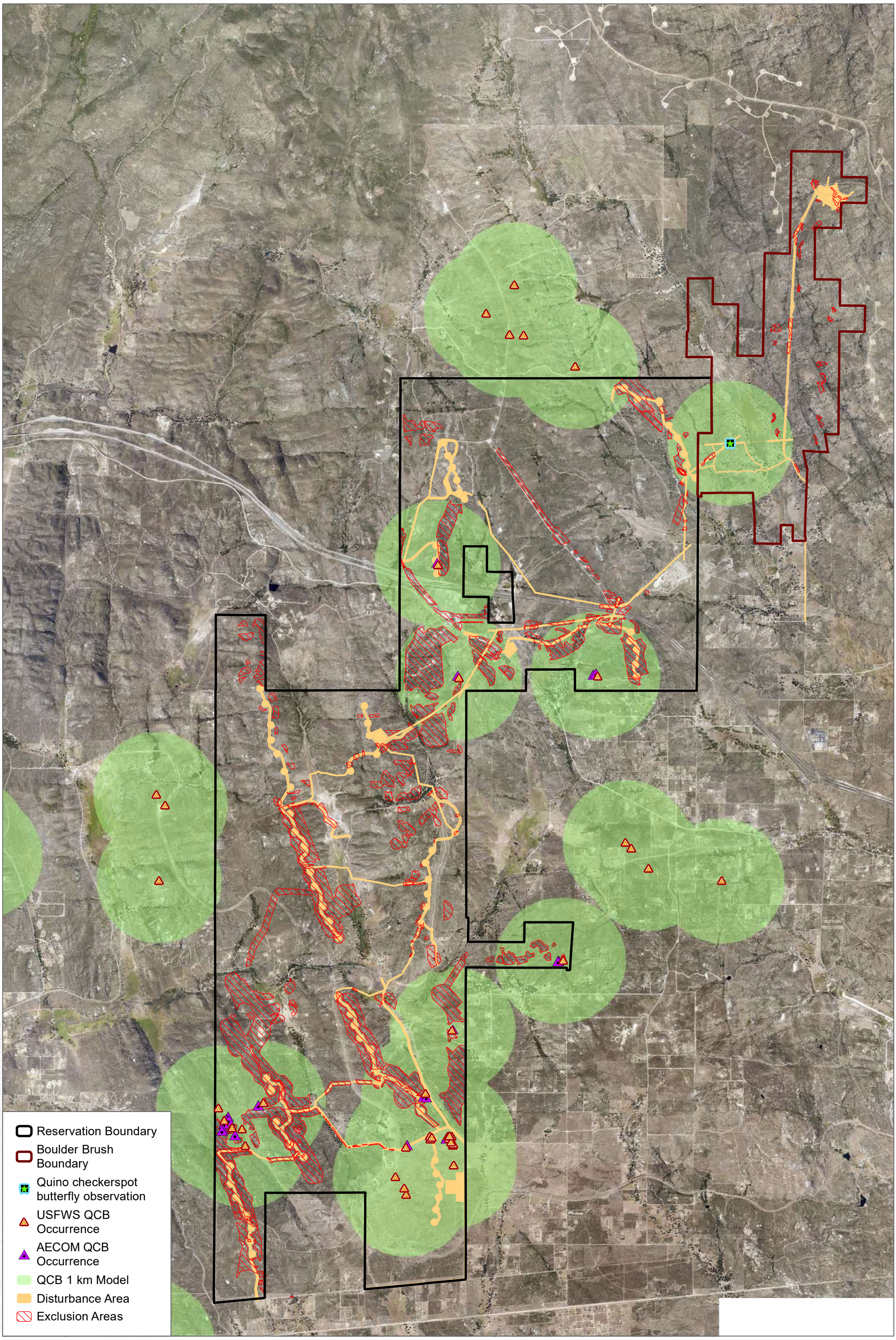
DUDEK

0 2,150 4,300 Feet

FIGURE 5

Quino Checkerspot Butterfly Modeled Habitat

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017; AECOM 2010

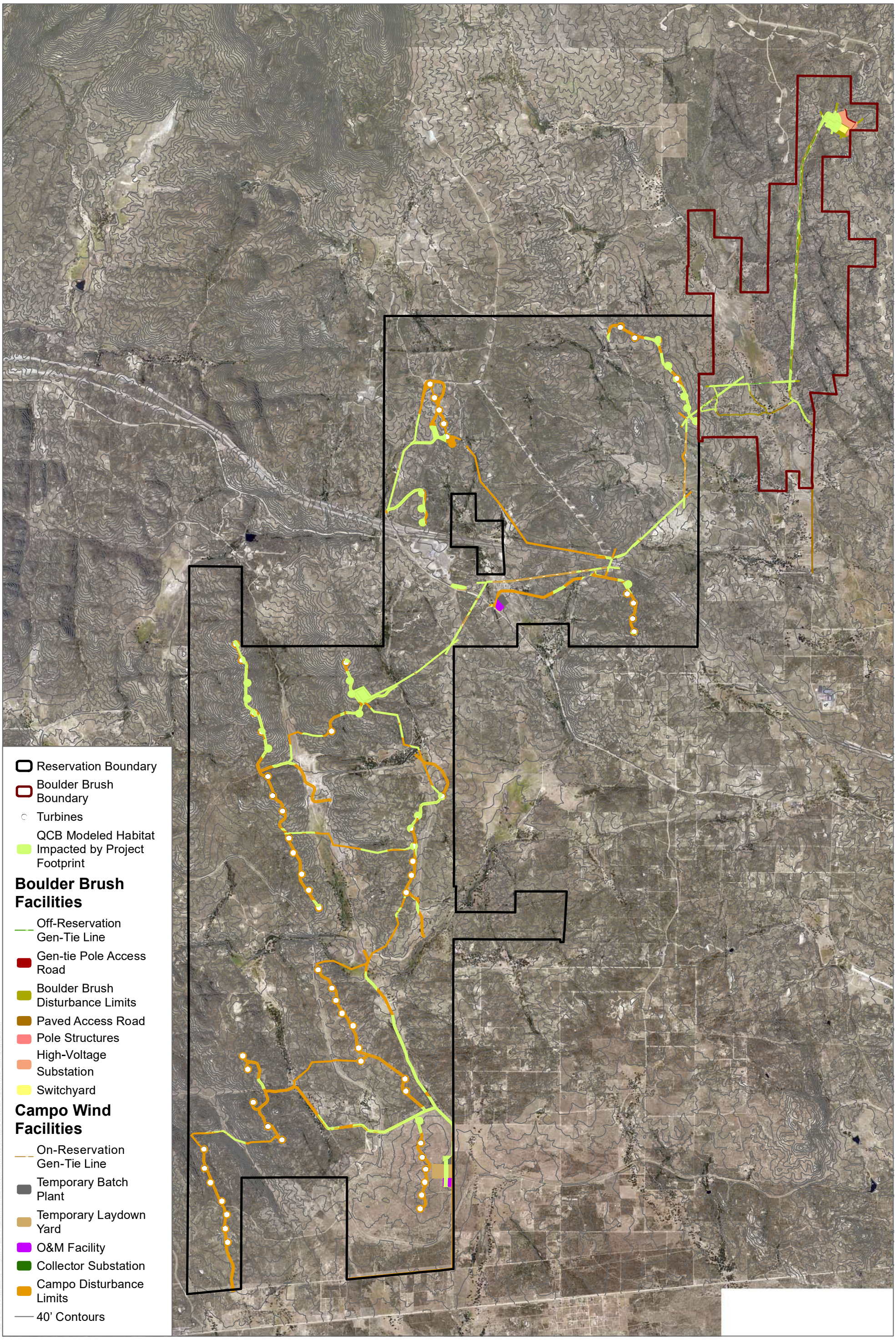
DUDEK

0 2,300 4,600 Feet

FIGURE 6

Quino Checkerspot Butterfly1 km Modeled Habitat

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017

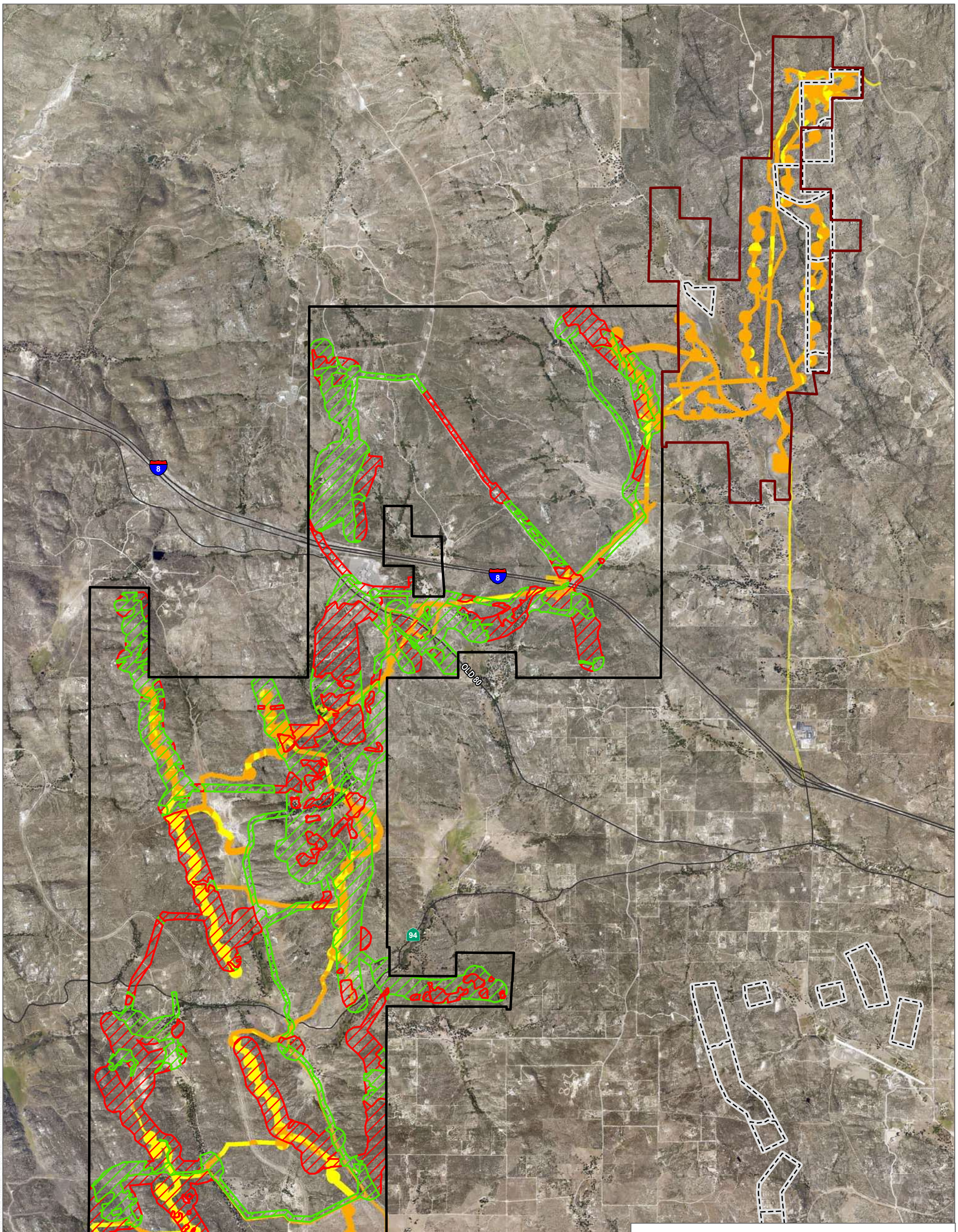
DUDEK

0 2,150 4,300 Feet

FIGURE 7

Impacts to Potentially Suitable Quino Checkerspot Surveyed Areas

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017; USGS 2018

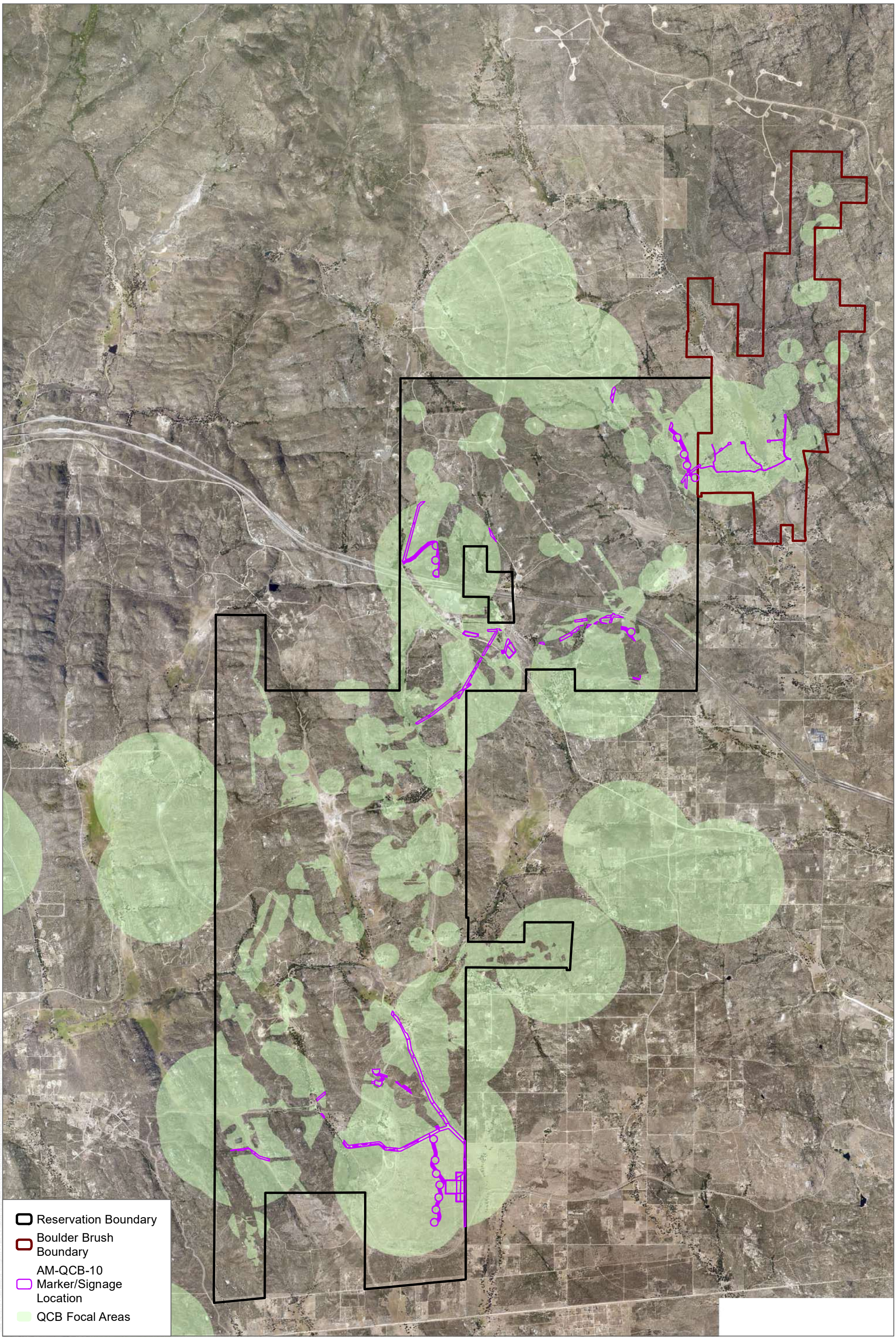
DUDEK

0 2,050 4,100 Feet

FIGURE 8

2010, 2011, and 2018 Quino Checkerspot Butterfly Survey Areas

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities



SOURCE: SANGIS 2017; AECOM 2010

DUDEK

0 2,300 4,600 Feet

FIGURE 9

AM-QCB-10 Marker/Signage Location Map

Biological Assessment for the Campo Wind Project with Boulder Brush Facilities