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Tule Wind Project Habitat Restoration Plan

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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
APM	Applicant Measure(s)
BLM	Bureau of Land Management
BMP	Best Management Practice(s)
BTM	Biological Technical Memorandum
BTR	Biological Technical Report
Cal-IPC	California Invasive Plant Council
CDFA	California Department of Food and Agriculture
CMR	Construction Monitoring Report
County	County of San Diego
ESA	Environmentally Sensitive Areas
°F	degrees Fahrenheit
FEIR/EIS	Final Environmental Impact Report/Environmental Impact Statement
GPS	Global Positioning System
HDR	HDR Engineering, Inc.
HELIX	HELIX Environmental Planning, Inc.
kV	kilovolt
LLC	Limited Liability Corporation
MBTA	Migratory Bird Treaty Act
MET	Meteorological
MM	Mitigation Measure(s)
MSDS	Material Safety Data Sheets
MUP	Major Use Permit
NA	not available
NRCC	National Resources Conservation Council
O&M	Operation and Maintenance
Owner	Tule Wind LLC
Plan	Habitat Restoration Plan
PUP	Pesticide Use Permit
QAC	Qualified Applicator Certificate
QAL	Qualified Applicator License
ROW	right-of-way
RPO	Resource Protection Ordinance

SDG&E	San Diego Gas & Electric
SWPPP	Stormwater Pollution Prevention Plan
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WCM	Weed Control Manager
WRCC	Western Regional Climate Center

GLOSSARY OF MAJOR TERMS

Construction: Includes the time period from when the first initial ground disturbance activities begin on site until the end of the project's revegetation installation period. The beginning of the 5-year maintenance and monitoring period coincides with the end of the construction phase for the Tule Wind Project (Project). In general, the phases of work outlined in this Habitat Restoration Plan (Plan) that are part of construction will occur in the following order: initial ground disturbance, project design feature installation, site reclamation, and revegetation installation. Revegetation installation will be the final phase of construction. Once the entire site has undergone revegetation installation and been approved by the Bureau of Land Management (BLM), construction will end and the 5-year maintenance and monitoring period will begin. The County of San Diego (County) will also approve installation of the restoration effort prior to the beginning of the 5-year maintenance and monitoring period on County lands.

Construction Areas: Includes temporary and permanent impact areas throughout the project site. Fuel modification zones are not included as construction areas.

Five-year Maintenance and Monitoring Period: The 5-year restoration period that begins at the completion of construction. The 5-year maintenance and monitoring period includes the site maintenance work that includes control of non-native weed species and supplemental restoration activities (described in Section 6.0 of this Plan). The 5-year maintenance and monitoring period includes the monitoring and reporting work during the restoration, including maintenance monitoring work, annual technical monitoring, and the reporting that are described in Section 7.0 of this Plan.

Fuel Modification Zones: The term used throughout this Plan to describe the collective areas in which management of vegetation must occur to meet the requirements of the Fire Protection Plan (RC Biological Consulting, Inc. 2011). Fuel modification zones include defensible space areas around structures where vegetation type, spacing, and height configurations must be consistent with fire agency standard practices. Fuel modification zones also includes areas adjacent to permanent access roads for proposed facilities where high fuel vegetation must cover less than 50 percent of an area.

Habitat Restoration: The term that defines all aspects during pre-disturbance, construction, and 5-year maintenance and monitoring that are beneficial to the overall goal of meeting success criteria outlined in Section 8.0 to revegetate the project site with native plants while controlling non-native plant species. Tule Wind Project restoration implementation activities include topsoil and cactus salvage, erosion control, site reclamation, revegetation, and non-native plant control.

Initial Ground Disturbance: Includes mowing, clearing, grading, grubbing, mulching, cactus salvage, and topsoil salvage in areas previously undisturbed by such activities.

Permanent Disturbance: Areas disturbed during project design feature installation that will not be revegetated according to the methods outlined in this plan. Permanent disturbance areas include the footprints of structures associated with project design features. Permanent disturbance areas will either be a developed area with a structure in place, a permanently

developed surface area such as a road or work yard that will be left void of vegetation, or an area around a structure revegetated for defensible space, such as the 200-foot radius around turbines. Defensible space area planting efforts will be in accordance with the Fire Protection Plan (RC Biological Consulting, Inc. 2011) and are not outlined in this plan.

Pre-disturbance Condition: The condition of the project site as it was prior to any initial ground disturbance activities taking place on site.

Prior to Initial Ground Disturbance: Any work on site prior to the construction period and shall not involve initial ground disturbance such as installation of staking and implementation of initial weed abatement (within 45 days of initial ground disturbance).

Project Design Features: Features and/or structures that will be permanently installed during construction for use during operation of the project. These include wind turbines, permanent access roads, overhead and underground collection lines, operations and maintenance facilities, collector substation, overhead transmission lines, and met towers.

Project Design Feature Installation: Activities of the project construction that relate directly to the installation of project design features, including but not limited to, wind turbines, access roads, collection and transmission lines, street improvements, operations and maintenance (O&M) facilities, batch plant, and substation. These components are directly required by a fully-functioning wind facility and are not included to assist in the habitat restoration component of the project. Activities included in project design feature installation include, but are not limited to, grading, blasting, excavating, turbine erection, foundation installation, trenching, collection line installation, and installation of wind turbine, substation, and other project components.

Restoration Areas: Temporarily disturbed areas throughout the project site that are being revegetated to meet the success criteria outlined in Section 8.0 of this Plan.

Revegetation Installation: The phase of the project during construction that follows site reclamation. Revegetation installation will include the planting of salvaged cacti and succulents and seeding. Additional revegetation activities may occur during the 5-year maintenance and monitoring period in order to meet success criteria if initial site revegetation installation is deemed insufficient.

Site Reclamation: The phase of the project that is set to occur following completion of project design feature installation. Site reclamation includes decompaction, recontouring, and application of salvaged topsoil.

Temporarily Disturbed Areas: The collective term for areas of disturbance not occupied by permanent project features.

EXECUTIVE SUMMARY

Tule Wind LLC, a wholly-owned subsidiary of Iberdrola Renewables, LLC, has received approval from the Bureau of Land Management (BLM) and County of San Diego (County) to construct, operate, maintain, and decommission the Tule Wind Project (project). The project is located within a 12,200-acre approved Right-of-Way (ROW), 730 acres of private easement property, and approximately 6 acres under an easement with the State of California, acting by and through its Director of the Department of General Services, with the approval of the California Department of Corrections and Rehabilitation (hereinafter “the State”). The project is located near the community of Boulevard, San Diego County, California. Construction of the project will result in temporary and permanent impacts to vegetation communities and wildlife habitat. Temporarily disturbed areas (areas of disturbance not occupied by permanent project features) will be revegetated with native California plant species to compensate for these construction impacts and to meet regulatory agency requirements.

This document provides a restoration and monitoring plan for the Tule Wind Project and provides a description of the restoration activities to be conducted by Tule Wind LLC on BLM, State, and private lands within the project footprint that will be temporarily disturbed by project activities associated with the portion of the project approved by the BLM ROW grant and County Major Use Permit (MUP). This Habitat Restoration Plan (Plan) has been prepared to guide the restoration of native habitat and to reduce the potential for non-native plant establishment. The Plan incorporates elements of noxious weeds and invasive species control to assist in restoring the temporarily disturbed areas to their prior vegetated state and reduce the possibility of establishment of non-native plant species. Restoration techniques and procedures for the areas that will be temporarily impacted are discussed herein to provide guidelines to Tule Wind LLC personnel to properly and effectively determine the appropriate methods, species, and techniques to re-establish the native vegetation communities. The Plan provides direction to restore approximately 270.39 acres of natural vegetation that will be temporarily impacted by implementation of the project (219.41 acres on BLM land, 48.76 acres on County land, 2.22 acres within State/Right-of-Way land). Site restoration will consist of topsoil salvage, erosion control, landscape recontouring, native plant seeding, cacti salvage and translocation, non-native plant control, and potential irrigation and/or application of soil amendments and remediation, if necessary. The primary objective for the weed management components of this Plan are identifying, treating, and monitoring non-native species within the project area. Activities outlined in the Plan will be incorporated prior to initial ground disturbance, during initial ground disturbance and project design feature installation phases, and during reclamation and revegetation phases, and will include maintenance and monitoring to determine the success of restoration effort during the 5-year maintenance and monitoring phase. This plan also discusses implementation of the long-term weed management efforts following the 5-year maintenance and monitoring phase.

This Plan is subject to change based on the final design of the project and extent of disturbance.

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1.0 PURPOSE OF PLAN

The purpose of this Habitat Restoration and Weed Management Plan (Plan) is to outline a restoration approach for temporarily disturbed habitat on Bureau of Land Management (BLM; 219.41 acres) land, as well as State and private (50.98 acres) land. The Plan also outlines a weed management approach for both temporary and permanent impact areas. The goal of the plan is to describe the processes and techniques required to re-establish native vegetation communities similar to those present in the temporarily disturbed areas prior to disturbance and the surrounding undisturbed areas. For purposes of this Plan, “temporarily disturbed areas” is the collective term for areas of disturbance not occupied by permanent project features, “restoration” is the process of re-establishing native vegetation communities within temporary disturbance areas similar to those present prior to disturbance and the surrounding undisturbed areas, and “restoration area” is the area encompassing all temporarily disturbed areas in which restoration will occur. Mitigation for permanent impacts to vegetation/habitat is addressed separately in the Conceptual Habitat Mitigation Plan (Tule Wind, LLC., 2014). The Owner, Tule Wind LLC, is committed to avoiding or minimizing project-related environmental effects to the greatest extent feasible. The environmental impacts of the project were analyzed as part of the *East County Substation/Tule Wind/Energia Sierra Juárez Gen-Tie Project Final Environmental Impact Report and Final Environmental Impact Statement* (FEIR/FEIS) [Dudek 2011]. As part of the FEIR/EIS, mitigation measures (MMs), applicant measures, and project best management practices (BMPs) were identified to reduce project impacts to natural resources. These measures include, but are not limited to: habitat restoration in temporarily disturbed areas, conservation and reuse of native topsoil, and revegetation with appropriate seed mixes. Upon completion of the project design feature installation (permanent structures), Tule Wind LLC will restore vegetation to as close to pre-disturbance conditions as possible by meeting the final revegetation success criteria established in this Plan. The exception will be those revegetated areas that occur within fuel modification zones, where vegetative cover restrictions limit total vegetative cover to 50 percent.

This Plan has been prepared for the BLM and County of San Diego (County) as a condition of the Right-of-Way (ROW) Grant dated April 10, 2012, and Major Use Permit (MUP) dated August 8, 2012, for the Tule Wind Project. These conditions are identified as:

Bureau of Land Management Right-of-Way Grant Stipulation Number

13. Restore all temporary construction areas pursuant to a Habitat Restoration Plan (see page 1). All temporary work areas not subject to long-term use or ongoing vegetation maintenance shall be revegetated with native species characteristic of the adjacent native vegetation communities in accordance with a Habitat Restoration Plan (p. 1). A habitat restoration specialist will be designated and approved by the BLM and will determine the most appropriate method of restoration (p. 11). Restoration techniques may include the following: hydroseeding, hand-seeding, imprinting, and soil and plant salvage (p. 27-41). Any salvage and relocation of species considered desert native plants shall be conducted in compliance with the California Desert Native Plants Act (p. 27-29). The Habitat Restoration Plan shall include success criteria and monitoring specifications and shall be approved by the permitting agencies prior to construction of the project (p. 50-55). At the

completion of project construction, all construction materials shall be completely removed from the site (p. 30). All temporary construction access roads shall be permanently closed and restored (p. 31-33). Topsoil located in areas to be restored will be conserved and stockpiled during the excavation process for use in the restoration (p. 29-30). Wherever possible, vegetation would be left in place to avoid excessive root damage to allow for natural recruitment following construction (p. 30). Temporary impacts shall be restored sufficient to compensate for the impact to the satisfaction of the BLM (p. 55). If restoration of temporarily disturbed areas is not possible to the satisfaction of the BLM, the temporary impact shall be considered a permanent impact and compensated accordingly (p. 55; also see MM BIO-1d).

17. Implement habitat creation, enhancement, preservation, and/or restoration pursuant to a wetland mitigation plan to ensure no net loss of jurisdictional waters and wetlands. Temporary and permanent impacts to all jurisdictional resources shall be compensated through a combination of habitat creation (i.e., establishment), enhancement, preservation, and/or restoration at a minimum of a 1:1 ratio or as required by the permitting agencies. Any creation, enhancement, preservation, and/or restoration effort shall be implemented pursuant to a Habitat Restoration Plan, which shall include success criteria and monitoring specifications and shall be approved by the permitting agencies prior to construction of the project (p. 1, 50-55). A habitat restoration specialist will be designated and approved by the permitting agencies and will determine the most appropriate method of restoration (p. 11). Restoration techniques may include hydroseeding, hand-seeding, imprinting, and soil and plant salvage (p. 27-41). Temporary impacts shall be restored sufficient to compensate for the impact to the satisfaction of the BLM (p. 55). If restoration of temporary impact areas is not possible to the satisfaction of the BLM, the temporary impact shall be considered a permanent impact and compensated accordingly. All habitat creation and restoration used as mitigation for the Proposed Project on public lands shall be located in areas designated for resource protection and management. All habitat creation and restoration used as mitigation for the Proposed Project on private lands shall include long-term management and legal protection assurances (p. 56-57; also, see MM BIO-2b).

19. Prepare and implement a Noxious Weeds and Invasive Species Control Plan. A Noxious Weeds and Invasive Species Control Plan has been prepared by HDR Engineering, Inc. (HDR) and shall be reviewed by the responsible agencies (2011c). On BLM lands, the plan shall be consistent with an Integrated Pest Management approach per the *Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report* (BLM 2007b) (p. 41-48). The plan shall be implemented during all phases of project construction and operation. The plan shall include BMPs to avoid and minimize the direct or indirect effect of the establishment and spread of invasive plant species during construction (p. 22-24).

Implementation of specific protective measures shall be required during construction, such as cleaning vehicles prior to off-road use, using weed-free imported soil/material, restricting vegetation removal, and requiring topsoil storage (p. 22-24). Development and implementation of weed management procedures shall be used to monitor and control the

spread of weed populations along the construction access and transmission line ROWs (p. 22-24). Vehicles used in transmission line construction shall be cleaned prior to operation off of maintained roads (p. 22-24). Except as required to comply with Biological Opinion Condition 6, or as provided in the Environmental and Construction Compliance Monitoring Program variance process, existing vegetation shall be cleared only from areas scheduled for immediate construction work and only for the width needed for active construction activities (p. 22-24). Noxious weed management shall be conducted annually to prevent the establishment and spread of invasive plant species (p. 44). This shall include weed abatement efforts targeted at plants listed as invasive exotics by the California Exotic Plant Pest Council in their most recent “A” or “Red Alert” list (p. 19). Only herbicides approved by BLM in California will be used on BLM lands (p. 19-20). Herbicide application can only occur on BLM lands with an approved Pesticide Use Proposal (PUP) (p. 20). Pesticide use should be limited to non-persistent pesticides and should only be applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications (p. 19-20).

Note: A separate Noxious Weeds and Invasive Species Control Plan will not be prepared.

110. Prepare a Disturbed Area Revegetation Plan. All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access ROW will be provided native plant restoration in order to prevent non-native, weedy plants from establishing. Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis. Mitigation Measure FF-7 corresponds with MM BIO-1d and is not a duplicative plan but will be implemented under the biological monitoring program. It directs that the temporary disturbance areas will be revegetated with native plants common to the area through direction detailed in a Habitat Restoration Plan. The Habitat Restoration Plan will be prepared to restore native habitat and to reduce the potential for non-native plant establishment. The restoration plan will incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and lessen the possibility of establishment of non-native, flammable plant species. A copy of the Habitat Revegetation Plan will be provided to the BLM. In addition, prior to the termination of the ROW authorization, a decommissioning plan will be developed and approved by the BLM and other agencies having jurisdiction. The decommissioning plan will include a site reclamation plan and monitoring program. As the wind facility is removed from the site, topsoil from all decommissioning activities will be salvaged and reapplied during final reclamation. All areas of disturbed soil will be reclaimed to native habitat conditions found naturally in the area (see MM FF-7).

Note: A separate Decommissioning Plan will be developed for this project. Components of this Habitat Restoration Plan may be used as referenced in the Decommissioning Plan.

San Diego County Major Use Permit Number

35. BIO-2B – Wetland Mitigation Plan: [DPLU]

INTENT: In order to ensure no net loss of Resource Protection Ordinance (RPO) wetland, the applicant shall implement habitat creation, enhancement, preservation, and/or restoration pursuant to a wetland mitigation plan. **DESCRIPTION OF REQUIREMENT:** Temporary and permanent impacts to all jurisdiction resources shall be compensated through a combination of habitat creation (i.e., establishment), enhancement, preservation, and/or restoration. Mitigation for impacts to acres of RPO wetlands shall be mitigated at a 3:1 ratio (0.57 acre) including a minimum of 0.05 acre of creation, 0.14 acre of restoration, and 0.38 acre of preservation/enhancement of existing RPO wetlands. Any creation, enhancement, preservation, and/or restoration effort shall be implemented pursuant to a Revegetation Plan, which shall include success criteria and monitoring specifications and shall be approved by the County prior to construction of the project. A habitat restoration specialist will be designated and approved by the permitting agencies and will determine the most appropriate method of restoration. Restoration techniques may include hydroseeding, hand-seeding, imprinting, and soil and plant salvage. All habitat creation and restoration used as mitigation for the Proposed Project on public lands shall be located in areas designated for resource protection and management. All habitat creation and restoration used as mitigation for the Proposed Project on private lands shall include long-term management and legal protection assurances. **DOCUMENTATION:** The applicant shall prepare and provide a Habitat Restoration Plan and Habitat Mitigation Plan which specifies success criteria and long-term management assurances and legal protection mechanisms. **TIMING:** Habitat mitigation lands shall be identified and submitted for approval prior to approval of any plan or issuance of any permit, and prior to use of the premises in reliance of this permit. Mitigation lands shall be acquired and a Long-term Management Plan and draft preservation mechanism shall be submitted for approval within 6 months of receiving concurrence that the proposed mitigation is acceptable. A Habitat Restoration Plan and Habitat Mitigation Plan shall be approved by the County prior to approval of any plan or issuance of any permit, and prior to use of the premises in reliance of this permit. Creation and enhancement shall be implemented during the first rainy season following the plan approval. Restoration of temporary impacts shall be implemented during the first rainy season following project completion. **MONITORING:** The County shall review the Habitat Restoration and Habitat Mitigation Plans to ensure that all wetland habitat creation, enhancement, preservation, and/or restoration pursuant to a wetland mitigation plan have been implemented.

Note: There are no temporary impacts to RPO waters and wetlands associated with construction. While no RPO impacts will occur, the required RPO conditions must still be met. Satisfaction of the habitat enhancement and creation required by this condition will be addressed in the Habitat Mitigation Plan.

39. BIO-3A – Noxious Weeds and Invasive Species Control Plan: [DPLU]

INTENT: In order to avoid and minimize the direct or indirect effect of the establishment and spread of invasive plant species during construction, implementation of specific protective measures as detailed in a Noxious Weeds and Invasive Species Control Plan shall be required during construction. DESCRIPTION OF REQUIREMENT: The Noxious Weeds and Invasive Species Control Plan shall be implemented during all phases of project construction and operation. The plan shall include BMPs to avoid and minimize the direct or indirect effect of the establishment and spread of invasive plant species during construction (p. 22-24). Implementation of specific protective measures shall be required during construction, such as cleaning vehicles prior to off-road use, using weed-free imported soil/material, restricting vegetation removal, and requiring topsoil storage (p. 22-24). Development and implementation of weed management procedures shall be used to monitor and control the spread of weed populations along the construction access and transmission line ROWs (p. 22-24). Vehicles used in transmission line construction shall be cleaned prior to operation off of maintained roads (p. 22-24). Existing vegetation shall be cleared only from areas scheduled for immediate construction work and only for the area needed for active construction activities (p. 19-20). Noxious weed management shall be conducted annually to prevent the establishment and spread of invasive plant species (p.44). This shall include weed abatement efforts targeted at plants listed as invasive exotics by the California Exotic Plant Pest Council in their most recent "A" or "Red Alert" list (p. 19). Pesticide use should be limited to non-persistent pesticides and should only be applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications (p. 19-20). DOCUMENTATION: The Noxious Weeds and Invasive Species Control Plan shall be prepared and successfully implemented. TIMING: Prior to approval of any grading and or improvement plans and issuance of any grading or construction permits, the Noxious Weeds and Invasive Species Control Plan shall be provided to the County for review and approval. The Noxious Weeds and Invasive Species Control Plan shall be implemented throughout construction and throughout operations. MONITORING: The County shall ensure that the plan is implemented throughout the construction and operation period.
Note: This Plan includes the components of the Noxious Weeds and Invasive Species Control Plan, which fulfills this condition. A separate Noxious Weeds and Invasive Species Control Plan will not be prepared.

48. FF, BIO-1D and VIS-3E – Revegetation Plan: [DPLU]

INTENT: In order to prevent non-native, weedy plants from establishing and reducing erosion, all areas disturbed during construction that will not be continuously included in the long-term maintenance access shall be revegetated. DESCRIPTION OF REQUIREMENT: All areas disturbed during construction activities that will not be continuously included in the long-term maintenance access shall be restored with native plants to prevent non-native, weedy plants from establishing and to reduce erosion (p. 20-21). Disturbed areas that will be included in the long-term maintenance program will not be revegetated as any plants that establish in these areas will be removed on an ongoing (at least annual) basis. The Revegetation Plan shall be prepared to restore native habitat

and reduce the potential for non-native plant establishment and erosion (p. 1). The Revegetation Plan shall incorporate a Noxious Weeds and Invasive Species Control Plan to assist in restoring the construction area to the prior vegetated state and reduce erosion (p. 1). The Revegetation Plan shall be provided to the County for review and approval. In addition, prior to the termination of the project, a decommissioning plan shall be developed and approved by the County. The decommissioning plan shall include a site reclamation plan and monitoring program. As the facility is removed from the site, topsoil from all decommissioning activities shall be salvaged and reapplied during final reclamation. All areas of disturbed soil shall be reclaimed to native habitat conditions found naturally in the area. Upon approval by the Department of Planning and Land Use, mitigation credit may be applied at a maximum 1:1 ratio (or 0.5:1 ratio where required by the habitat type) for revegetation completed in areas which will not be subject to ongoing maintenance or future impacts. Credit received for revegetation in these areas would account for portions of the required mitigation in Condition BIO-1E. DOCUMENTATION: The applicant shall provide a copy of the Revegetation Plan to the County for review and approval. The applicant shall also provide documentation detailing the types and amounts of habitat impacted in the revegetation areas (not subject to future impacts) and the amount of credit to be applied at a 1:1 (or 0.5:1) ratio toward satisfying Condition BIO-1E. TIMING: Prior to approval of any grading and or improvement plans and issuance of any grading or construction permits, the Revegetation Plan shall be provided to the County for review and approval. Re-vegetation shall be initiated at earliest opportunity upon completion of soil-disturbing activities. MONITORING: The County shall review the Revegetation Plan and ensure its implementation.

Note: This Plan fulfills the Revegetation Plan component of this condition.

1.1 GOALS AND OBJECTIVES

The goal of the restoration effort is to re-establish native vegetation communities similar to those present in the temporarily disturbed areas prior to disturbance and present in the surrounding undisturbed areas. This will be accomplished by completing the following objectives:

1. Recontour the restoration area to blend with adjacent, undisturbed topography.

This will occur prior to implementation of items mentioned in Objective No. 2. The Restoration Specialist will oversee recontouring activities and work with all relevant personnel to ensure compliance with this objective.

2. Promote native plant growth.

Baseline data collection in vegetation communities throughout the project area will be used to determine if the restoration area is on track to meet this objective. Data collection methods and timing are discussed in detail in Section 5.2.1.1.

A framework for tracking the execution and success of the restoration effort will be provided in this Plan, which presents realistic goals for native vegetative cover within the restoration area over a 5-year period or until performance criteria are met. This Plan also presents strategies for achieving those criteria, provides environmental context for the

restoration area, establishes monitoring guidelines, and establishes a basis for weed management within the restoration area.

3. Manage non-native species.

The primary objective of the weed management components of this Plan is to outline methodology for identifying, treating, and monitoring noxious weeds and non-native species within the project footprint. Included in this report is a list and assessment of non-native species identified on site during surveys, a list of target weeds that will be controlled, survey methods for identifying weeds during construction and operations, weed control methods, and reporting requirements. Considerations may be made for species that are widespread and naturalized where control may be impractical (e.g., *Erodium cicutarium*, *Schimus* spp.) When evaluating weeds within the project footprint, the appropriate management objectives will be identified as necessary.

Weed management objectives for the project footprint include the following:

- **Suppression:** Reduce current weed densities. This control method would not necessarily reduce the total area or boundary of weed infestations.
- **Containment/Prevention:** Prevent weed expansion and spread. This control method focuses on inhibiting the spread of weeds until suppression can be implemented.

1.2 RESPONSIBLE PARTIES

This section outlines the parties responsible for funding, managing, implementing, maintaining, monitoring, and reporting on the project components specified in this Plan.

Project Owner: Tule Wind LLC (Owner) will be responsible for funding, managing, and implementing components of this Plan. The Owner will be responsible for contracting with personnel qualified in the implementation, maintenance, and monitoring of restoration, as described in this Plan. Owner will be responsible for performing the restoration effort and achieving establishment success. Owner will contract a qualified Restoration Specialist, who will be approved by the BLM and County, and a team of environmental monitors who will be responsible for monitoring non-native species control, initial ground disturbance, project design feature installation, site reclamation, and revegetation efforts in order to meet overall success criteria as set forth in Section 8.0. Owner will also contract with Installation and Maintenance Contractors and a Weed Control Manager (WCM) who will be responsible for implementing certain plan components, as described individually in this section below. Table 1 includes a mitigation plan checklist of personnel assigned duties in this plan. All reports and deliverables to be completed by the Restoration Specialist, environmental monitors, Installation and Maintenance Contractors, and the WCM will be submitted directly to Owner for review. During construction, Owner will also manage a file containing daily Construction Monitoring Reports (CMRs) and vehicle wash logs in accordance with this Plan. These reports will be kept on site and available for review by the BLM and County upon request. During construction, reports from individual contractors will be sent to Owner on a regular basis (frequency will depend on

the type of report) and will be stored electronically by Owner. In order to allow for weed abatement to occur pre-construction as outlined in Section 5.2.1.2, the Owner must notify the BLM and County 45 days prior to the start of ground disturbance. The Owner will also ensure that annual assessments of the restoration effort are conducted and annual reports are submitted to the appropriate agencies each year during the 5-year maintenance and monitoring period. The Owner will be responsible for implementing the requirements for long-term maintenance and monitoring during operation.

**Table 1
RESTORATION PLAN CHECKLIST**

CONSTRUCTION PHASE	RESTORATION TASK	APPLICABLE PARTIES							
		Owner	Restoration Specialist (RS)	Environmental Monitors	Installation Contractor(s)	Maintenance Contractor	Weed Control Manager (WCM)	3 rd Party Enviro. Compliance Monitor	Resource Agencies
General	Designate applicable parties implementing plan	X							
	Approve the RS and WCM								X
Weed Prevention/ Equipment Cleaning	Ensure workers undergo WEAP training	X							
	Ensure heavy equipment is cleaned	X		X*	X				
	Purchase weed-free products				X				
Prior to Initial Ground Disturbance	Initiate weed abatement activities	X					X		
	Collect baseline data along transects		X						
	Submit pre-installation report		X						
Initial Ground Disturbance	Flag/GPS temp. storage areas for salvaged plants		X	X					
	Topsoil salvage		X*	X*	X			X*	
	Cacti and plant salvage		X*	X*	X			X*	
Site Reclamation	Recontouring		X*	X*	X			X*	
	Decompaction		X*	X*	X			X*	
	Reapplication of topsoil		X*	X*	X			X*	
Revegetation Installation	Determine seeding method	X	X						
	Submit Revegetation Installation report		X						
	Weed Abatement		X*	X*			X		
	Cacti and plant installation		X*	X*	X			X*	
	Native seed collection and installation		X*	X*	X			X*	
	Approve changes to revegetation implementation								X
5 Year Maintenance & Monitoring Period	Maintain site for minimum of 5 years and beyond until signoff by resource agencies		X*			X	X		
	Prepare annual monitoring report		X						
Long Term Maintenance	Site Monitoring	X							
	Non-native species control	X							

*Monitoring work related to this task
Daily Construction Monitoring Reports (CMRs) would be required of environmental monitors throughout initial ground disturbance through site reclamation.
Additional reporting procedures are listed in the applicable sections of the report.

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Restoration Specialist: Overall monitoring and supervision of construction, including baseline data collection, initial ground disturbance, site reclamation, vegetation installation, maintenance, and monitoring as it relates to restoration implementation of this Plan will be the responsibility of a Restoration Specialist. The Restoration Specialist will be an individual experienced with habitat restoration in similar environmental settings, designated by the Owner and approved by the BLM. The Restoration Specialist should hold at a minimum a Bachelor of Science or Bachelor of Arts degree in ecology, botany, biology, landscape maintenance, range management, or related field, and at least three years of experience in native habitat restoration in southern California, preferably San Diego County. Owner will submit proposed Restoration Specialist and qualifications to the BLM for approval 30 days ahead of first restoration activities. The Restoration Specialist will report directly to the Owner. The Restoration Specialist will monitor and provide oversight for the implementation of all phases included in this Plan, for both BLM and County lands.

Prior to initial ground disturbance activities, the Restoration Specialist will oversee baseline data collection surveys and establish transects and photo documentation points to be used throughout the construction and 5-year maintenance and monitoring periods. A baseline data collection report will be submitted by the Restoration Specialist to the BLM, County, and Owner for approval. During construction, the Restoration Specialist will coordinate with a team of environmental monitors, collect CMRs from environmental monitors, and submit these reports to the Owner. The Restoration Specialist will be responsible for preparing and submitting Installation Reports during and following completion of site reclamation and revegetation events throughout the entire project area. The Restoration Specialist will prepare and submit annual reports during the 5-year maintenance and monitoring effort for both BLM and County restoration areas. Specific responsibilities of the Restoration Specialist in accordance with this Plan include but are not limited to:

- Managing and reporting the schedule of restoration activities;
- Educating all participants with regard to mitigation goals and requirements;
- Overseeing construction and maintenance activities including non-native species control, initial ground disturbance, site reclamation, revegetation installation, weed control, and 5-year maintenance;
- Preparing reports on implementation monitoring, including reports on maintenance and monitoring tasks, to Maintenance Contractor and Owner (as necessary);
- Conducting annual assessments of the restoration effort and preparing and submitting an annual report to the appropriate agencies each year during the 5-year maintenance and monitoring period; and
- Ensuring that the activities listed in the plan occur according to the schedule and within the requirements of all applicable Project permits.

Different Restoration Specialists may be used during different phases of restoration if approved with the BLM in accordance with this Plan. Changes to the Restoration Specialist will be approved by the BLM in concert with the County of San Diego to ensure consistency in reporting and monitoring efforts throughout the life of the project.

Environmental Monitors: A team of environmental monitors will work with the designated Restoration Specialist to implement monitoring activities during construction in accordance with this Plan. The environmental monitors will be on site as needed during project construction to ensure that the components of this Plan are implemented. During construction, including site reclamation and revegetation installation phases, each environmental monitor on site will complete daily CMRs that will detail the activities monitored.

Installation Contractor(s): The Installation Contractor(s) will be contracted by and under the direction of the Owner. Different contractors may be used to implement different phases of the project as outlined in this Plan, and shall have prior experience implementing their respective phase of work. Phases of this Plan to be performed by Installation Contractors are as follows: cacti and plant salvage, site grubbing, topsoil salvage, site reclamation (including recontouring, decompaction, and reapplication of topsoil), and revegetation installation (including cacti and plant installation, native seed collection and application, and selective supplemental watering if needed). The Installation Contractor(s) will report directly to the Owner and will receive oversight and direction from the Restoration Specialist during implementation of this Plan. There are no written reports associated with this Plan that are required of the Installation Contractor; activities performed by the Installation Contractor(s) will be monitored by the environmental monitor(s) under direct supervision by the Restoration Specialist, and details of activities will be reported in their daily CMRs. The Owner may change Installation Contractor(s) at his discretion.

Maintenance Contractor(s): The Maintenance Contractor(s) will be designated by and under the direction of the Owner and approved by the BLM. The Maintenance Contractor(s) will be responsible for implementation of this Plan during the 5-year maintenance and monitoring program and the long-term maintenance during operations and maintenance (O&M) following the completion of the 5-year maintenance and monitoring program. Different contractors may be used to implement different phases of the project as outlined in this Plan. Activities associated with this Plan that may be performed by a Maintenance Contractor are as follows: selective supplemental watering, trash removal, non-native weed control, and reseeded as a remedial measure. The Maintenance Contractor will report directly to the Owner, but will be under specific direction of the Restoration Specialist during implementation of this Plan. The Owner may change Maintenance Contractors at his discretion.

Weed Control Manager (WCM): A WCM will be responsible for the day-to-day implementation of this Plan beginning with pre-disturbance weed abatement and continuing through 5-year maintenance and monitoring, as it relates to controlling non-native weed species. A WCM will also work beyond the 5-year maintenance and monitoring period into the long-term operations period in accordance with Section 10.0 of this Plan. A WCM will be an individual designated by the Owner and approved by the BLM. Owner to submit proposed WCM and qualifications to the BLM and County for approval 30 days ahead of first restoration activities. A WCM will work in concert with Maintenance Contractors and the Restoration Specialist to ensure implementation of this Plan. A WCM will be knowledgeable regarding the control of non-native vegetation and the difference between native and non-native plants.

Weed control will be conducted under the direction of a Qualified Applicator License (QAL) or Qualified Applicator Certificate (QAC) holder, as appropriate. During the application period, the

WCM will submit weekly reports of herbicides used to control weeds on BLM lands to the BLM. The WCM will update the Owner on a regular basis regarding scheduling and completion of weed control activities on site. Following the completion of the 5-year maintenance and monitoring period, the WCM will work with the Owner to remove weeds annually during prior to May 1 in accordance with the previously approved Fire Protection Plan (RC Biological Consulting, Inc. 2011). Section 10.0 outlines the weed control activities during operations beyond the initial 5-year maintenance and monitoring period.

The WCM can be either an individual or a company who specializes in weed management in natural landscape areas. Person(s) actively managing the weed control activities should meet the qualifications outlined below to the satisfaction of the Owner and the BLM.

- Have a bachelor of science or bachelor of arts degree in ecology, botany, biology, landscape maintenance, range management, or related field.
- Have a QAL and either have or contract with a State of California Pest Control Advisor license for recommendations regarding appropriate pest control methodology.
- Have at least 5 years of experience in controlling non-native plants in native habitats in southern California, preferably San Diego County.
- Have demonstrated experience in non-native plant control in natural landscapes. Expertise in identifying native and non-native plants from San Diego County.

Different WCMs may be used during different phases of restoration if approved by the BLM in accordance with this Plan. If the WCM is changed during the project, Owner shall submit WCM and qualifications to BLM and County and allow 30 days for approval.

Owner's Compliance Manager: The Owner will have a designated Compliance Manager on site during the construction period. The Owner's Compliance Manager will keep records, coordinate with all responsible parties on matters of environmental and permit compliance, attend meetings, and work with agency and third party monitors to ensure the project maintains compliance throughout construction.

BLM Environmental Compliance Monitors: BLM will contract with a third-party Environmental Compliance Monitor to oversee the implementation of this Plan during construction. The third-party Environmental Compliance Monitor will report directly to the BLM. The BLM Environmental Compliance Monitor will be on site as needed during construction to document and ensure implementation of this Plan. The Owner will work directly with the BLM Environmental Compliance Monitor to address and correct issues in the field during construction.

2.0 PROJECT DESCRIPTION

The project is located near the community of Boulevard, San Diego County, California. The project is proposed in the McCain Valley and the In-Ko-Pah Mountains, adjacent to the Tecate Divide, southeast of the Cleveland National Forest, and west of Anza Borrego State Park

(Figures 1 and 2). The project area is accessible via Interstate 8, State Route 94 and Ribbonwood Road junction, Crestwood Road, and McCain Valley Road off Old Highway 80. The project is located within a 12,200-acre approved BLM ROW, 730 acres of private easement property, and approximately 6 acres under an easement with the State of California.

The project is approved for the following components (Figure 2):

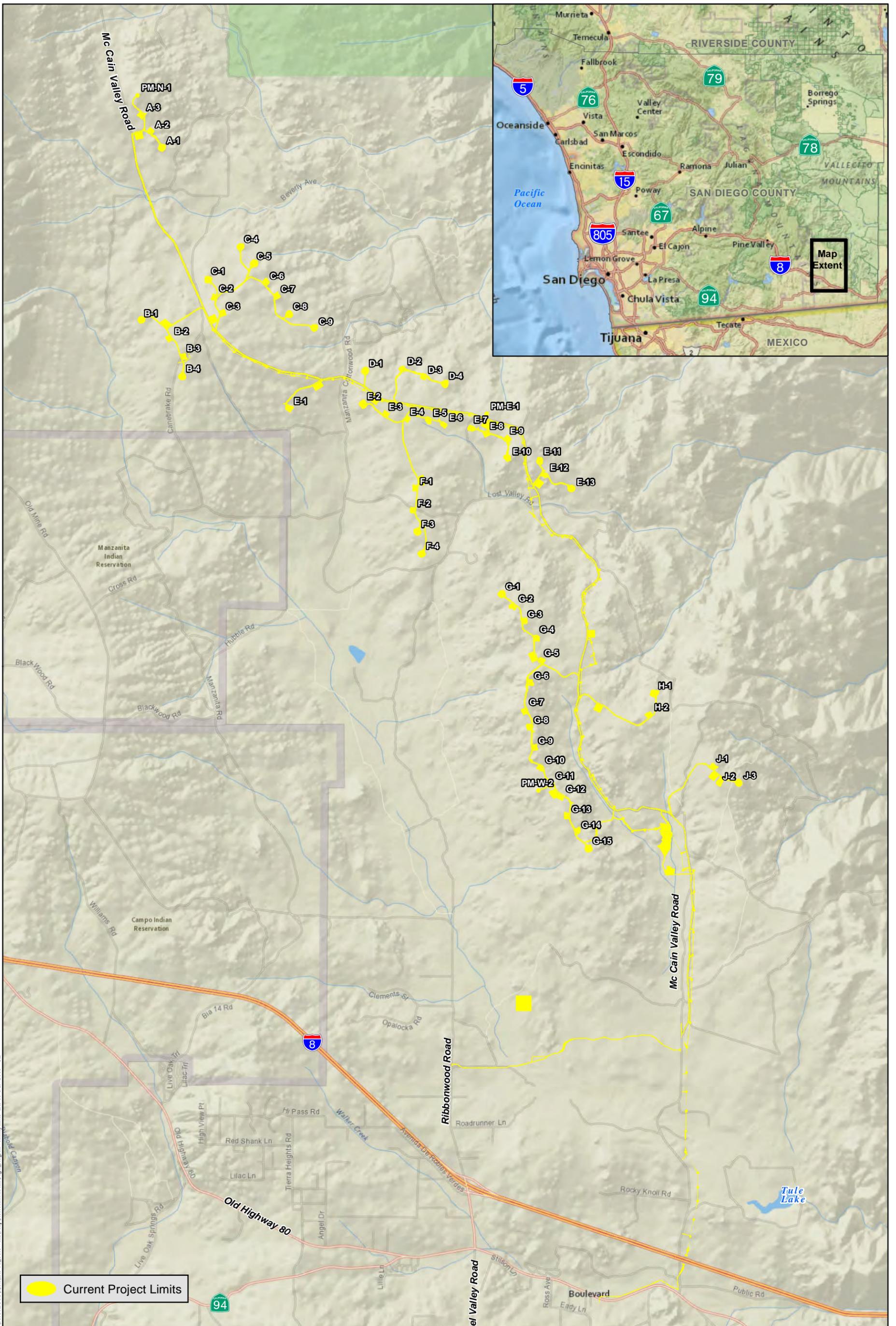
- Construction of up to 62 turbines and associated generator step-up transformers on BLM land and 5 turbines on private land under the jurisdiction of the County.
- A 34.5-kilovolt (kV) overhead and underground collector cable system linking each turbine to the next and to the project collector substation.
- A 138-kV transmission line that would run south from the project collector substation to interconnect with the San Diego Gas & Electric (SDG&E) Rebuilt Boulevard Substation.
- Construction of access roads between turbines, as well as improvements to existing roadways to accommodate construction and delivery of equipment. Roads would be open to the public except for portions during the construction period or in areas where cultural resources are located.
- A temporary 10-acre parking area.
- Twelve 2-acre temporary laydown areas.
- Permanent meteorological (MET) towers (including 2 alternative locations).

2.1 DEFINITION OF PROJECT IMPACTS AND RESTORATION AREAS

Project impacts during construction are classified as either temporary or permanent. Fuel modification zones, as outlined by the Fire Protection Plan (RC Biological Consulting, Inc. 2011), may overlap with permanently and temporarily disturbed areas (Figure 3). Fuel modification zones that overlap temporarily disturbed areas will be revegetated in accordance with this Plan. Special vegetation requirements within temporarily disturbed areas that overlap fuel modification zones will be noted throughout this Plan. Fuel modification zones that overlap permanently disturbed areas will be revegetated according to the Fire Protection Plan (RC Biological Consulting, Inc. 2011), which requires a mix of plants designed for defensible space around structures. Detailed descriptions of impact areas and fuel modification zones are provided below. The non-native and invasive species management components of this plan apply to both permanent and temporary disturbance areas, regardless of the fuel modification zones.

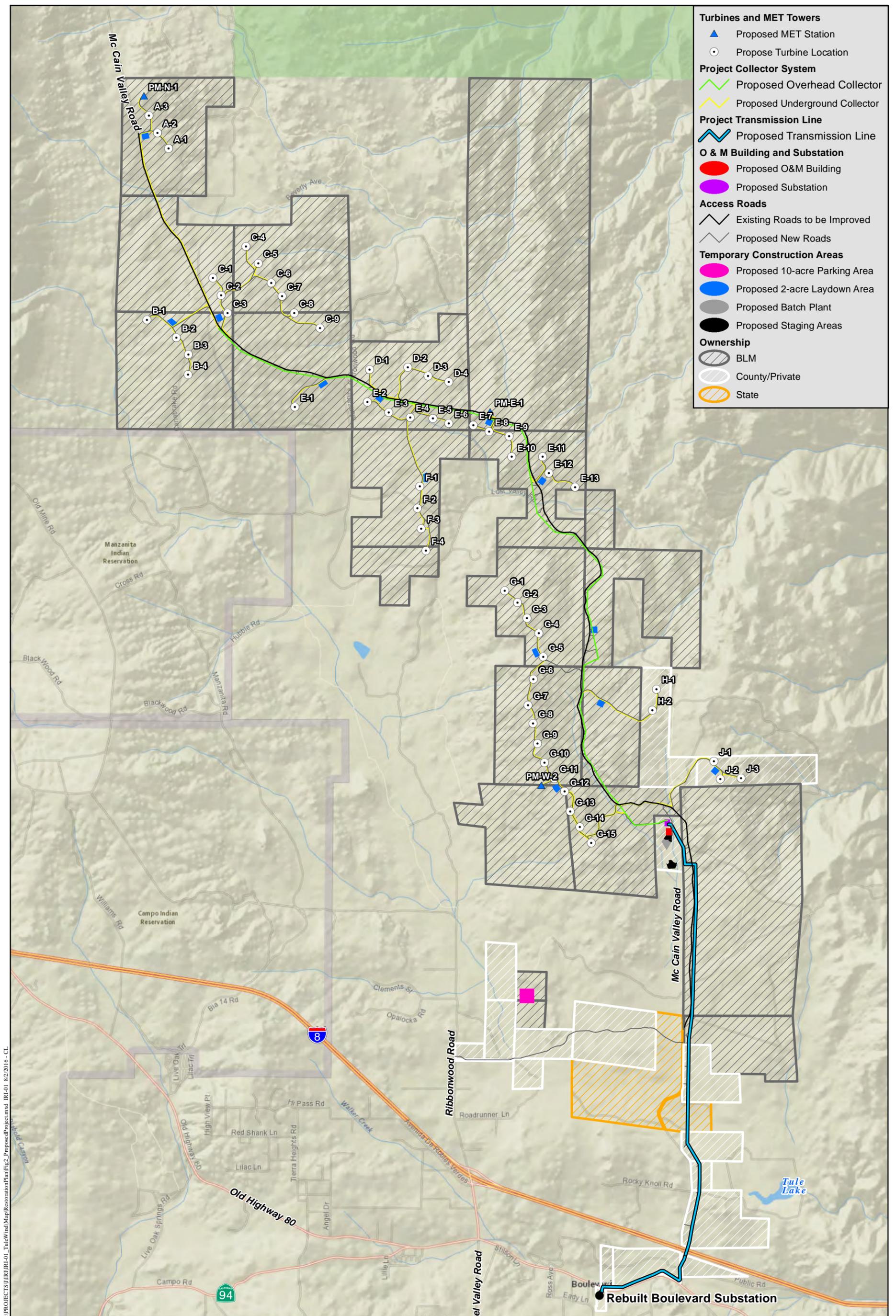
2.1.1 Fuel Modification Zones

The Fire Protection Plan for the Tule Wind Project (RC Biological Consulting, Inc. 2011) identifies certain areas of defensible space and vegetation management to protect against facilities being damaged or destroyed by fire during operations. In addition, the County Department of Planning and Land Use created a document entitled *Fire, Plants, Defensible Space and You* that lists requirements for defensible space, fire-resistant plants, and undesirable plants within fuel modification zones (County 2004). This document has been included as



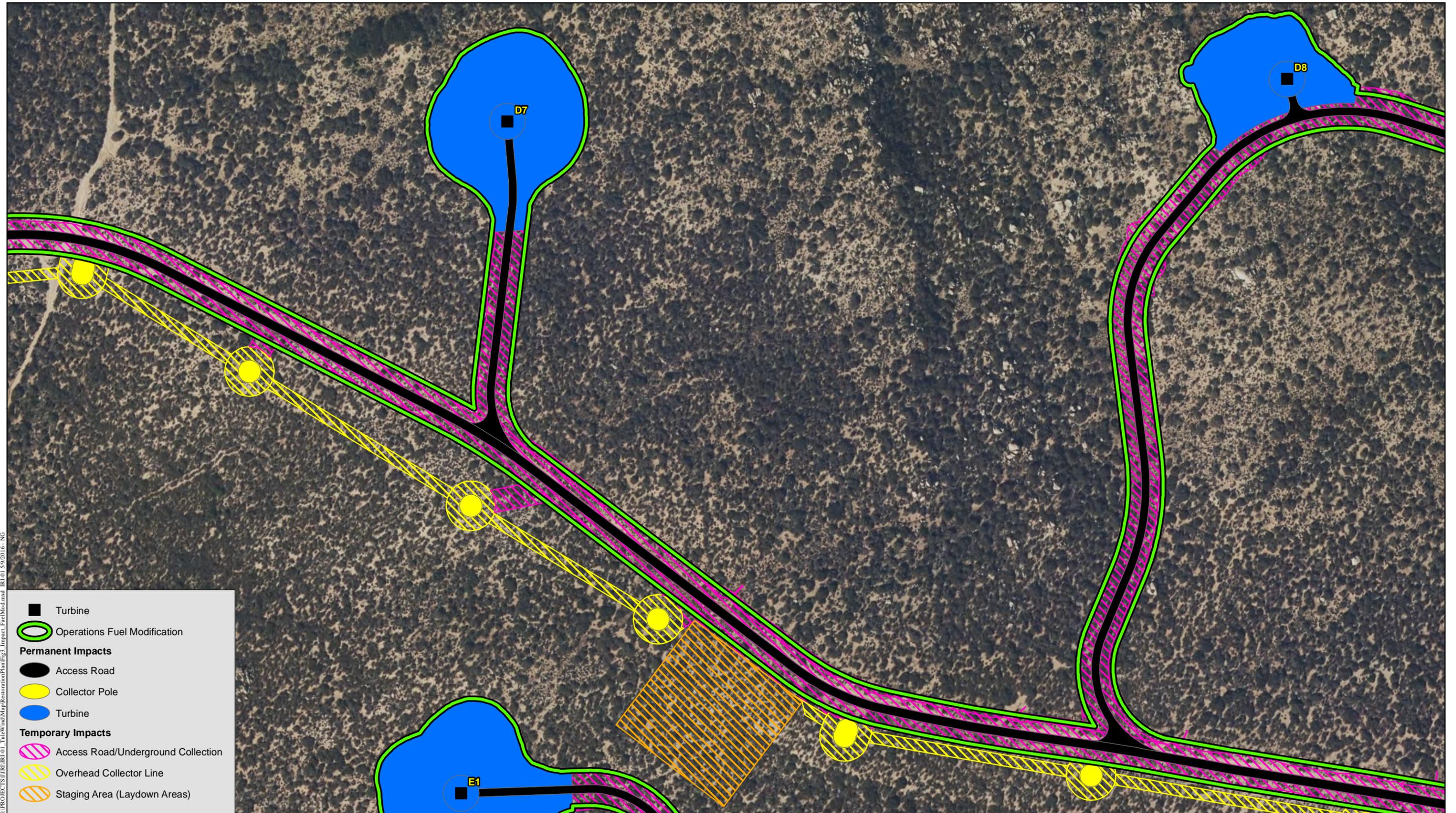
Regional Location Map

TULE WIND PROJECT HABITAT RESTORATION PLAN



Project Location Map

TULE WIND PROJECT HABITAT RESTORATION PLAN



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Impact and Fuel Modification Example Map

TULE WIND PROJECT HABITAT RESTORATION PLAN

Appendix A for reference. A summary of fuel modification zones is provided below for different project features. In general, the area within 50 feet of a building or structure shall be cleared of vegetation that is not fire resistant and replanted with fire-resistant plants. In the area between 50 to 100 feet from a building, all dead and dying vegetation shall be removed. Native vegetation may remain in this area provided that the vegetation is modified (thinned) so that combustible vegetation does not occupy more than 50 percent of the square footage of this area. Trees may remain in both areas provided that the horizontal distance between crowns of adjacent trees and crowns of trees and structures is not less than 10 feet. Combustible vegetation is defined as any material that in its natural state will readily ignite, burn, and cause fire to move to any structure or other vegetation. This would include dry grass, brush, weeds, litter, and waste. This would not include fire resistant landscaping some of which can be found in Appendix A. Due to restrictions for work during nesting bird breeding season outlined in the Migratory Bird Treaty Act (MBTA), fuel modification activities will be performed outside of the nesting bird breeding season on an annual basis. Fuel modification efforts will be carried out by responsible parties in accordance with the Fire Protection Plan (RC Biological Consulting, Inc. 2011).

O&M and Substation Buildings: The O&M building will be located on County lands and includes a parking lot. The O&M building will be surrounded by a cleared area of 100 feet from buildings and structures. The substation facility will be fenced with a graveled cleared area around it and will have adequate spacing from transformers and other potential fire sources.

In conformance with Section 4702.2 of the County Consolidated Fire Code, Tule Wind, LLC will provide a minimum of 100 feet of fuel management adjacent to buildings (primarily proposed for human habitation) associated with the O&M building and project collector substation. To provide separation of the building and installed equipment from combustible vegetation, gravel will be placed around the O&M building. The O&M building and the substation will have a minimum of 100 feet of fuel management.

Turbines: The project proposes up to a 200-foot cleared area around each turbine depending on the site topography. Upon completion of project design feature installation, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (noncombustible), low-fuel vegetation in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. Appropriate vegetation for these areas is identified in Appendix A, as provided by the County. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. There are no success criteria for revegetation in permanent impacts areas associated with this Plan. Turbine areas on BLM lands are considered permanent impacts. For County lands, the areas around turbines are considered a temporary impact, and will be revegetated in accordance with this Plan. Figure 4 provides an example of the typical impact footprint associated with turbines.

Access Roads: Thirty feet of vegetation management shall occur adjacent to the access roads for the proposed facilities including the turbine roads. This area shall have a reduction of combustible vegetation to less than 50 percent cover.

2.1.2 Temporarily Disturbed Areas

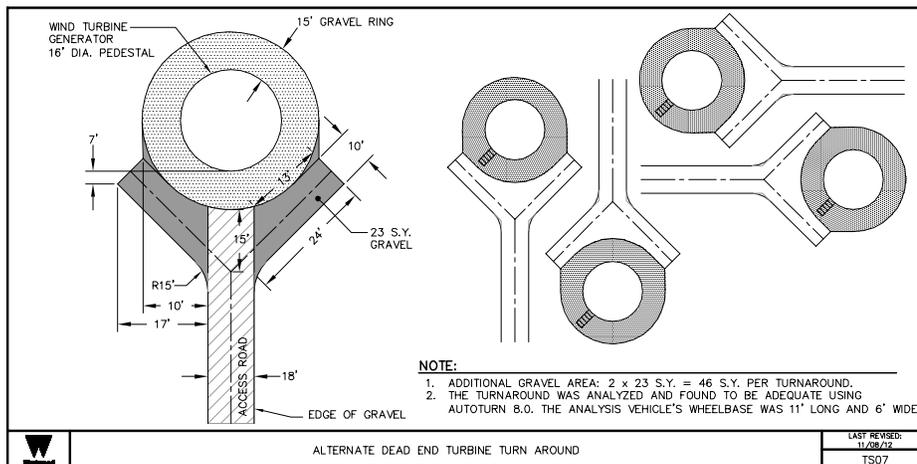
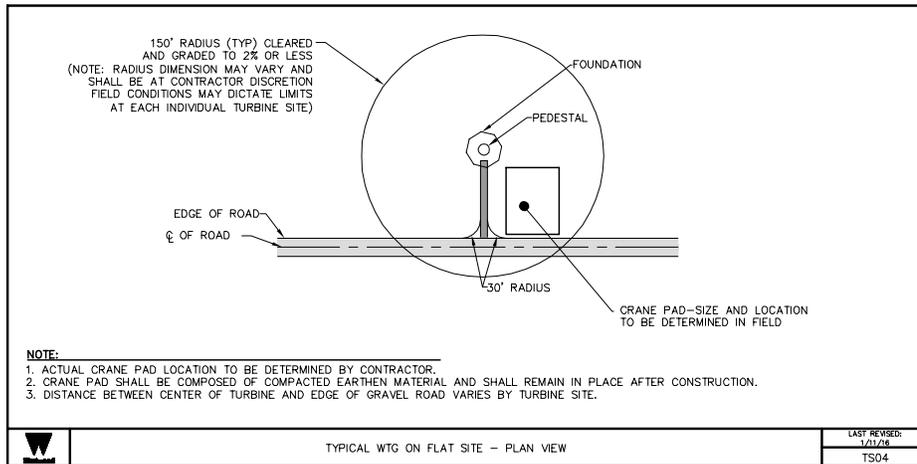
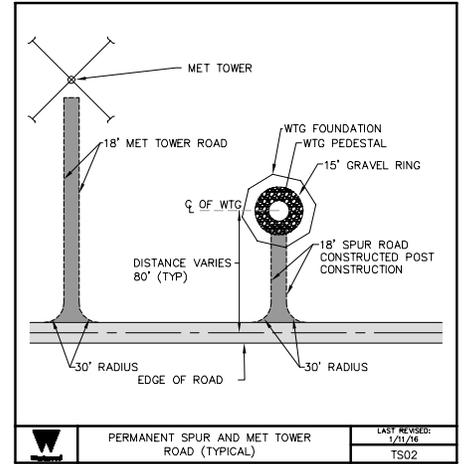
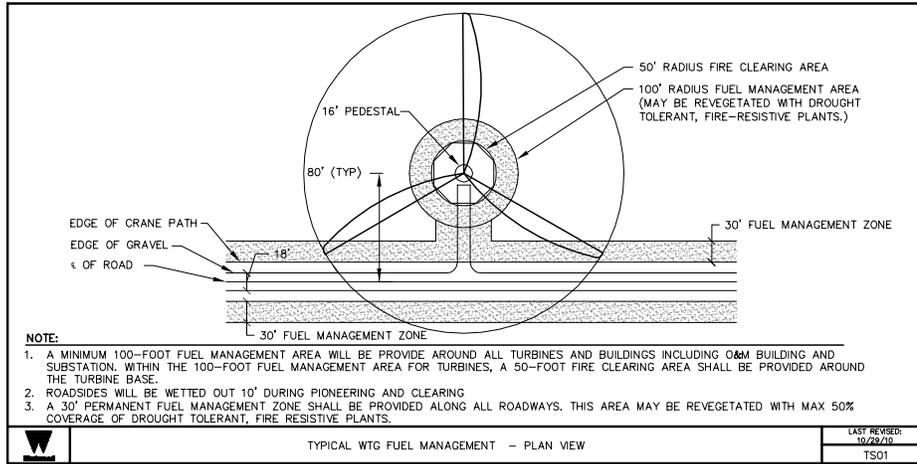
A number of construction-associated activities may temporarily impact vegetation within the project footprint. Temporarily disturbed areas are anticipated with clearing and grading of access roads, transmission corridors, and construction laydown yards and staging areas. Up to 219.41 acres of temporary impacts are anticipated to occur on lands administered by BLM as a result of the project (Appendix B). Up to 50.98 acres of temporary impacts are anticipated to occur on State and private lands as a result of the project (Appendix B).

Due to restrictions on vegetative cover within fuel modification zones, only portions of the temporarily disturbed areas will be expected to recover to their pre-disturbance state. The majority of temporarily disturbed areas also fall within fuel modification zones, particularly areas adjacent to permanent access roads. Figure 3 is provided as an example of a temporarily disturbed area where revegetation overlays a fuel modification zone.

Temporarily disturbed areas will be monitored and managed for weeds throughout the life of the project in accordance with this Plan. Impacts to vegetation communities are listed in Table 2.

VEGETATION COMMUNITY/ LAND TYPE	BLM		COUNTY		ROW		STATE	
	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp
Big Sagebrush Scrub	0.11	7.41	3.45	11.41	0.00	0.00	0.16	0.10
Chamise Chaparral	3.05	12.48	0.49	0.35	0.00	0.01	0.00	0.00
Dense Coast Live Oak Woodland	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00
Developed	0.00	0.00	0.00	0.08	0.01	0.06	0.00	0.06
Disturbed Habitat	26.58	9.10	0.88	2.40	0.32	0.09	0.01	0.20
Field Pasture / Agriculture	0.00	0.01	0.34	0.28	0.00	0.00	0.00	0.76
Montane Buckwheat Scrub	0.41	3.47	1.30	5.87	0.07	0.09	0.00	0.10
Non Native Grassland	0.00	0.16	0.96	4.38	0.01	0.07	0.20	0.36
Northern Mixed Chaparral	0.38	0.43	0.00	0.00	0.00	0.00	0.00	0.00
Open Coast Live Oak Woodland	0.05	0.90	0.31	0.78	0.00	0.00	0.00	0.00
Redshank Chaparral	2.94	7.84	0.40	0.35	0.00	0.00	0.00	0.00
Scrub Oak Chaparral	9.91	14.75	1.29	6.08	0.00	0.00	0.00	0.00
Semi Desert Chaparral	81.28	117.98	2.98	8.31	0.00	0.00	0.53	0.33
Southern North Slope Chaparral	1.28	0.22	0.08	0.96	0.00	0.00	0.00	0.00
Southern Willow Scrub	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00
Unvegetated Channel	0.02	0.20	0.00	0.02	0.00	0.00	0.00	0.00
Upper Sonoran Subshrub Scrub	26.59	43.98	1.48	7.42	0.00	0.00	0.00	0.00
TOTAL	152.61	219.41	13.97	48.76	0.41	0.32	0.90	1.90

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Source: Westwood 2016

Permanent Impacts Associated with Turbines - Typical

TULE WIND PROJECT HABITAT RESTORATION PLAN

2.1.3 Permanent Impact Areas

A number of construction activities may permanently impact vegetation within the project footprint. Direct permanent impacts are anticipated as a result of vegetation removal from grading and clearing at access roads, turbine locations, and support structure locations. Approximately 167.89 acres of permanent impacts are anticipated to occur on lands administered by BLM, State, and private lands as a result of the project. Permanent impacts affect the vegetation community such that it is not expected to recover to the pre-disturbance state (e.g., development of permanent structures or roads). Up to a 200-foot radius around turbine bases is considered a permanent impact area in the Tule Wind FEIS/FEIR, page B-53, dated October 2011.

Permanent impacts will not be revegetated or maintained in accordance with this Plan following the completion of construction activities. Permanent impact areas will be monitored and managed for noxious and invasive weeds during construction and operation of the project in accordance with this Plan.

2.2 TIMING/PROJECT PHASES

The implementation of this Plan will be carried out during different phases of the project. Non-native species control begins prior to initial ground disturbance and carries through the O&M phase. Restoration activities begin with salvage of cacti and succulents, followed by topsoil salvage during the initial ground disturbance phase of the project that carries through until the beginning of the 5-year maintenance and monitoring period. Supplemental or remedial restoration activities may occur during the 5-year maintenance and monitoring period or beyond. This Plan discusses the activities and requirements associated with the different project phases: Prior to Initial Ground Disturbance, Initial Ground Disturbance Activities and Installation of Project Design Features, Site Reclamation and Revegetation Installation, 5-year Maintenance and Monitoring, and Long-term Operations and Maintenance.

3.0 EXISTING CONDITIONS AND SETTING

The project site is located within McCain Valley within the Peninsular Range and is bordered by the Laguna Mountains to the west and the In-Ko-Pah Mountains to the east. The area is characterized by chaparral- and scrub-covered hills with large granitic rock outcrops. The project lies in a zone of transition from chaparral vegetation of the coastal mountains in the west, to Sonoran Desert scrub vegetation of the Colorado Desert in the east. This transition from chaparral to desert has produced a range of natural communities within the project site.

The climate is semi-arid with warm, dry summers and cool, moist winters. On average, the project site receives approximately 14 to 17 inches of annual precipitation (County 2011; Western Regional Climate Center [WRCC] 2011). Most precipitation is received from December to April. Winter temperatures range from below freezing to 70 degrees Fahrenheit (°F), with occasional snowfalls. Summer temperatures range from 40 to 95°F. The freeze-free season is estimated to be approximately 170 to 225 days, depending on elevation. A detailed assessment of

potential sensitive natural resources located within and immediately adjacent to the project site is described in the Tule Wind Project Biological Technical Report (BTR; HDR 2010a) and Biological Technical Memorandum (BTM; HDR 2011a).

3.1 TOPOGRAPHY AND SOILS

Topography of the project site is variable and is composed of slightly sloping, open fields to moderately sloping hills. The terrain includes steep, rocky slopes, numerous granite boulders and outcrops, as well as generally flat areas with relatively few rocks and boulders. Within the project site, elevation ranges from about 3,600 feet (1,097 meters) above mean sea level (amsl) along Old Highway 80 to about 4,552 feet (1,387 meters) amsl. In general, drainages in the project site are ephemeral water courses fed by numerous smaller, shallow ephemeral tributaries. The soils on the project site are primarily sandy granitic soils. The San Diego Area Soil Survey (Bowman 1973) indicated 13 soil types occur on the project site: acid igneous rock, Calpine coarse sandy loam, Holland stony fine sandy loam, Holland fine sandy loam, Kitchen Creek loamy coarse sand, La Posta loamy coarse sand, La Posta-Sheephead complex, La Posta rocky loamy coarse sand, loamy alluvial land, Mottsville loamy coarse sand, Rositas loamy coarse sand, Sheephead rocky fine sandy loam, and Tollhouse rocky coarse sandy loam. None of these soil types is hydric. The soils that occur on site are described in detail in the project BTR (HDR 2010a) and Jurisdictional Wetland Delineation Report (HDR 2010b). Soils on the project site are formed from weathered granite rocks and are well drained and permeable. The majority of the soil types on site between depths of 8 and 24 inches can usually be expected to be moist in some part from about December 1 until late May/early June, and are continuously dry the rest of the time (National Resources Conservation Service [NRCS] 2011).

3.2 VEGETATION COMMUNITIES

Plant communities and vegetation types within the project survey area range from semi-desert scrub to mixed chaparral to oak woodland, and include big sagebrush, grassland, and riparian communities. Chaparral and scrub communities are the predominant vegetation communities. Chaparral vegetation includes: semi-desert chaparral, northern mixed chaparral, scrub oak chaparral, chamise chaparral, redshank chaparral, and southern north slope chaparral. Scrub communities include upper Sonoran subshrub scrub, montane buckwheat scrub, and big sagebrush scrub. Semi-desert chaparral is the dominant vegetation in McCain Valley and is the most abundant community; upper Sonoran subshrub scrub is the second most abundant community. Additional vegetation communities occurring in the project include southern willow scrub, open and dense coast live oak woodland and non-native grassland. Other land cover includes unvegetated channels, field pasture/agriculture, developed, and disturbed habitat.

Overall, the project site supports 13 plant communities and 4 landscape features (Table 2). Vegetation was classified using the R. F. Holland system of natural communities as described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and as modified by Oberbauer (Oberbauer 1996, Oberbauer et al. 2008). Detailed habitat and vegetation community descriptions are included in the project environmental documents (HDR 2010a, 2010b, 2010c, 2011a). Portions of the project site have been previously disturbed

by grazing, off-road impacts, or other human activity, and some recent fuel breaks have been created along unpaved roads.

A total of 295 species of plants were identified during field studies conducted for the project; 33 of these species are non-native or exotic (HDR 2011a) (Appendix C). Plant taxonomy follows locally accepted nomenclature (Rebman and Simpson 2006).

There is a high degree of species overlap in the common vegetation communities within the project. In many cases, variation in vegetation structure or the dominance of certain species is what defines the community. Most of the habitat is of good quality, with healthy native vegetation populations found throughout; non-native species are mostly concentrated in previously disturbed areas.

3.3 EXISTING WEED SPECIES

In order to determine appropriate weed management protocols, the extent of existing non-native species populations were assessed on the entire project site during surveys performed in 2010 by HDR.

No federally-listed noxious weed species have been observed in the project footprint. However, several non-native species listed by the California Invasive Plant Council (Cal-IPC; 2010) were observed. Control of Cal-IPC listed invasive weed species is included in the mitigation requirements for this project. Appendix C lists the non-native species observed on the project site during surveys conducted from 2005 to 2011. The table assigns preliminary classifications as detailed below based upon Cal-IPC and California Department of Food and Agriculture (CDFA) ratings. These classifications will be used to determine management strategies for each found invasive species, if required.

4.0 APPROACH TO WEED SPECIES MANAGEMENT

4.1 WEED SPECIES DESCRIPTION AND MANAGEMENT APPROACH

Weed management shall be conducted to prevent the establishment and spread of invasive plant species throughout the project area, including BLM and County lands. Weed management will occur throughout all phases of the project: prior to initial ground disturbance, during initial ground disturbance and project design feature installation, site reclamation and revegetation installation, 5-year maintenance and monitoring, and operations. Weed management activities shall include protective measures during construction including the implementation of BMPs to avoid and minimize the direct or indirect effect of the establishment and spread of invasive plant species during construction. Existing vegetation shall be cleared only from areas scheduled for immediate construction work and only for the area needed for construction activities. Plants listed as invasive exotics by the California Exotic Plant Pest Council in their most recent “A” or “Red Alert” list (Appendix C) will be the focus of active weed management efforts. Descriptions and Cal-IPC ratings of non-native plant species observed on site are provided in Appendix C. Management strategies encompass not only suppression and containment but also identify the

means of suppression and containment (methods for suppression and containment are described in Section 6.1). Treatment methods include physical (hand-pulling and mechanical) and chemical (herbicide) removal will also occur throughout the life of the project. Only herbicides approved by BLM in California will be used on BLM lands. Herbicide application can only occur on BLM lands with an approved PUP. Pesticide use should be limited to non-persistent pesticides and should only be applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications. Post-emergent herbicides may be used instead of pre-emergent herbicides if the requirements for using pre-emergent herbicides are not met at the time they would be applied. A PUP must be in place before use of any herbicide and all requirements for the use of herbicides on public lands must be followed. In addition, Applicant Proposed Measures (APMs) as identified in the East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Project FEIR/FEIS (Dudek, October 2011) would be utilized as BMPs. APMs TULE-BIO-1, BIO-2, BIO-4, BIO-10, BIO-14, and BIO-20 will be implemented to assist in reducing potential impacts to biological resources due to noxious weeds. Herbicide application on County lands will follow County regulations and reporting requirements. Herbicides on County lands should be limited to non-persistent herbicides and only applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications.

Restoration areas will be maintained to achieve less than 15 percent absolute weed cover and to prevent the introduction of new non-native species to the site. Target non-native perennial and tree/shrub species will be suppressed within restoration areas. Target non-native perennial and tree/shrub species are listed in Appendix C.

4.2 RESTORATION APPROACH

On-site restoration will be implemented to mitigate temporary vegetation impacts associated with the project. A combination of cactus salvage, topsoil salvage, erosion control, native seed installation, plant translocation, and weed control will be used in the restoration areas. The temporarily disturbed areas planned for restoration are shown to scale and in detail in Appendix B. The restoration areas will be seeded with a palette of species native to the area as described in Section 5.2.4.2. Details for each measure are discussed further in Section 5.0. The measures are summarized as follows:

Topsoil Salvage

Topsoil salvage is critical for facilitating successful site restoration and will be conducted to the maximum extent feasible during the initial ground disturbance phase.

Cactus and Succulent Species Salvage

Cactus and succulent species will be salvaged from the project footprint during initial ground disturbance. Salvaged species will be re-planted following site reclamation.

Soil Decompaction and Recontouring

Graded sites will be decompacted and recontoured to return the topography to a condition that increases the chance of restoration success. Large rocks and/or boulders moved during construction may also be salvaged and replaced into the restoration areas during recontouring activities.

Erosion Control

Erosion control measures will be installed as directed by the Stormwater Pollution Prevention Plan (SWPPP) BMPs.

Seeding

Locally-occurring native California desert-transition species including grasses, forbs, and shrubs will be seeded in temporary disturbance areas including contour grading areas, staging areas, and roadside grading areas. See Section 5.2.4.2 for seed information.

Seed palettes will also include Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) host species and special-status species as feasible. Revegetation of these species would only occur in areas where QCB habitat was impacted.

Non-native Plant Control

Non-native plants will be removed from the restoration area. Non-native plant removal and maintenance will occur over the course of the project.

Restoration Area Monitoring

Monitoring of the restoration areas will be conducted at regular intervals as needed for compliance with project permits.

5.0 RESTORATION AND NON-NATIVE SPECIES CONTROL IMPLEMENTATION

Restoration and non-native species control measures implemented will be in compliance with permits associated with the project. The following sections describe the steps to be implemented prior to, during, and following completion of construction.

The Restoration Specialist will oversee restoration implementation for all County and BLM jurisdictional areas, working closely with all parties involved in this effort. Due to the size and multi-faceted nature of the project, implementation of the restoration activities will likely occur at different times. For this reason, the restoration areas will most likely be separated into subareas.

Although restoration implementation will likely be staggered between subareas, the restoration implementation process is sequential. Once a particular restoration activity is complete within a subarea, the Restoration Specialist or environmental monitor under the supervision of the Restoration Specialist will verify task completion.

5.1 PASSIVE RESTORATION AND PREEMPTIVE WEED CONTROL MEASURES

5.1.1 Avoidance and Minimization Measures

The project FEIR/EIS identifies avoidance and minimization measures that apply to all construction activities within the project site. These measures are standard construction specifications to prevent environmental degradation during construction. The Owner is responsible for ensuring that all construction contractors are informed about the biological constraints of this project and associated requirements are followed. All environmentally sensitive areas (ESA) to be avoided will be clearly marked on project maps and provided to the contractors. Environmentally sensitive areas may include certain sensitive plant species or communities, occupied Quino habitat, and/or active bird nests that occur outside the project footprint. These areas will be designated as “no construction” zones, unless impacts to these areas are properly permitted. The limits of construction for sensitive areas will be clearly delineated on the ground by flagging, survey lath, or wooden stakes.

All access roads (outside of existing roads) and laydown/staging areas will be clearly marked with stakes prior to the onset of construction.

Stockpile (e.g., backfill and topsoil stockpile) areas will be located within disturbance limits. Topsoil stockpiles will be located along or near the perimeter of the disturbance limits. With this in mind, stockpiled topsoil will be situated in a manner where construction equipment can easily access the material and effectively distribute it once the project design feature installation phase is complete. A SWPPP and the Stormwater Management Plan will be prepared and implemented by the Owner during construction to address erosion and sediment control on active work areas, including soil stockpiles. These plans will specify the measures that will be needed to stabilize soil during and after construction.

5.1.2 Weed Prevention during Construction

During construction, the Owner will abide by invasive weed control procedures outlined in this Plan, including any modifications determined in future consultation with the BLM Environmental Compliance Monitor. The main issue during construction is that construction-related activities could introduce and/or spread non-native species. This is most likely to occur when (1) materials (such as equipment, fill, or mulch) that have potential to transport seed are brought into a site; and (2) existing soils are disturbed, enabling fast-germinating, fast-growing, disturbance-adapted species to proliferate.

General prevention measures that will be implemented prior to and during construction activities, with the intention of inhibiting the spread of weeds and their germination, include the following:

- Train project personnel on the ways non-native species spread during construction, especially in disturbed areas, and best practices to avoid them;
- Implement dust suppression measures during construction to minimize the creation of dust clouds and spread of plant material;
- Minimize disturbance to vegetation in channel bottoms;
- Minimize the clearing of existing trees and shrubs during construction to the greatest practicable extent;
- Mitigate impacts to vegetation communities through reclamation and revegetation of temporarily disturbed areas;
- Restrict all project vehicle movement to existing access roads and access roads constructed as a part of the project, unless determined infeasible due to physical or safety constraints; and
- Monitor materials brought on site to minimize the potential for weed introduction.

Project personnel training will include a discussion on non-native species identification and non-native species management strategies, including suppression and containment. Non-native plant species will be identified using *The Jepson Manual, Higher Plants of California*. The Restoration Specialist will cross reference plants observed within the project footprint that are not listed in the *Jepson Manual* with specimens at the San Diego Natural History Museum.

5.1.3 Equipment Cleaning

Equipment cleaning will be required to prevent the spread of weed species into new areas or the introduction of a new weed species to the project site. The Owner will ensure that every piece of heavy construction equipment entering the project area will be cleaned by high-pressure air or water spray in order to remove dirt and mud that may contain seeds, roots, or rhizomes. All vehicles and equipment from outside of San Diego County will be washed before entering the site. The tracks, tires, and undercarriage will be washed including, but not limited to, the axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumpers. Prior to entering the project area, equipment will be inspected by operators, drivers, or environmental monitors to ensure they are free of any dirt or mud. The Owner and environmental monitors will provide oversight during construction to ensure that vehicle washing and inspections are taking place. A cleaning station will use either high-pressure water or air to remove dirt and mud from equipment and will be located away from sensitive biological resources and jurisdictional waterways. Sediment or catch basins will be implemented if water is used for on-site equipment cleaning. Other construction-related vehicles (i.e., pick-up trucks) will be inspected by the environmental monitoring team throughout the construction period and washed on an as-needed basis to prevent the spread of weed species into new habitats. If any vehicle or other piece of equipment is unable to be cleaned on site, it shall be turned away and directed to an approved cleaning facility. Equipment must be clean prior to entering federal lands.

For equipment entering and leaving site, records and cleaning records will be kept stating the location, date, time, license plate/vehicle identification or serial number of equipment, and

methods used. These records will be included in the monitoring reports. These records will be kept by the Owner and available for review on request.

5.1.4 Weed-free Products

Only weed-free products obtained from certified sources shall be utilized. The contractor purchasing products shall ensure that straw bales, straw wattles, gravel, mulch, and soil are free of weeds. Where feasible, mulch and soil shall be generated or used from the project footprint. Records will be kept on-site by the Owner's Compliance Manager for weed-free products and available for review upon request by agencies.

5.2 ACTIVE RESTORATION AND WEED CONTROL IMPLEMENTATION

Natural regeneration is the most cost-effective and efficient way to restore a site. To protect and enhance the potential for natural regeneration in the restoration area, restoration activities will begin prior to initial ground disturbance. Active restoration activities to occur prior to ground disturbance include baseline data collection and weed abatement. These activities are discussed in detail below.

5.2.1 Prior to Initial Ground Disturbance

5.2.1.1 Baseline Data Collection

Prior to initial ground disturbance, the Restoration Specialist will perform or oversee the performance of a survey to collect baseline data along transects and plots. Baseline data will be collected from a total of 15 transects and 15 plots. Quantitative assessment will be conducted by collecting data from 15 fifty-meter reference transects, which will be established outside, but in close proximity to, expected disturbance limits. At least one of the fifteen transects will be conducted within QCB habitat. Additionally, QCB host plant density will be determined by mapping host plants within a 50-meter by 50-meter plot, centered on the QCB reference transect. A minimum of two transects and two plots will occur on County lands. The remainders will be on BLM land. Data collection from 15 reference transects will be collected once during baseline surveys; however, additional data collection along reference transects may occur during the 5-year maintenance and monitoring period if site conditions change due to natural or unforeseen circumstances (i.e., fire, drought, flood, etc.) that substantially alter the surrounding vegetation communities. If the Restoration Specialist determines the need to collect additional data along the reference transects during the 5-year maintenance and monitoring period, the BLM will be notified.

The Restoration Specialist will also perform or oversee the collection of dominant species density data within a total of fifteen 50-meter by 50-meter reference plots, immediately adjacent to the reference transects. The fifteen plots include the QCB plot mentioned in the above paragraph. Data will be collected on the number of dominant species individuals found within each 50-meter by 50-meter plot. The number of individuals within each plot will be extrapolated to determine an expected number of individuals per acre for each vegetation community. The dominant species within each vegetation community is shown in Table 3. During baseline data

collection, additional dominant species may be noted and added for vegetation communities by the Restoration Specialist.

Table 3	
DOMINANT SPECIES BY VEGETATION COMMUNITY	
VEGETATION COMMUNITY	DOMINANT SPECIES*
Big Sagebrush Scrub	<i>Artemisia tridentata</i>
Chamise Chaparral	<i>Adenostoma fasciculatum</i>
Dense Coast Live Oak Woodland	<i>Quercus agrifolia</i>
Montane Buckwheat Scrub	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>
Northern Mixed Chaparral	<i>Adenostoma fasciculatum</i> , <i>Arctostaphylos glauca</i> , <i>Ceanothus</i> sp.
Open Coast Live Oak Woodland	<i>Quercus agrifolia</i>
Redshank Chaparral	<i>Adenostoma sparsifolium</i>
Scrub Oak Chaparral	<i>Quercus berberidifolia</i>
Semi Desert Chaparral	<i>Ericameria brachylepis</i> , <i>Cylindropuntia</i> sp., <i>Adenostoma fasciculatum</i>
Southern North Slope Chaparral	<i>Adenostoma fasciculatum</i> , <i>Arctostaphylos glauca</i> , <i>Quercus berberidifolia</i>
Upper Sonoran Subshrub Scrub	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> , <i>Ericameria</i> <i>linearifolia</i> , <i>Ephedra californica</i>

* This list may be updated by the Restoration Specialist following baseline data collection if additional species are found to be dominant within vegetation communities in the project area.

During the 5-year maintenance and monitoring period, an additional 52 fifty-meter restoration area transects will be located within temporarily disturbed areas that are part of the restoration effort (Table 4). The data collected from the 15 baseline reference transects and dominant species reference plots will be used to determine the success of the restoration effort by comparing the baseline data to quantitative data collected from the 52 restoration area transects. Success criteria will be judged by comparing restoration area transect data to baseline data within each corresponding vegetation community. Dominant species individuals will be counted within a 5-meter belt transect centered on each of the 52 line transects. The number of dominant species individuals counted within the belt transects will be extrapolated to number of individuals per acre, and compared to the dominant species reference plot information for each vegetation community.

Plot(s) will be used to determine QCB host plant density in areas where transect(s) occur in QCB habitat. The number of plots used will be based on the number of transects occurring within QCB habitat. Length of each plot will be 50-meters, and centered on each QCB transect. Plot width will be defined by the width of the restoration area. Expected restoration area transect locations include: 36 in access roads and underground collection lines, 5 in temporarily disturbed areas associated with overhead collection lines, 5 in temporarily disturbed areas associated with overhead transmission lines, and 6 in laydown areas. The number and location of restoration area transects is subject to change based on modifications in the project design. Changes to restoration area transects will be due to project design, and the rationale of one transect per mile

ratio will be applied. Restoration area transects will be located throughout the site in a manner to ensure proportionate representation of all native vegetation communities temporarily disturbed by the project. Restoration area transects will be located in the same areas as photo documentation locations. All transect locations will be mapped using a sub-meter accuracy global positioning system (GPS) prior to initial ground disturbance. Transect locations will be approved by the BLM.

Table 4 TRANSECT AND PLOT DATA COLLECTION	
TRANSECT TYPE	NUMBER OF TRANSECTS/PLOTS*
Baseline Reference Transects	15
Dominant Species Reference Plots	15
Restoration Area Transects	52

*Subject to change based on changes to project design.

Vegetative data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society’s Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Species cover data will be collected by recording all of the species intercepted at each 0.5-meter interval along the length of each transect. Vegetation will be recorded separately for annual and perennial species. Species richness data will be collected by noting all species occurring within a 5-meter belt transect centered on each of the line transects.

5.2.1.2 Prior to Initial Ground Disturbance Weed Abatement

Within 45 days of the start of ground disturbance activities, the Owner will notify the BLM Environmental Compliance Monitor and WCM to initiate weed abatement activities. Weed control will be conducted within 45 days of the start of ground disturbance activities only in the event that non-native species have started to produce fruits that will contribute to the seed bank. This will be conducted in areas where grubbed vegetation will be left in place (i.e., mulched). If vegetation is to be cleared and disposed of off site, then weeding will not need to occur. One weed control event, targeting the species with a Cal-IPC rating of High, Moderate, or Limited, will be conducted within the limits of grading areas prior to the start of ground disturbance in these areas. Treatment will occur no sooner than the 45-day notification prior to the start of ground disturbance. Treatment shall conclude prior to initial ground disturbance in each area of the project site.

Weed control may include physical and chemical control methods. Method of weed control will be determined by the Restoration Specialist and WCM, and applied in accordance with the approved Pesticide Use Proposal. Where physical methods are used, plant material with mature seed heads present will be properly disposed off site. Physical methods include hand pulling, use of hand tools, and mechanical clearing.

5.2.1.3 Monitoring and Reporting prior to Ground Disturbance

The Restoration Specialist will perform and/or oversee the baseline data collection surveys. The Restoration Specialist will summarize quantitative data along each transect and dominant species counts within each plot in a single report that will also include photo documentation from each transect. The report will be submitted to the Owner, BLM, and the U.S. Fish and Wildlife Service (USFWS) Carlsbad Field Office, and used for reference during the 5-year maintenance and monitoring period to gauge the success of the restoration effort. An additional report will be produced for the County of San Diego that discusses only baseline data collection within County lands. This report will be sent to the County of San Diego, independent of the BLM and other agencies.

The WCM will be on site during weed abatement activities disturbance to assess site conditions and prioritize areas for weed abatement activities throughout the project site. If herbicides are used during weed abatement activities, the WCM will provide weekly herbicide use reports to the BLM. The WCM will coordinate with the Restoration Specialist and Owner on areas where upcoming weed control work will occur.

5.2.2 Initial Ground Disturbance and Project Design Feature Installation

Active restoration activities during initial ground disturbance and project design feature installation include cactus salvage, site grubbing, topsoil salvage, and storage of topsoil. These activities are discussed in detail below.

5.2.2.1 Cactus and Plant Salvage

Plant Salvage

Whole plants and/or segments will be salvaged on BLM lands during the initial ground disturbance phase. Cacti and succulents will be salvaged by an Installation Contractor with salvage activities occurring after the disturbance limits have been identified and marked, but prior to clearing/grubbing activities taking place. Cactus and/or succulent species that are appropriate for salvage and known to occur in the project area include cane/valley cholla (*Cylindropuntia californica*), Gander's buckhorn cholla (*Cylindropuntia ganderi*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), desert prickly pear (*Opuntia phaeacantha*), Abrams's dudleya (*Dudleya abramsii* spp. *Abramsii*), lanceleaf liveforever (*Dudleya lanceolata*), and chalk dudleya (*Dudleya pulverulenta*).

In February 2016, HELIX Environmental Planning, Inc. (HELIX) performed data collection activities to approximate cacti and succulent densities throughout the project area. Approximately 90 percent of the expected temporarily disturbed areas in the project site are represented by seven vegetation communities. Plant data, including cacti density and height, were collected from survey plots for each of the seven vegetation communities. An average of 175 cacti and succulents per acre were recorded during the data collection activities throughout these seven vegetation communities, with 90 percent of cacti ranging between 1 and 3 feet in height.

The total salvage requirement for revegetation efforts is based on an average of 175 cacti and succulents per acre, which will be applied to temporarily disturbed areas of BLM land within vegetation communities where cacti and succulents are known to occur (207.91 of the total 219.41 temporarily disturbed acres on BLM Lands). Based on this acreage, approximately 36,384 cacti and succulents will be salvaged across BLM lands to be replanted in temporarily disturbed areas following project feature installation.

Cacti and/or succulents will only be salvaged and reinstalled on BLM Lands, within areas of the project that support the cacti and/or succulents species prior to construction. Due to the long, linear nature of temporary disturbances throughout the project site, it is important that the cacti and succulents are salvaged throughout different areas of the site in order to best represent pre-disturbance distribution during the replanting efforts that follow site reclamation. The Restoration Specialist will oversee this effort to ensure that each vegetation community that supports cacti and succulents are represented during initial salvage. In general, areas of the site with higher pre-disturbance densities of cacti and succulents should have a higher number of cacti and succulents per acre salvaged and replanted during revegetation than areas of the site with low pre-disturbance densities of cacti. The Restoration Specialist or environmental monitors will identify which cacti and/or succulents the Installation Contractor will salvage using flagging tape. This identification method will assist in keeping the distribution of salvaged material across the site approximately proportionate to pre-disturbance distributions. All salvaged plants will be stored in areas within the project limits that will not be affected by project design feature installation. Storage areas will be located as close as possible to where the plant was removed. Methodology for salvage and storage are listed below for segments and whole plants.

Segment Salvage

Segments will be approximately 90 percent of the total salvage requirement (32,746 segments of the total 36,384 salvage requirement). Segment salvage will be limited to cholla (*Cylindropuntia* spp.) and other cactus species that are able to regenerate from segments. In these instances, stem segments will be collected using pliers or other tools, placed in a bucket (or other vessel) for transportation, and relocated for storage outside of disturbance areas. This process will be overseen by the Restoration Specialist or an environmental monitor who will map the location(s) of the temporary storage area(s) using GPS.

The following BMPs will be used during segment collection, storage, and transplant:

- Temporary storage areas are to be flagged as ESAs to avoid unintended impacts during construction.
- Within the temporary storage area(s), containers will be filled with native soil. Segments will be placed in the containers in a manner that allows soil contact for each segment. Use of container stock for segment storage increases survivorship compared to placing segments on the ground. Segments can be stored in a container for up to one year before they should be upsized or planted into the restoration area.
- Segments should be stored outside of the range of water truck activity. Overwatering of cacti segments will cause rot, especially during initial attempts to get them to root. If

stored alongside an active construction area, place the segments a minimum of 10 feet from the edge of disturbance. Watering should only occur when soil is completely dry.

- Following site reclamation, and once topsoil has been replaced, the segments should be planted carefully into the restoration area.
- Ensure that any non-native weed material (dead annual weed thatch or actively growing material) is removed prior to storage or planting activities to allow for better soil contact with the segments.

Whole Plant Transplantation

Whole plant transplant will occur for approximately 10 percent of the total salvage requirement (3,638 whole plants of the total 36,384 salvage requirement). The whole plant salvage method will be used primarily for cacti and succulents not able to regenerate from segments. Cacti and succulent species within the project area that are unable to regenerate from segments and therefore only whole plant transplantation applies to are Engelmann's hedgehog cactus (*Echinocereus engelmannii*), Abram's dudleya (*Dudleya abramsii* ssp. *abramsii*), lanceleaf liveforever (*Dudleya lanceolata*), and chalk dudleya (*Dudleya pulverulenta*). Many of these species are shallow-rooted, with most of their roots typically located within 4 to 8 inches of the soil surface. Roots typically grow to approximately 3 to 5 times the width of the plant. Activities associated with this task will be overseen by the Restoration Specialist and/or designated biological monitor(s).

The following BMPs are specifically tailored for the salvage of whole plants:

- Mark the plants using flagging tape on their northern face so that correct orientation during replanting is possible.
- Excavate the plant in a manner that salvages as much of the root ball as possible. The depth and width of the excavations will be variable. Because of this, the Restoration Specialist and/or designated biological monitor(s) will assist by giving direction to installation contractor.
- Plants will be carefully moved using a bobcat or other piece of equipment with a bucket attachment. Plants that are small enough can also be moved carefully by hand.
- Once moved to the storage location, the plants will be placed either on their side or erect depending on the guidance given by the Restoration Specialist and/or designated biological monitor(s).
- Root balls will be covered with topsoil.

5.2.2.2 Mulching, Site Grubbing and Topsoil Salvage

Topsoil and mulch collected from graded areas will be a key component of restoration in the temporarily impacted areas. Available topsoil will be collected from graded areas (permanent and temporary) in order to spread up to a 4-inch layer of topsoil over temporarily disturbed areas during site reclamation. Permanent impact areas will not require topsoil application during site

reclamation, as these areas are not being restored under this Plan. The measures listed below will help maintain important soil integrity, diversity, and interactions, and are anticipated to provide a substantial boost to site restoration.

5.2.2.3 Approach to Mulching, Site Grubbing, and Topsoil Salvage

Salvaged soil will be used to reintroduce native plant propagules, mycorrhizal fungi, and soil microbial fauna. The salvaged soil may also include native plant material required for restoration, such as annuals and bulbs that will otherwise be difficult to collect from the wild in sufficient quantity to seed the restoration area. Installed seed and native species recruited from the surrounding area will also benefit from topsoil salvage.

Topsoil from excavations and project design feature installation activities will be segregated from sub-soil and reapplied to the surface of the ground in temporarily disturbed areas once the project design feature installation phase is complete. Salvaged topsoil will be placed in windrows where possible and protected against wind and water erosion. Placement and protection of topsoil will depend on the confines of specific locations throughout the project area.

Topsoil salvage and root crown preservation will occur during initial site grubbing and surface grading to facilitate restoration after project design feature installation. The 3 steps listed below will be carried out during site grubbing and topsoil salvage activities.

- Prior to topsoil removal, native vegetation will be mechanically grubbed using equipment that will scrape, crush, and/or mow the vegetation. The grubbed material will not be collected, but will lie in place so it can be incorporated in the topsoil during topsoil salvage.
- An environmental monitor will inspect the area for construction materials/trash. If trash is observed, environmental monitors will work with the Owner to get the trash removed.
- Following inspection and any required trash removal, the top approximately 4 inches of soil will be scraped from the surface and stored. Plant material (including grubbed material) will be included in the topsoil in order to incorporate organic matter and carbon to help maintain soil organisms and microbial and fungal functioning during stockpile storage. Rocks, cobble, etc. located in the area will be incorporated within the salvaged soil as well, with the exception of larger boulders. Large boulders may be stored, where feasible, for replacement during site reclamation. Stockpiled soil should be placed along or near the perimeter of the disturbance limits. With this in mind, stockpiled topsoil should be situated such that construction equipment can easily access the material and effectively distribute it once the project design feature installation phase is complete.

Deep-rooted native plant species help to stabilize and restore the soil, and many crown sprouting species will regenerate following disturbance. Root crowns and roots of all species within the temporarily disturbed areas will be left in the ground wherever possible. This will reduce impacts to important soil fauna diversity and fungal functionality.

5.2.2.4 Monitoring and Reporting during Initial Ground Disturbance and Project Design Feature Installation

The Restoration Specialist and environmental monitors will be on site daily during salvage activities. Monitors will identify plants for salvage and monitor their excavation and placement for storage. Environmental monitors will include in daily CMRs the areas where cacti and succulent were salvaged and submit these reports to the Owner. Daily CMRs will be kept on file throughout the course of construction for review by the BLM Environmental Compliance Monitor upon request.

Environmental monitors will be on site daily during initial ground disturbance and project design feature installation to ensure that topsoil is salvaged and stored appropriately, environmental resources are protected, and construction activities remain within their approved limits. Daily CMRs will be filled out by each environmental monitor on site detailing activities that were monitored, including area, time, type, issues, and resolution of issues. Daily CMRs will be collected by the Restoration Specialist and submitted to the Owner. Daily CMRs will be kept on file throughout the course of construction and available for review by BLM Environmental Compliance Monitor upon request.

5.2.3 Site Reclamation

Active restoration activities during site reclamation include recontouring, decompacting, and applying topsoil. These activities are discussed in detail below.

5.2.3.1 Recontouring and Decompaction

Prior to the implementation of restoration activities, soil will be decompacted and recontoured to as close to pre-disturbance conditions as possible. In doing so, the soil will be in a state more favorable for plant establishment and overall restoration success. Decompaction and soil recontouring following project design feature installation activities will occur in all restoration areas where conditions are conducive to these activities. Soil preparation may not be able to occur in areas that are extremely rocky and/or there is an overall lack of soil. In areas that are questionable, the Restoration Specialist and Owner will determine if conducting soil preparation activities will be a potential safety concern for the equipment operator. In other situations, the site may not have enough soil for this process to occur. For areas where soil preparation will occur, disturbed earth will be recontoured to blend with adjacent undisturbed topography. Some areas, such as the laydown areas and parking area, may become compacted during the construction phase of the project. Areas of compacted soil will be prepared as necessary by ripping, disking, or hand digging. Salvaged topsoil will then be reapplied to the restoration areas.

Once project design feature installation in an area is complete, graded slopes will be contoured to as close to the natural pre-disturbance condition as possible. Unvegetated jurisdictional washes will be recontoured such that upstream and downstream topography is reconnected within the temporary disturbance areas. Recontouring of drainage areas will be performed by the Installation Contractor in cooperation with the Restoration Specialist. Recontouring activities will include removal of fill, as necessary, in the temporary disturbance areas to return the

drainage areas to original grade. Jurisdictional drainages will be restored to the original channel width, as documented by the Restoration Specialist prior to initial ground disturbance. Drainages will also be recontoured such that the banks of the drainages will match the surrounding grade and contours of the undisturbed adjacent habitat, as necessary.

Ripping will occur in all areas with sufficient amounts of sub-soil, which do not present safety concerns to equipment operators. Cross-ripping will be used in temporarily disturbed areas on bare earth. Machine-mounted rippers will be used to rip along contours to a depth of 18 to 24 inches in areas where slope stability isn't compromised. It is important to note that although teeth rip to the required depth, it is unlikely that soil will remain decompacted at this depth. This is due to machinery conducting the ripping driving over rills during the decompaction process, and machinery utilized in the topsoil replacement process driving over the soil after ripping.

5.2.3.2 Applying Topsoil and Rock Replacement

Following decompaction, the salvaged topsoil, mulched plant material, and other native material (rocks, etc.) stored throughout the site will be applied to the restoration areas. Salvaged material will be spread evenly and contoured to match the grade of surrounding habitat. This will include creating microtopography to mimic the surrounding undisturbed habitat. Restoring microtopography aids the restoration process by providing varied topographic conditions suitable for returning plant species diversity. Hummocks, depressions, and swales at a scale and density equivalent to the adjacent undisturbed habitat will be formed to restore the natural land surface prior to planting and seeding. Because of this, the depth of topsoil will vary throughout the restoration area. Tracked equipment will be used for applying topsoil to avoid recompaction. Soil decompaction and topsoil replacement will be overseen by the Restoration Specialist and/or designated environmental monitor(s).

In addition to topsoil application, rocks and large boulders that were salvaged during grading will be replaced throughout temporarily disturbed areas where feasible. Areas where access control is expected to be an issue will rely more heavily on rock and boulder replacement than other areas. The Owner and Installation Contractor will coordinate on rock and boulder replacement in specific areas of concern as it relates to access control.

5.2.3.3 Monitoring Reports during Site Reclamation

Environmental monitors will be on site daily during site reclamation to ensure that all phases of the reclamation are done in accordance with this Plan. Furthermore, environmental monitors will monitor activities to ensure that environmental resources are protected, and that project limits are obeyed by contractors working on site. Hand-held penetrometers will be used by the Restoration Specialist or environmental monitors to check soil decompaction in restoration areas. Daily CMRs will be filled out by each environmental monitor on site detailing activities that were monitored, including area, time, type of activity, issues, and resolution of issues. Daily CMRs will be collected by the Restoration Specialist and submitted to the Owner. Daily CMRs will be kept on file throughout the course of construction and available for review by the BLM Environmental Compliance Monitor upon request.

5.2.4 Revegetation Installation

The revegetation installation phase will involve transplanting cacti and other succulents salvaged during initial ground disturbance and application of locally collected native plant seed. These activities are discussed in detail below.

5.2.4.1 Cacti and Succulent Installation

Cacti and other succulent species mentioned in Section 5.2.2.1 will be replanted in the restoration area in the vicinity of the plants' original locations. Additionally, efforts will be made to install transplants and plant segments in the same vegetation community, in similar soils, and on the similar slope and aspect as where they were collected. Soils around all transplants will be tamped down to remove air pockets from around the roots. Installation of whole plants and segments should be avoided in summer and early fall when daytime temperatures are very high in order to reduce mortality of transplanted individuals. Larger plants, typically those larger than 5 feet, may need to be supported (e.g., with a non-restrictive collar around the plant connected by wire to stakes installed in the ground). A determination of whether or not this is the case will be made in the field by the Restoration Specialist, in coordination with the Maintenance Contractor. Additional recommendations relevant to transplanted species are as follows:

- Planting holes for cacti will be the depth of the root ball and 2 to 3 times the width of the plant. Separate segments that broke off from the parent plant can be laid horizontally on the ground. These segments often root where spine clusters contact the ground without further measures.
- Salvaged transplants installed outside of the October 1 through April 30 rainy season may need to be hand watered for at least 1 year to encourage re-establishment and survival. Watering should occur between one week and one month following planting. Supplemental hand watering shall occur under the direction of the Restoration specialist. Watering should only occur when soils are completely dry to avoid rot.

5.2.4.2 Native Seed Palette

To enhance the habitat value of the project site, reduce erosion, and preclude colonization by non-native plants, locally collected native plant seed would be seeded in temporarily disturbed areas. Special collection on site may be necessary to procure the species listed in Tables 5 through 10. The Owner may elect to contract with a native seed collection contractor to assist in this effort. A seed collection permit must be issued by the BLM prior to collection of seed on BLM lands.

**Table 5
QUINO CHECKERSPOT BUTTERFLY SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck	1
<i>Antirrhinum coulterianum</i>	Coulter's snapdragon	2
<i>Camissonia strigulosa</i>	sandysoil sun-cup	1
<i>Chaenactis artemisiifolia</i>	white pincushion	1
<i>Chaenactis glabriuscula</i>	yellow pincushion	1
<i>Collinsia concolor</i>	Chinese houses	2
<i>Cordylanthus rigidus</i>	thread-leaved bird's beak	2
<i>Cryptantha intermedia</i>	nievitas cryptantha	2
<i>Cryptantha micrantha</i>	purple-rooted cryptantha	2
<i>Dichelostemma capitatum</i>	blue dicks	1
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow	1
<i>Lasthenia gracilis</i>	common goldfields	2
<i>Layia glandulosa</i>	white tidytips	2
<i>Phacelia cicutaria</i> var. <i>hispida</i>	caterpillar phacelia	1
<i>Plantago erecta</i>	dot-seed plantain	2
<i>Salvia columbariae</i>	chia	1
TOTAL		24

¹ For use in potential QCB habitat (i.e., within 1 kilometer of the known QCB sighting). This seed mix will be used in addition to a seed mix from Tables 5 through 10 for each respective vegetation community that overlaps with QCB habitat. If the same species is listed in Table 5 as well as the seed mix for a vegetation community, the higher pounds per acre amount will be applied for seeding in QCB habitat. This seed palette shall not be installed on roads or along road shoulders (approximately 6 feet from edge of road) to avoid potential impacts during regularly scheduled maintenance that must occur as part of operations.

**Table 6
EROSION CONTROL SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck	2
<i>Camissonia strigulosa</i>	sandy soil sun-cup	1
<i>Chaenactis glabriuscula</i>	yellow pincushion	2
<i>Corethrogyne filaginifolia</i> var. <i>californica</i>	California-aster	2
<i>Cryptantha intermedia</i>	nievitas cryptantha	1
<i>Ephedra californica</i>	California ephedra/Mormon tea	1
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow	2
<i>Gutierrezia californica</i>	California matchweed	2
<i>Lasthenia gracilis</i>	common goldfields	3
<i>Acmispon glaber</i> ssp. <i>brevialatus</i>	short-wing deerweed	2
<i>Lupinus bicolor</i>	miniature lupine	2
<i>Melica imperfecta</i>	smallflower melicgrass	3
<i>Mentzelia Montana</i>	montane mentzelia	1
<i>Salvia columbariae</i>	chia	2
<i>Stephanomeria exigua</i> ssp. <i>exigua</i>	small wreath-plant	1
<i>Trifolium willdenovi</i>	valley clover	1
TOTAL		28

¹ For use in the following vegetation communities: Agricultural Land, Disturbed, and Non-native Grassland.

**Table 7
UPLAND SCRUB SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck	2
<i>Artemesia tridentata</i>	Big sagebrush	1.5
<i>Cercocarpus minutiflorus</i>	Mountain mahogany	3
<i>Ephedra californica</i>	California ephedra	2
<i>Eriastrum densifolium</i> ssp. <i>elongatum</i>	chaparral woolly-star	1
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> ²	mountain buckwheat	3
<i>Eriogonum wrightii</i> var. <i>membranaceum</i> ²	foothill buckwheat	1
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow	3
<i>Gutierrezia californica</i>	California matchweed	1
<i>Hesperoyucca whipplei</i>	chaparral candle	1
<i>Lotus scoparius</i> ssp. <i>brevialatus</i>	short-wing deerweed	2
<i>Muhlenbergia rigens</i>	Deergrass	1
<i>Nemophila menziesii</i>	baby blue eyes	1
<i>Penstemon spectabilis</i>	showy penstemon	1
<i>Phacelia distans</i>	distant phacelia	1
<i>Salvia columbariae</i>	chia	2
<i>Stephanomeria exigua</i> ssp. <i>exigua</i>	small wreath-plant	0.5
TOTAL		27

¹ For use in the following vegetation communities: Big Sagebrush Scrub, Montane Buckwheat Scrub, and Upper Sonoran Subshrub Scrub.

² Plants listed in Appendix A on the Undesirable Plant List shall not be incorporated into seed mixes installed on County lands, or within fuel management zones on BLM lands. Seed lists will require final approval by respective agencies prior to installation.

**Table 8
CHAPARRAL SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Adenostoma fasciculatum</i> ^{2,3}	Chamise	3
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck	2
<i>Arctostaphylos glauca</i>	big-berry manzanita	2
<i>Ceanothus perplexans</i>	cup-leaf lilac	1
<i>Cercocarpus minutiflorus</i>	Mountain mahogany	1
<i>Eriastrum densifolium</i> ssp. <i>elongatum</i>	chaparral woolly-star	1
<i>Ericameria linearifolia</i>	Interior goldenbush	2
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> ²	mountain buckwheat	3
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow	2
<i>Hesperoyucca whipplei</i>	chaparral candle	1
<i>Penstemon spectabilis</i>	showy penstemon	1
<i>Phacelia distans</i>	distant phacelia	1
<i>Prunus ilicifolia</i> ssp. <i>Illicifolia</i>	holly-leaf cherry	3
<i>Rhamnus ilicifolia</i>	holly-leaf redberry	2
<i>Rhus ovata</i>	Sugar bush	2
<i>Yucca schidigera</i>	Mohave yucca	1
TOTAL		28

¹ For use in the following vegetation communities: Chamise Chaparral, Northern Mixed Chaparral, Redshank Chaparral, Scrub Oak Chaparral, Semi Desert Chaparral, and Southern North Slope Chaparral

² Plants listed in Appendix A on the Undesirable Plant List shall not be incorporated into seed mixes installed on County lands, or within fuel management zones on BLM lands. Seed lists will require final approval by respective agencies prior to installation.

³ Seed requires scarification prior to placement in seed mix.

**Table 9
WOODLAND SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck	2
<i>Arctostaphylos glauca</i> ²	big-berry manzanita	1
<i>Claytonia perfoliata</i> ssp. <i>mexicana</i>	Mexican miner's lettuce	1
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> ²	mountain buckwheat	3
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow	2
<i>Gutierrezia californica</i>	California matchweed	2
<i>Mimulus aurantiacus</i> var. <i>aridus</i>	sticky monkeyflower	2
<i>Muhlenbergia rigens</i>	deergrass	2
<i>Nemophila menziesii</i>	baby blue eyes	1
<i>Penstemon spectabilis</i>	showy penstemon	1
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	holly-leaf cherry	3
<i>Quercus agrifolia</i> ³	coast live oak	4
<i>Salvia columbariae</i>	chia	2
TOTAL		26

¹ For use in the following vegetation community: Coast Live Oak Woodland

² Plants listed in Appendix A on the Undesirable Plant List shall not be incorporated into seed mixes installed on County lands, or within fuel management zones on BLM lands. Seed lists will require final approval by respective agencies prior to installation.

³ Seeding to be done by hand. Herbivory protection may be required by the Restoration Specialist

**Table 10
RIPARIAN SEED PALETTE¹**

SCIENTIFIC NAME	COMMON NAME	POUNDS PER ACRE
<i>Artemisia dracuncululus</i>	taragon, dragon sagewort	2
<i>Baccharis salicifolia</i>	mule-fat, seep-willow	3
<i>Baccharis sergiloides</i>	desert baccharis	2
<i>Isocoma menziesii</i> var. <i>sedoides</i>	San Diego goldenbush	2
<i>Lotus purshianus</i> var. <i>purshianus</i>	Spanish-clover	1
<i>Mimulus guttatus</i>	seep monkey flower	1
<i>Muhlenbergia rigens</i>	deergrass	2
<i>Rumex salicifolius</i>	wouldow dock	1
<i>Sambucus Mexicana</i>	blue elderberry	2
<i>Stachys ajugoides</i> var. <i>rigida</i>	hedge-nettle	1
TOTAL		17

¹ For use in the following vegetation community: Southern Willow Scrub

A mix of annual and perennial species will be used to re-establish natural vegetation communities. Five different generalized native seed palettes are recommended in Tables 5 through 10. The recommended palettes were developed based on the dominant native species

found within the major vegetation types that occur on site, also taking into account that a majority of the restoration area will be within a fuel modification zone. Modifications to the list may be necessary and may include substitute species in the mix and/or modification of the pounds per acre of available seed. Substitutions requiring a change in pounds per acre for a particular species (or multiple species) will be at the discretion of the Restoration Specialist. Changes in the seed palette will also require BLM approval. The County reserves the right to modify seed mixes to be used within County jurisdiction. Sensitive plant species and QCB host plants have been included in the seed mix according to the communities and locations where they occur (Table 5). Additionally, portions of the restoration area previously containing disturbed habitat or non-native vegetation will be seeded with a native mix (Table 6).

5.2.4.3 Sources of Native Seed Material

All seeded species will be native and appropriate to the vegetation community to preserve the integrity of local gene pools, ensure adaptation to site-specific conditions, and avoid inadvertent introduction of inappropriate species or pathogens. Sources of seed will preferentially be from the transmontane region of southeast San Diego County. If local native seed sources are not feasible, species must originate from the Southwestern California and Sonoran (Colorado) Desert regions of the California Floristic Province as defined in Baldwin et al. (2012). Control measures will be necessary prior to native seed installation for non-native invasive species that interfere with successful implementation of the restoration effort. Prior to seeding, emergent weeds within the restoration area will be treated either physically or chemically, with the treatment method to be determined by the Restoration Specialist and WCM. The area will then be inspected by an environmental monitor and documented as free of weeds prior to moving forward with seed installation.

5.2.4.4 Seed Installation

The appropriate seed mix will be applied to all temporarily impacted areas. Seeding rates for each native plant palette (listed in Section 5.2.4.2) are recommended to provide thorough coverage, optimize growth, and preclude non-natives. The suggested amounts (pounds per acre) and species utilized can be adjusted to meet the recommended seeding rates according to the number of species and amounts of seed available. The suggested amounts and species utilized may also be adjusted to account for lower native cover criteria in fuel modification zones. In areas where topsoil salvage is not possible, seed quantities will be double the pounds per acre listed in Section 5.2.4.2, based on seed availability. Seeding will occur after the soil has been prepared and cacti transplants installed (if applicable).

To help decrease the potential for seed to be blown away, washed away, or eaten by seed predators, it will be imprinted, hydroseeded, or hand raked into the topsoil depending on location within the restoration area. The Restoration Specialist, in collaboration with the Owner, will make a determination on where each of these processes will be utilized. The Owner and Restoration Specialist will coordinate seeding activities with the BLM and County on their respective lands, prior to installation.

Imprinting

Land imprinting presses seeds into firm contact with the soil and forms depressions that hold rainfall. This is the preferred seeding method for the laydown areas and parking area. This method will involve a tractor pulling a toothed rolling drum. These teeth press into the soil, creating microsites that retain seed and water. The seed is applied to the soil just prior to being pressed into the ground by the drum. Since imprinting requires driving over a site, it shall be conducted prior to installing salvaged plant material.

Hand Seeding

Hand seeding may be used in lieu of hydroseeding or imprinting. This determination will be made by the Restoration Specialist in coordination with the Owner based on site specific conditions and other considerations. Seeds that are hand broadcasted will be raked into the topsoil to ensure soil contact and decrease the potential for it to be eaten or blown away.

Coast live oak acorns listed in the Woodland seed palette should be planted about one inch below the soil surface. A hole shall be dug several inches deeper than the acorn will be planted, and refilled with loose soil before being tamped firm.

Hydroseeding

Hydroseeding is an effective method of revegetation that allows for the quick germination of seeds, which can be spread over a large area using trucks or trailer mounted tanks. Hydroseeding consists of spraying seed in a water-based slurry that typically contains other agents, including fiber mulch, soil amendments, and a tackifier to hold the desired placement of seed. Hydroseed application requires that water be provided for the slurry mixture to be applied by a water truck or other method. Since different seed mixes will be utilized throughout the restoration area, coordination between the Restoration Specialist and Installation Contractor is required. Prior to switching seed mixes, the hydroseed equipment shall be cleaned. Hydroseeding will preferably occur in the fall or winter, prior to the start of or during the rainy season to maximize the germination rate and survival of the plants. It is not advised to conduct hydroseeding in the summer months.

5.2.4.5 Selective Watering

Salvaged transplants installed outside of the rainy season may need to be hand-watered for up to 1 year to encourage re-establishment and survival. Supplemental hand watering shall occur under the direction of the Restoration Specialist. If irrigation is needed, this will be accomplished by utilizing water trucks and/or other water distribution vehicles with hose attachments. Irrigation is not expected to occur in hydroseeded or imprinted areas. Due to the acreage and extent of the project and logistical infeasibility of installing an irrigation system throughout the restoration area, site-wide irrigation is not proposed.

Sites within the vicinity of the O&M building will also be irrigated using a permanent water tank in conjunction with slope planting and permanent revegetation on County lands. All other remote

sites on County lands may be watered by hand from a water truck filled up from the on-site well to the south of the O&M building, as needed under the direction of the Restoration Specialist.

5.2.4.6 Monitoring Reports during Site Revegetation Installation

Monitoring will be conducted by the environmental monitors and Restoration Specialist overseeing the revegetation installation and site reclamation. The Restoration Specialist will be on site during revegetation installation to ensure that revegetation activities are being conducted consistently with this Plan. The Restoration Specialist will oversee all phases of the revegetation installation process, including weed abatement prior to revegetation installation as well as planting of salvaged plants and seeding. Environmental monitors will include in daily CMRs revegetation activities that occur. Daily CMRs will be submitted directly to the Owner and kept on file for review by BLM Environmental Compliance Monitor upon request.

An installation report will be completed by the Restoration Specialist and reviewed by the Owner following completion of all revegetation installation activities throughout the entire site. The installation report will be submitted to the BLM, USFWS, and the County upon completion of the revegetation installation phase. Installation reports will also be submitted to the County after private land areas have been installed. The installation report will include a summary of activities that occurred during revegetation installation, including but not limited to, dates and areas where revegetation activities occurred, such as type and quantities of seed installed and cacti and plants replanted. The installation report will also include post-revegetation installation photos from the photo points established at the established restoration area transects (see Section 5.2.1.1).

6.0 FIVE-YEAR MAINTENANCE

Following the completion of site reclamation and revegetation installation activities throughout the site, the restoration areas will enter into a 5-year maintenance and monitoring period. A 5-year maintenance and monitoring program is provided to ensure the successful establishment and persistence of the restored habitat. Maintenance activities will be directed by the Restoration Specialist and implemented by the Maintenance Contractor.

General maintenance will involve the removal of non-native species and trash, supplemental watering (as directed by the Restoration Specialist), and any remedial measures deemed necessary for the success of the restoration effort (e.g., re-seeding, planting). Success of the restoration effort will be evaluated on an annual basis, and remedial measures will be determined by the Owner and Restoration Specialist. The BLM and County will be notified of remedial measures to be implemented, depending on jurisdiction of the lands where remedial measures will occur.

The maintenance guidelines are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the restoration effort and the maintenance requirements prior to the start of work. It is the Owner's responsibility to keep the revegetation area free of debris, assess transplant condition and health, and remove non-native species. Damage to plants

occurring as a result of unusual weather, vehicle accidents, or vandalism will be repaired as directed by the Restoration Specialist.

6.1 NON-NATIVE SPECIES AND WEED CONTROL

6.1.1 Physical Weed Removal Methods

Physical control methods are applicable for removal of non-native species and can include hand pulling, use of hand tools, and mechanical clearing. Methods employed will depend on the species, size, and extent of the non-native species targeted and the root structure of each plant. Hand pulling is often most effective for localized non-native species control when the plant is large enough that it will not break and leave the root structures in place to resprout. This method is less effective in large affected areas or with species that spread through underground root systems.

As non-native, invasive plants are identified, physical removal methods such as hand-pulling, excavating, or cutting can be used through the use of hand tools such as clippers, pruners, shovels, rakes, and hoes, as well as equipment such as weed-whips and dethatchers. Dethatchers remove dead plant material from the soil surface, which has the benefits of (1) removing non-native, invasive seed that may still be attached to the dead vegetation; (2) allowing native seed already present in the soil, or applied to the site, to germinate more easily; and (3) increasing the effectiveness of subsequent herbicide applications. Because it is highly selective, physical removal can minimize damage to existing native vegetation; however, it is the most time-consuming and physically challenging method. Therefore, it is best suited for small areas of infestation or in areas where non-native, invasive plants occur within sensitive habitat.

Physical treatments include cutting undesired plants above ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; and cutting at the ground level or removing competing plants around desired species.

6.1.2 Chemical Weed Removal Methods on BLM Lands

An Environmental Assessment (EA) has been prepared and approved to disclose and analyze the environmental effects of herbicide use for weed management within the project site (Tule Wind 2015). Herbicide application is a widely employed, efficient, non-native species control method that is effective for large areas where hand pulling is not practical. Herbicides will be employed in accordance with BLM requirements and will use U.S. Environmental Protection Agency (USEPA)-registered herbicides that have been properly evaluated under the National Environmental Policy Act, as well as registered for use in the State of California. Pre- and post-emergent herbicides may be applied throughout the project area (Table 11). Pre-emergent herbicides are those that are integrated into the soil before the weed seed germinates and generally require irrigation or rainfall. Application of pre-emergent herbicides will occur in early fall, prior to fall/early winter rain events. Post-emergent herbicides are applied directly to the weed while it is growing and prior to seed set (Table 12). Post-emergent treatment will occur as-needed to meet weed control criteria. Table 13 outlines the maintenance schedule during the 5-year maintenance and monitoring period.

**Table 11
HERBICIDES AND APPLICATION RATES TO BE USED**

CHEMICAL (HERBICIDE)	TYPICAL APPLICATION RATE	MAXIMUM APPLICATION RATE
Glyphosate	2 gallons active per 100 gallons (2 percent solution)	10 gallons active per 100 gallons (10 percent solution)
Triclopyr	3 quarts active per 100 gallons (0.75 percent solution)	8 quarts active per 100 gallons (2 percent solution)
No Foam A (to be added as a surfactant to triclopyr)	50 ounces per 100 gallons (0.004 percent solution)	50 ounces per 100 gallons (0.004 percent solution)
Marker dye to be added to glyphosate and triclopyr	18 ounces per 100 gallons (0.001 percent solution)	24 ounces per 100 gallons (0.002 percent solution)
2,4-D	1 ounce per gallon (0.25 percent solution)	4 ounces per gallon (1 percent solution)
Phase surfactant – antifoaming agent to be added to 2,4-D	16 ounces per 100 gallons (0.001 percent solution)	64 ounces per 100 gallons (0.005 percent solution)
Hi-Light (dye to be added to 2,4-D)	16 ounces per 100 gallons (0.001 percent solution)	32 ounces per 100 gallons (0.003 percent solution)

**Table 12
HERBICIDES TO BE USED FOR EACH WEED SPECIES**

WEED SPECIES	CHEMICAL (HERBICIDE)		
	Glyphosate	Triclopyr	2,4-D
Invasive species			
slender wild oat (<i>Avena barbata</i>)	X		
wild oat (<i>Avena fatua</i>)	X		
soft brome (<i>Bromus hordeaceus</i>)	X		
red brome (<i>Bromus madritensis</i> ssp. <i>rubens</i> [= <i>B. rubens</i>])	X		
downy brome/cheatgrass (<i>Bromus tectorum</i>)	X		
Malta star-thistle/tocalote (<i>Centaurea melitensis</i>)	X	X	X
Bermuda grass (<i>Cynodon dactylon</i>)	X		
redstem filaree (<i>Erodium cicutarium</i>)	X		X
short pod mustard/summer mustard (<i>Hirschfeldia incana</i>)	X	X	
Mediterranean barley/hare barley/wall barley (<i>Hordeum marinum</i>)	X		
smooth cat's ear (<i>Hypochaeris glabra</i>)	X	X	X
horehound (<i>Marrubium vulgare</i>)	X	X	X
burclover (<i>Medicago polymorpha</i>)	X		X
olive (<i>Olea europaea</i>)	X	X	
annual beard grass (<i>Polypogon monspeliensis</i>)	X		
prickly Russian thistle/tumbleweed (<i>Salsola tragus</i>)	X	X	X
Mediterranean schismus (<i>Schismus barbatus</i>)	X		
London rocket (<i>Sisymbrium irio</i>)	X		X
tamarisk/salt cedar (<i>Tamarix ramosissima</i>)	X	X	
rattail fescue (<i>Vulpia myuros</i>)	X		

**Table 12 (cont.)
HERBICIDES TO BE USED FOR EACH WEED SPECIES**

WEED SPECIES	CHEMICAL (HERBICIDE)		
	Glyphosate	Triclopyr	2,4-D
Other Non-native Species			
compact brome (<i>Bromus madritensis</i> ssp. <i>madritensis</i>)	X		
long-beak filaree/storksbill (<i>Erodium botrys</i>)	X		X
white-stem filaree/storksbill (<i>Erodium moschatum</i>)	X		X
field pepperweed (<i>Lepidium campestre</i>)	X		X
clasping pepperweed (<i>Lepidium perfoliatum</i>)	X		X
field madder (<i>Sherardia arvensis</i>)	X		
tumble/Jim Hill mustard (<i>Sisymbrium altissimum</i>)	X	X	X

**Table 13
MAINTENANCE SCHEDULE***

YEAR	SCHEDULE
1 and 2	8 times per year
3 and 4	6 times per year
5	4 times per year

* This schedule is only a guideline and will be directed by the Restoration specialist. Exact timing dependent upon rainfall timing and weed germination.

Any herbicides used as part of this Plan will be mixed, handled, and applied in accordance with manufacturer’s label instructions. No herbicide applications will be performed during unfavorable wind and weather conditions; these conditions are specific to each pesticide label and must be followed. Pesticide label directions will discuss specific site conditions and application methods with regard to wind and weather. During herbicide application, measures to reduce effects to adjacent or nearby native vegetation and special status species will be implemented. Some of the most relevant measures include the following: (1) spraying herbicides during low-wind conditions (wind velocities are less than 10 miles per hour); (2) using a sponge applicator during higher wind conditions; (3) avoiding herbicide contact with anything other than specified target; (4) not applying when raining or if rain is imminent; (5) not applying within 50 feet of surface water; and (6) keeping vehicles on permanent access roads during operation activities to avoid crushing plants and/or vegetation. Wicking, daubing, and/or painting herbicide application methods are not wind limited application methods, and wind speed restrictions generally applies only to foliar spraying and may vary by herbicide product.

The typical application rates of the 3 herbicides to be used include a 2 percent solution of glyphosate, a 0.75 percent solution of triclopyr, and a 0.25 percent solution of 2,4-D (Table 11). Application rates may be subject to change based on manufacturer’s label recommendations at the time of activity.

Glyphosate will be the primary herbicide used to treat invasive weeds on the project site as it has been shown to be effective in controlling the majority of the species listed in Table 12.

Triclopyr has been shown to be effective in controlling woody perennials (e.g., tamarisk), herbaceous broadleaf weeds (e.g., tocalote), and many of the other species listed in Table 12. 2,4-D will be used to control invasive broadleaf weed species when glyphosate and triclopyr are determined not to be effective.

All herbicides used for the Proposed Action will contain a marker dye to make the herbicide visible wherever it is applied. This dye will allow the applicator to identify: (1) which plants have been treated, thereby ensuring coverage of target plants and avoiding accidental re-treatment; (2) if drift is occurring, thereby allowing for cessation of treatment and preventing damage to surrounding native vegetation; and (3) if personal contamination is occurring, thereby facilitating rapid response to correct the situation. Because the dye is combined in solution with the herbicides, the effects of both the dye and the herbicide together are discussed collectively throughout this document.

A surfactant will be added to triclopyr as a wetting agent and will help ensure that the herbicide contact is maximized on the weed surface and drift is minimized on adjacent non-target vegetation. A surfactant is not needed for glyphosate because it is included in the formulation of the herbicide. In addition, a surfactant – antifoaming agent will be added to 2,4-D to help ensure maximum contact with the weed surface and to minimize drift.

Weed spraying will be conducted on weeds outside of highly sensitive areas (i.e., waters of the U.S., areas containing rare plants, etc.). Herbicide application typically will occur from December through May to coincide with the germination period of the weeds on site. Herbicide application may also be needed in summer months if weed species germinate in response to summer rains. Up to 3 applications may be needed each year; the actual number of applications per year will depend on environmental conditions, most notably being the amount and frequency of rain events and temperature. To be most effective, weeds should be treated with herbicide prior to the development of mature seed.

Backpack or trailer-mounted sprayers will be used to apply herbicides in situations where plants are small and have not yet formed seed heads and when application to individual or isolated plants is needed. This equipment may be fitted with a hooded or shielded applicator tip. The shield will focus the herbicide application directly over the target, greatly reducing the potential of drift. The use of a shield with this spray technique will allow for increased focus and accuracy. Each target will be treated one at a time, thereby excluding the broadcast application of an herbicide.

Herbicide will be applied by a State-licensed contractor under the direction of a QAL or QAC holder, as appropriate. Herbicide containers will be returned to the Maintenance Contractor's facilities for disposal in accordance with applicable federal, state, and local codes and regulations.

Permitting and Regulatory Requirements

An Environmental Assessment has been prepared for public review to disclose and analyze the environmental effects of the use of 3 herbicides (glyphosate, triclopyr, and 2,4-D) for weed

management. A PUP must also be obtained from the BLM prior to the use of herbicides on the project site. The PUP will list the herbicides, method and rate of application, estimated acres, sensitive aspects and precautions, non-target vegetation, and integrated pest management. Maintenance Contractors applying herbicides must be state-licensed contractors and must follow the conditions listed in the PUP when applying pesticides on BLM land.

Application and Handling

The following general precautions and procedures have been outlined in the BLM Handbook H-9011-11 (Chemical Pest Control) and Manuals 1112 (Safety), 9011 (Chemical Pest Control), 012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management) for use of herbicides on public lands (BLM 2007c); the complete Herbicide Treatment Standard Operation Procedure can be found in Appendix D.

- Prepare operational and spill contingency plan in advance of treatment.
- Conduct pretreatment survey before applying herbicides.
- Select herbicide that is least damaging to the environment while providing the described results.
- Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures.
- Apply the least amount of herbicide needed to achieve the desired result.
- Follow herbicide applicators label for use and storage.
- Have licensed applicators apply herbicides.
- Use only USEPA-approved herbicides and follow product label directions and “advisory statements.”
- Review, understand, and conform to the “Environmental Hazards” section on the herbicide product label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment.
- Minimize the size of application area, when feasible.
- Comply with herbicide-free buffer zones to ensure that drift would not affect crops or nearby residents/landowners and native habitat.
- Post treated areas and specify reentry or rest times, if appropriate.
- Notify adjacent landowners prior to treatment.
- Keep a copy of Material Safety Data Sheets (MSDS) at work site. The MSDS are available for review at <http://www.cdms.net/>.
- Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location.
- Avoid accidental direct spray and spill conditions to minimize risks to resources.

- Take precautions to minimize drift by not applying herbicides when winds exceed 10 miles per hour, or a serious rainfall event is imminent.
- Use drift control agents and low volatile formulations.
- Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to treatment areas.
- Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation.
- Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species.
- Turn off applied treatment at the completion of spray runs and during turns to start another spray run.
- Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.
- Clean off-highway vehicles to remove seeds.

6.1.3 Chemical Weed Removal Methods on County Lands

Herbicides may be used on County lands during the maintenance period. All herbicide use and reporting shall be implemented per County regulations. Noxious weed management on County lands shall be conducted annually to prevent the establishment and spread of invasive plant species. Any herbicides used as part of this Plan will be mixed, handled, and applied in accordance with manufacturer's label instructions. Herbicide use should be limited to non-persistent herbicides and should only be applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications. Herbicide used on County lands shall be included in monthly reports to the County of San Diego Department of Agriculture, Weights and Measures.

6.2 REMEDIAL MEASURES

Any areas exhibiting low seed germination and native cover establishment will be reseeded with a supplemental seed mix and/or will be addressed through other adaptive management measures, as determined through coordination between the Owner, the Restoration Specialist, the Maintenance Contractor, and/or BLM, depending on the jurisdiction of the area in question. Adaptive management may include, but is not limited to, remedial seeding, container planting, supplemental watering, herbivory protection, and enhanced maintenance activities. Based on site performance as measured in annual assessments, the Restoration Specialist and Owner will determine the locations and type(s) of remedial measures that will be needed. Native cover establishment will be determined through a comparison of data taken during baseline transects and data collection during the 5-year monitoring period, as discussed in Section 7.2.2. The BLM and/or County will be notified of remedial measures that are to be implemented, respectively. Prior to any proposed reseeded, an assessment of why the initial seeding failed and why additional seed is expected to have improved establishment will be provided by the Restoration Specialist to the Owner.

6.3 FERTILIZER APPLICATION

Chemical fertilizer will not be applied. Organic or bio-fertilizer may be applied when needed for establishment and maintenance of plants until revegetation success criteria are reached only at the written direction of the Restoration Specialist.

6.4 MAINTENANCE ACTIVITIES AND REPORTING SCHEDULE

Maintenance will be performed as necessary to control non-native vegetation; the frequency of weed control will change with varying site conditions and seasons and the schedule outlined herein (Table 13) serves only as a guideline. During the 5-year maintenance and monitoring period, maintenance will be conducted at least 4 times per year, with the exact timing dependent upon the timing and abundance of rainfall. Following monitoring visits by the Restoration Specialist, the Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report, unless otherwise agreed with the Restoration Specialist and Owner.

Herbicide used on County lands shall be included in monthly reports to the County of San Diego Department of Agriculture, Weights and Measures. Herbicide used on BLM lands shall be reported per the conditions listed in the Pesticide Use Proposal.

7.0 FIVE-YEAR MONITORING

Monitoring during the 5-year maintenance and monitoring period will be carried out by the Restoration Specialist and will include the following stages: (1) maintenance monitoring; and (2) annual technical monitoring and remedial measures taken. During each visit, the Restoration Specialist will inspect the site to ensure that the restoration effort is progressing as planned and identify any problems that may affect the restoration effort. The following sections describe maintenance monitoring and annual technical monitoring requirements for the habitat restoration program.

7.1 MAINTENANCE MONITORING

Maintenance monitoring will consist of general site inspections focusing on observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants). The Restoration Specialist will monitor maintenance activities conducted by the Maintenance Contractor for the duration of the 5-year maintenance and monitoring period (in accordance with the schedule outlined in Table 14). A total of 6 monitoring visits per year will be conducted in Years 1 and 2, and 4 visits per year in Years 3 through 5. Visits should be conducted most frequently during the rainy period (generally October through April). This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with habitat development or other unforeseen circumstances. Monitoring memos noting any issues with plant establishment, non-native species, vandalism, sediment control, etc., will be kept on file by the Owner.

Table 14 MAINTENANCE MONITORING SCHEDULE*	
TIMING	SCHEDULE
Year 1 and Year 2	
November to April	4 times
May to October	2 times
Years 3 to 5	4 times between November and June

* This monitoring schedule is suggested, but should be modified based on yearly rainfall and other conditions that may affect the growth of vegetation.

7.2 ANNUAL TECHNICAL MONITORING

The monitoring objective is to track the success of the restoration effort in order to advise the Owner and regulatory agencies on the restoration of native vegetation communities in areas temporarily disturbed by project activities. This will be accomplished by documenting conditions within the restoration area immediately after impact and comparing annually for a 5-year period to baseline conditions obtained from undisturbed vegetation communities occurring in close proximity to the project site. In addition to maintenance monitoring visits, the Restoration Specialist will conduct annual technical monitoring in February or March of each year during the 5-year maintenance and monitoring period. The visits are scheduled for late winter/early spring to coincide with the typical peak of the growing season for most annuals. The exact timing of the visits will depend on site and weather conditions. Annual monitoring will consist of a qualitative (visual) and quantitative (restoration area transect data collection) assessment for all 5 years.

Specific monitoring activities will include the following:

- Documenting the percent cover of native vegetation within the disturbed areas;
- Comparing restoration;
- sites to surrounding undisturbed reference sites;
- Documenting all plant species within the restoration areas; and
- Conducting photographic documentation of restoration areas and surrounding undisturbed sites.

7.2.1 Qualitative Assessment

A qualitative assessment of plant health and plant recruitment within the restoration area will be conducted annually. This will include qualitatively assessing seedling emergence throughout the restoration area, which will provide information on potential locations needing remedial actions. Photos will be taken from established photo documentation stations to capture changes throughout the restoration area.

Portions of the restoration area consisting of non-native vegetation communities and disturbed habitat prior to temporary impacts will only be qualitatively assessed. These areas represent a

small portion of the overall restoration area, often occurring in small patches between native vegetation communities.

7.2.2 Quantitative Assessment

Quantitative assessment will be conducted during annual monitoring visits by collecting data from the 52 transects established within restoration areas. In addition to transects, plot(s) will be established in QCB portions of the restoration area to measure QCB host plant density. Annual success milestones related to quantitative data analysis are provided in Section 8. Transects will be located in the same areas as the photo documentation locations, determined by the Restoration Specialist prior to ground disturbance activities during baseline data collection surveys. The methodology used to establish the number and location of transects and plots is described in Section 5.2.1.1. Data collection methods along transects and plots are discussed in detail in Section 5.2.1.1.

7.2.3 Annual Reports

An annual report will be prepared by the Restoration Specialist each year during the 5-year monitoring period and submitted to the appropriate agencies (including, but not limited to, BLM and County) within 3 months of the assessment. The annual report will document the current status of the restoration area, with discussion on whether or not it is on track to meet final success standards, and if remedial measures are needed. Photos taken from photo locations, plant and animal species observed within the restoration area, and transect data sheets will be included as attachments.

8.0 SUCCESS CRITERIA

Success criteria provide specific standards to evaluate the progress of the restoration effort. Attainment of these standards indicates that the restoration area is progressing toward meeting the objectives determined prior to beginning the restoration effort and providing habitat functions and services specified by this Plan. Restoration success will be determined by comparing the restoration area to its pre-disturbance biological conditions and ecological functions. Restored areas will be compared to adjacent reference habitat with analogous biological values and ecological functionality as the pre-disturbed site, and both are located within the same contiguous area. The success criteria are specified below in Tables 15, 16 and 17. From the very early stage of the restoration process, revegetation, management, and remedial measures will be employed (as needed) in order to facilitate plant emergence and sustain growth and meet the established success criteria. The revegetation and management activities will continue beyond the stipulated 5 years as needed to meet the success criteria. Alternatively, any temporarily disturbed areas that fail to meet success criteria in spite of the best efforts may be considered by either County or BLM, at the agency's discretion and respective of which agency has jurisdiction over that portion of the restoration area, to be considered as permanent impact areas and compensated accordingly. Restoration areas deemed significantly close to success criteria may be considered for approval by respective agencies, and discussions may be had between the Owner and the agencies to determine whether sign-off is appropriate. Written agency approval

will be needed on any restoration success sign-off or any alternative determinations, respective of jurisdiction of the restoration area under consideration.

CRITERIA	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Minimum native vegetation cover*‡	20	30	50	65	80
Density of native shrub seedlings*	20	30	NA	NA	NA
Native shrub species cover (minimum)*	15	20	NA	NA	NA
Native annual species cover (minimum)*	5	10	NA	NA	NA
Maximum non-native vegetation cover	15	15	15	15	15
Species richness*	20	30	50	65	80
Salvaged cacti survivorship [^]	50	50	50	40	30

* Percent relative to baseline reference transect data (e.g., if the native cover in baseline reference transects in vegetation community A is 70 percent, and the relative success criterion is 80 percent, then the actual success criterion for that vegetation community within the restoration area is 56 percent native cover).

‡ Within fuel modification zones, absolute native vegetation cover must not be greater than 50 percent. At the end of year 5, native cover should equal the relative success criterion or 50 percent absolute cover, whichever is greater. If native cover exceeds 50 percent absolute cover at any point, these areas will be thinned to 50 percent annually prior to May 1.

[^] Survivorship will include salvaged segments, whole plants, and newly recruited cacti within the restoration area.

VEGETATION COMMUNITY	DOMINANT SPECIES	PERCENT OF INDIVIDUALS PRESENT				
		Year 1	Year 2	Year 3	Year 4	Year 5
Big Sagebrush Scrub	<i>Artemisia tridentata</i>	2	4	6	8	10
Chamise Chaparral	<i>Adenostoma fasciculatum</i>	1	2	3	4	5
Dense Coast Live Oak Woodland	<i>Quercus agrifolia</i>	2	4	6	8	10
Montane Buckwheat Scrub	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	2	4	6	8	10
Northern Mixed Chaparral	<i>Adenostoma fasciculatum</i> , <i>Arctostaphylos glauca</i> , <i>Ceanothus</i> sp.	1	2	3	4	5
Open Coast Live Oak Woodland	<i>Quercus agrifolia</i>	2	4	6	8	10
Redshank Chaparral	<i>Adenostoma sparsifolium</i>	1	2	3	4	5
Scrub Oak Chaparral	<i>Quercus berberidifolia</i>	1	2	3	4	5
Semi Desert Chaparral	<i>Ericameria brachylepis</i> , <i>Cylindropuntia</i> sp., <i>Adenostoma fasciculatum</i>	1	2	3	4	5
Southern North Slope Chaparral	<i>Adenostoma fasciculatum</i> , <i>Arctostaphylos glauca</i> , <i>Quercus berberidifolia</i>	1	2	3	4	5

**Table 16 (cont.)
DOMINANT SPECIES SUCCESS CRITERIA BY VEGETATION COMMUNITY**

VEGETATION COMMUNITY	DOMINANT SPECIES	PERCENT OF INDIVIDUALS PRESENT				
		Year 1	Year 2	Year 3	Year 4	Year 5
Upper Sonoran Subshrub Scrub	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> , <i>Ericameria linearifolia</i> , <i>Ephedra californica</i>	2	4	6	8	10

These success criteria are only applicable within portions of the restoration areas that falls outside of fuel modification zones. Dominant species success criteria will not be required in fuel modification zones.

The following parameters will determine success of the restoration effort: the percent cover of native and non-native vegetation and the recruitment (the successful, natural reproduction, and/or establishment of plants in a given area) of native plants as compared to the reference habitat discussed in the previous paragraph. In addition, the survivorship of transplanted material will be monitored. Interim success criteria, demonstrating that the project is on track to meet the final criteria, are also provided for the first 4 years of the 5-year maintenance and monitoring period. Due to the fuel load requirements specified in the Fire Protection Plan (RC Biological Consulting, Inc. 2011), native vegetation cover within fuel modification zones will be a maximum of 50 percent throughout the life of the project.

8.1 TRANSPLANT SURVIVORSHIP

Due to the size and extent of the project, an irrigation system will not be implemented for cacti and succulent transplants or native seed material; however, irrigation may be used for landscaping on County lands associated with the O&M and substation areas. Survivorship criteria for transplants, which include segments and whole plants, will be 50 percent for Years 1 through 3, 40 percent for Year 4, and 30 percent for Year 5. Survivorship percentage calculations will include salvaged material and newly recruited cacti and succulents within the restoration areas. A representative population of transplant individuals will be monitored for survivorship within the same 5-meter belt transects centered on the restoration area transects being used for dominant species composition. The amount of individuals monitored will be representative of the total salvaged amount.

Remedial measures will be implemented if the number of cacti within the restoration area falls below success standards listed in Table 15 during the five-year maintenance and monitoring period. Remedial measures may include the collection and planting of additional cacti segments, nursery propagation of cacti, supplemental watering, plant protection, or other methods determined by the Restoration Specialist in order to obtain the number of cacti required by the success criteria in any given year. The number of segments required for remedial efforts will be calculated by the Restoration Specialist, and account for expected loss. Expected loss can be determined using previous years’ survivorship data from the original transplant efforts.

8.2 NATIVE COVER

Cover by native vegetation should increase over time and, by the end of Year 5, be meeting success criteria. For areas outside of fuel modification zones, native cover should be 80 percent relative to reference transect data for each respective vegetation community at the end of 5 years to be considered successful, with no limit on the maximum native cover. There is a caveat for portions of the restoration site that occur within fuel modification zones. Per the requirements in the Fire Protection Plan (RC Biological Consulting, Inc. 2011), the maximum allowable absolute cover in fuel modification zones is 50 percent. Because of this the maximum allowable cover in these areas cannot exceed 50 percent, even if this percentage is lower than what 80 percent relative cover would be. Quantitative milestones are also included for the first 4 years of the restoration program and are intended to gauge the site's trajectory early within the restoration effort for this reason.

Three additional success criteria are also included for Years 1 and 2 to measure the initial recovery of shrub and annual species within the restoration site: density of native shrub seedlings, native shrub species cover, and native annual species cover (Table 15). The primary intent of these criteria is to help inform the Restoration Specialist where remedial measures may be necessary early in the program to increase the probability of meeting final success criteria. For Year 1, the density of shrub seedlings within the restoration areas shall be at least 20 percent of the density of shrub individuals in reference areas. Native shrub cover within the restoration areas shall be greater than 20 percent of the shrub cover in adjacent areas at the end of Year 1, and native annual cover shall be greater than 25 percent of the cover of native annuals in reference areas. Similar interim success criteria were included for Year 2, as noted in Table 15. Supplemental seeding and/or adaptive management measures, as determined in coordination between the Restoration Specialist, Owner, Maintenance Contractor, and BLM, may need to be implemented in Years 1 and 2 if areas do not meet the interim success criteria described above. Only the portions of the site that are not meeting the criteria may need remedial measures.

8.3 NON-NATIVE COVER

The presence of non-native plant species is typically a problem with habitat restoration, particularly at the outset of the revegetation effort. However, with diligent maintenance efforts, non-native cover should be held to an acceptable level. Weed cover shall not exceed 15 percent cover anywhere on the project site for the duration of the restoration effort. Naturalized, non-native weed species that are ubiquitous to the region, such as Mediterranean schismus and red-stem filaree, will be controlled as part of the 5-year maintenance and monitoring period, but will be excluded from the 15 percent final weed cover criterion. Non-native cover will be measured along the reference transects and will be compared to the measured non-native cover along the restoration transects for comparative purposes.

8.4 SPECIES RICHNESS

Recruitment of native species should be evident throughout the 5-year program, assuming sufficient rainfall has occurred. Species richness (i.e., the number of species in a given area) will be used to evaluate recruitment and similarity of species composition to surrounding habitat.

Species richness will be determined by counting the number of native species that occur along each of the belt transects (see Section 7.2.2). The restoration areas shall demonstrate at least 80 percent of the species richness observed in a reference habitat at the end of the 5-year restoration effort (Table 15).

8.5 DOMINANT SPECIES COMPOSITION

During baseline data collection, the Restoration Specialist will collect data on dominant species within each vegetation community, to obtain an estimated number of individuals per acre as described in Section 5.2.1.1. During restoration area monitoring, dominant species individuals will be counted within a 5-meter belt transect centered on each restoration area line transect. Depending on the vegetation community, there may be multiple restoration area transects located throughout the site. Success of dominant species by vegetation community will be calculated by summing the number of dominant species individuals counted throughout all transects within the respective vegetation community. The total number will then be extrapolated (based on the total area of all belt transect collection areas within the respective vegetation community) to achieve a number per acre. This will then be compared with the baseline data collected from the reference plots discussed in 5.2.1.1. If a vegetation community has more than one dominant species listed in Table 3, the success criteria will be evaluated as a cumulative total of all individuals from the multiple dominant species listed. See the example below. This success criterion will only be applied in areas of the restoration site that fall outside fuel modification zones.

Example: Southern North Slope Chaparral has three dominant species listed in Table 3 (*Adenostoma fasciculatum*, *Arctostaphylos glauca*, *Quercus berberidifolia*). During Year 5 restoration monitoring, dominant species individuals are counted within three 50-meter by 5-meter transects. Within these three 50-meter by 5-meter transect areas, a total of 10 dominant species individuals are counted. Three 50-meter by 5-meter plots equals approximately 8,072 square feet, or 0.18 acres. This extrapolates to approximately 56 dominant individuals per acre within the Southern North Slope Chaparral vegetation community. The 56 dominant individuals per acre are then compared to the number of individuals per acre determined during baseline data collection to determine whether dominant species composition success criteria have been met for the Southern North Slope Chaparral vegetation community. If the baseline number of dominant species individuals is 1,120 or less per acre, then Year 5 success criteria of 5 percent has been met.

8.6 QUINO CHECKERSPOT BUTTERFLY HABITAT

In addition to the cover and richness success criteria specified above in Table 15, QCB restoration areas will need to provide the necessary habitat parameters for the species, including presence of host plants (i.e., dot-seed plantain [*Plantago erecta*]), and known secondary host plants, nectar resources, cryptogamic soils, openings in habitat, and habitat enhancement features, such as brush piles, scattered sticks, branches, and rock cobbles (Dodero 2003). Table 17 provides the success criteria percentages for QCB habitat areas. Due to the year-to-year variability in host plant abundance and diversity, achievement of the final success criteria will be based on the highest performing year of quantitative data collection during Years 3, 4, and 5.

Table 17
PERCENT SUCCESS CRITERIA MILESTONES -
QUINO CHECKERSPOT BUTTERFLY AREAS

CRITERIA	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Host plant density*	15	25	30	40	50
Host plant species richness*	15	25	35	50	65
Minimum native vegetation cover*‡	20	30	50	65	80
Maximum non-native vegetation cover	15	15	15	15	15
Species richness*	20	30	50	65	80

* Percent relative to reference transects (e.g., if 3 host plant species occur in reference habitat transects, and the final relative success criterion for species richness is 65 percent, then the actual success criterion for that vegetation community within the restoration area is 2 host plant species per restoration transect).

‡ Within fuel modification zones, absolute native vegetation cover must not be greater than 50 percent. At the end of year 5, native cover should equal the relative success criterion or 50 percent absolute cover, whichever is greater. If native cover exceeds 50 percent absolute cover at any point, these areas will be thinned to 50 percent annually prior to May 1.

Host plant density shall be measured using a plot (or plots, depending on how many transects occur within QCB habitat). Plots are centered on each 50-m transect located within QCB habitat). Emergence of these species on any given year is variable, which affects both their abundance and distribution. Also, species diversity along restoration sites typically increases annually, which is why percentages for success criteria are lower in the first few years.

9.0 COMPLETION OF MITIGATION

9.1 NOTIFICATION OF COMPLETION

The BLM, County of San Diego, U.S. Army Corps of Engineers, California Department of Fish and Wildlife (CDFW), and USFWS will be notified of the completion of the 5-year restoration effort through submittal of a final monitoring report. Final acceptance of the applicable components of the restoration effort will be determined separately in coordination with each representative agency.

9.2 CONFIRMATION

Restoration will be considered a success if the project meets all success standards at the end of the 5-year monitoring period or sooner and the agencies provide the applicant a written release from maintenance and monitoring activities; if not, the maintenance and monitoring program will be modified or extended until the standards are met. Specific remedial measures (approved by the appropriate agencies) will be instituted during extension periods. Extensions will be executed only for portions of the restoration area that fail to meet final success standards. This process will continue until all Year 5 standards are attained or until the appropriate agencies determine that the restoration is successful or other MMs are appropriate, including compensation for permanent impacts. Should the restoration effort meet all goals prior to the end of the 5-year monitoring period, the appropriate agencies, at their discretion, may terminate the

monitoring effort. If requested, a site visit may be conducted with agencies to verify site conditions.

10.0 WEED CONTROL DURING LONG-TERM OPERATIONS AND MAINTENANCE

Maintenance and monitoring of non-native species will cover permanent impact areas immediately following construction through the life of the project, and will also cover temporarily disturbed areas following the end of the 5-year maintenance and monitoring period through the life of the project. Following successful completion of the 5-year maintenance and monitoring period, new standards of maintenance and monitoring during the long-term operations and maintenance period outlined below will be undertaken by the Owner in permanent impact areas and fuel modification zones.

General Operations Monitoring

General site monitoring of the project will be conducted by operations personnel on an annual basis. Monitoring shall be conducted by an individual capable of identify Cal-IPC-listed High invasive weed species. Non-native species control will be conducted, as needed, by operations personnel with applicable training or conducted under the direction of a QAL or QAC holder, as appropriate. This shall include weed abatement efforts targeted at plants listed as invasive exotics by the California Exotic Plant Pest Council in their most recent “A” or “Red Alert” list.

Weed control during long-term operations and maintenance period will be focused within the permanent footprint and fuel modification zones, which includes removing targeted species from within 200 feet of wind turbines, 50 feet of buildings and structures, and 30 feet of permanent access roads.

Weed control will occur up to 2 times per year, but is expected to be a single weed control event in the spring of each year. If necessary, a second weed control event will be conducted during the summer if invasive weed species occur within the weed management areas.

The primary target species for weed abatement include the 28 invasive plant species documented on site as well as other non-native plant species that may occur on site. For the first 5 years of the O&M phase (i.e., the 5-year maintenance and monitoring period), all of the species listed in Appendix C will be controlled. During the long-term operations and maintenance period (i.e., following successful completion of the 5-year maintenance and monitoring period), weed control efforts would include the species in Appendix C, but there will be a higher tolerance for non-native grass species to occur in the weed management areas due to the abundance and proliferation of non-native grass species throughout the County. Weed control will occur once per year in the spring. Weed control activities will be triggered by a monitoring visit conducted by operations personnel trained to identify non-native species observed during the 5-year maintenance and monitoring period. New weed species added to the Cal-IPC Class A noxious weeds list will be added to the target species list for the project.

Long-term Monitoring Reports

Weed and non-native species management reporting will be included in annual compliance reporting that is required for the project and will include the following information:

- Location, type, extent, and density of Class A noxious weeds and non-native species. This will include mapping and photographs, as appropriate, as well as a description of conditions within the survey area.
- Management efforts, including date, location, type of treatment implemented, and results of treatment. Ongoing evaluation of treatment success will also be included.

11.0 REFERENCES

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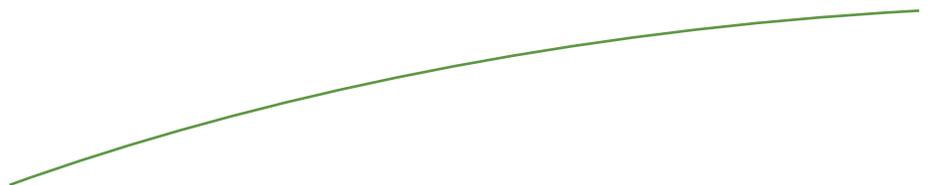
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Appendix A

FIRE, PLANTS, DEFENSIBLE SPACE
AND YOU





County of San Diego, Department of Planning and Land Use
FIRE, PLANTS, DEFENSIBLE SPACE AND YOU
BUILDING DIVISION

Providing enough fire protection for rural areas of San Diego County has become difficult. This is due to the large number of residents who are moving to the rural areas of the County and the increasing amounts of brush, weeds and other vegetation that provide fuel for wildfires and cause them to burn hotter. While it's important to protect the wild native vegetation in the County's rural areas it's also important to take steps for adequate fire protection for structures. Legally clearing vegetation protects the other wild native plants and at the same time eliminates the fire hazards.

During the October 2003 Firestorms, it was painfully evident that there was insufficient "Defensible Space" on many properties which led to destroyed homes and other structures. As a result, San Diego County has amended an ordinance to require residents to keep their property free of fire hazards that include certain vegetation, green waste and rubbish. Residents can comply with these ordinances by creating a "Defensible Space" and taking other preventative steps on their property.

WHAT IS DEFENSIBLE SPACE?

This is the area around a structure where combustible vegetation, that can cause fire, has been cleared, reduced or replaced. This space acts as a barrier between an advancing fire and a structure.

HOW DO I CLEAR LEGALLY?

Combustible vegetation can only be removed by mowing, cutting and grazing as long as the root structure is left intact. Any trees you remove shall have the stumps cut no higher than 8" above the ground. The only exception would be an orchard. Orchard trees may have their stumps completely removed.

CAN I CLEAR INTO AN OPEN SPACE EASEMENT?

If an open space easement is located on your property you may legally clear the 100' even if it takes you into that easement.

WHAT IS COMBUSTIBLE VEGETATION?

This is any material that in its natural state will readily ignite, burn and cause fire to move to any structure or other vegetation. This would include dry grass, brush, weeds, litter and waste. This would not include fire resistant landscaping some of which can be found in the "Suggested Plant List For Defensible Space" on page 4 of this handout.

HOW LARGE SHOULD THE DEFENSIBLE SPACE BE?

- You need to clear combustible vegetation in a 100' radius from any structure. Only the fire agency may authorize you to clear more. You are not required to

cross your property line in order to clear the 100'. The neighboring property owner may be required to clear the additional distance by the fire agency.

HOW DO I MAINTAIN THE DEFENSIBLE SPACE?

- You may plant fire-resistant, irrigated, landscaping in the first 50' of the 100' from your structure. These plants need to be maintained all year around.
- You need to keep natural vegetation in the remaining 50' of the 100' space. This would be the area furthest away from your structure. The plants need to be thinned and cut back to no more than 6" above the ground. You may need to do this several times a year since the plants grow back.
- Do not completely remove all vegetation which would leave the ground bare. Some vegetation is necessary to prevent erosion.
- Remove dead and dying vegetation.
- Trim trees that overhang or touch your structures.

WHAT TYPES OF FIRE-RESISTANT PLANTS SHOULD I CHOOSE FOR MY DEFENSIBLE SPACE?

You will find a list of suggested plants for Defensible Space on page 4 of this handout. Generally these plants:

- Grow close to the ground.
- Have a low sap or resin content
- Grow without accumulating dead branches, needles or leaves.
- Are easily maintained and pruned
- Are drought-tolerant

WHAT TYPES OF PLANTS SHOULD I NOT PLANT OR KEEP ON MY PROPERTY?

On page 16 of this handout you will find an extensive list of plants that you should avoid. These plants and trees burn easily since they have large amounts of oil, sap, rough bark and other material that is flammable.

WHAT OTHER THINGS SHOULD I DO TO PROTECT MY PROPERTY AGAINST FIRE?

- You should clear combustible vegetation on your property if it is within 30' of your property line.
- Vary the height of plants and adequately space them. Taller plants need to be spaced wider apart.
- Existing trees and large shrubs should be pruned by cutting off any branches up to 6' above the ground to prevent ground fires from spreading upwards into trees.
- For fire truck access, remove vegetation within 10' of each side of your driveway.
- Remove any tree limbs within 10' of your chimney
- Work with your neighbors to clear common areas between houses, and prune areas of heavy vegetation that are a fire threat to both properties.
- Avoid planting trees under or near electrical lines. They may grow into, or make contact with overhead lines under windy conditions, causing fire.

- If you have a heavily wooded area on your property, remove some of the trees to which will lower the fire hazard. You will improve growing conditions for your trees if you remove dead, weak, or diseased trees. This will leave you with a healthy mixture of both new and older trees.
- Any removed trees may be chipped and left on your property if they don't present a fire hazard. Contact your local fire agency to find out how to do this.
- Don't forget to legally dispose of all your cut vegetation. You may contact your local landfill to inquire about green waste recycling. Open burning may not be allowed. Contact your fire agency for more information.
- Stack firewood and scrap wood piles at least 50' from any structure and clear away any combustible vegetation within 10' of the piles. Many homes have "survived" as a fire moved past it, only to burn later from a wood pile that caught fire after the firefighters had moved on to protect other homes.
- Check and clean your roofs and gutters on all structures several times during the spring, summer and fall to remove debris that can easily ignite from a spark.

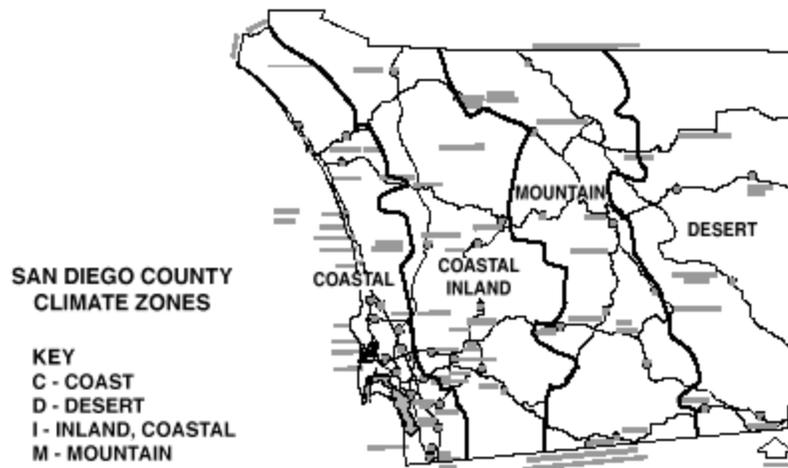
ACCEPTABLE PLANTS FOR A DEFENSIBLE SPACE IN FIRE PRONE AREAS

All plants on the following list are considered drought-tolerant in the climate zone indicated. Remember, however, that no plant is totally fire resistant. Drought-tolerant plants are trees, shrubs, groundcovers, and other vegetation that can grow and reproduce with only natural moisture such as rainfall. Occasional irrigation is necessary only in extreme drought situations.

Plants that are indicated by the "R" are the least drought-tolerant plants on the list. These plants grow best in riparian areas. Riparian areas can be described as areas where the water table is very near the surface of the ground. Although the ground may be dry, the plants growing there will be green and lush all year around.

When first planting drought-tolerant plants, you need to water deeply to encourage the roots to find natural moisture in the soil. This type of watering needs to continue for at least three years. More water should be provided in summer and less (if any) in the winter. After three years, you should be watering the plants less and depending more on the natural rainfall to provide moisture.

Plants on the list which are noted with ** are San Diego County native or naturalizing plant species. These are types of plants native to or brought into the San Diego County area. These plants are able to grow and reproduce in the local climate and the natural rainfall is enough moisture.



SUGGESTED PLANT LIST FOR A DEFENSIBLE SPACE

<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>Climate Zone</u>
TREES		
Acer		
platanoides	Norway Maple	M
rubrum	Red Maple	M
saccharinum	Silver Maple	M
saccarum	Sugar Maple	M
macrophyllum	Big Leaf Maple	C/ (R)
Alnus rhombifolia	White Alder	C/I/M (R)
Arbutus		
unedo	Strawberry Tree	All zones
Archontophoenix		
cunninghamiana	King Palm	C
** Arctostaphylos spp.	Manzanita	C/I/D
Brahea		
armata	Blue Hesper Palm	C/D

<i>edulis</i>	Guadalupe Palm	C/D
<i>Ceratonia siliqua</i>	Carob	C/I/D
<i>Cercidium floridum</i>	Blue Palo Verde	D
** <i>Cercis occidentalis</i>	Western Redbud	C/I/M
<i>Cornus</i>		
<i>nuttallii</i>	Mountain Dogwood	I/M
<i>stolonifera</i>	Redtwig Dogwood	I/M
<i>Elaeagnus</i>		
<i>angustifolia</i>	Russian Olive	I/M
<i>Eriobotrya</i>		
<i>japonica</i>	Loquat	C/I/D
<i>Erythrina caffra</i>	Kaffirboom Coral Tree	C
<i>Ginkgo biloba</i> "Fairmount"	Fairmount Maidenhair Tree	I/M
<i>Gleditsia triacanthos</i>	Honey Locust	I/D/M
<i>Juglans</i>		
<i>californica</i>	California Walnut	I
<i>hindsii</i>	California Black Walnut	C/I
<i>Lagerstroemia indica</i>	Crape Myrtle	I/D/M
<i>Ligustrum lucidum</i>	Glossy Privet	I
<i>Liquidambar styraciflua</i>	Sweet Gum	C/I/M
<i>Liriodendron tulipifera</i>	Tulip Tree	I
<i>Lyonothamnus floribundus</i>		
ssp. <i>asplenifolius</i>	Fernleaf Catalina Ironwood	C
<i>Melaleuca</i> spp.	Melaleuca	C/I/D

Myoporum spp.	Myoporum	C/I
Nerium oleander	Oleander	C/I/D
Parkinsonia aculeata	Mexican Palo Verde	D
Pistacia		
chinensis	Chinese Pistache	C/I/D
vera	Pistachio Nut	I
Pittosporum		
phillyraeoides	Willow Pittosporum	C/I/D
viridiflorum	Cape Pittosporum	C/I
Platanus		
acerifolia	London Plane Tree	All zones
** racemosa	California Sycamore	C/I/M
Populus		
alba	White Poplar	D/M
** fremontii	Western Cottonwood	I
trichocarpa	Black Cottonwood	I/M
Prunus		
xblireiana	Flowering Plum	M
caroliniana	Carolina Laurel Cherry	C
cersifera 'Newport'	Newport Purple-Leaf Plum	M
** ilicifolia	Hollyleaf Cherry	C
** lyonii	Catalina Cherry	C
serrulata 'Kwanzan'	Flowering Cherry	M
yedoensis 'Akebono'	Akebono Flowering Cherry	M

<p>Quercus</p> <p> ** agrifolia</p> <p> ** engelmannii</p> <p> suber</p> <p>Rhus</p> <p> ** lancea</p> <p>** Salix spp.</p> <p>Tristania conferta</p> <p>Ulmus</p> <p> parvifolia</p> <p> pumila</p> <p>** Umbellularia californica</p>	<p>Coast Live Oak</p> <p>Engelmann Oak</p> <p>Cork Oak</p> <p>African Sumac</p> <p>Willow</p> <p>Brisbane Box</p> <p>Chinese Elm</p> <p>Siberian Elm</p> <p>California Bay Laurel</p>	<p>C/I</p> <p>I</p> <p>C/I/D</p> <p>C/I/D</p> <p>All zones (R)</p> <p>C/I</p> <p>I/D</p> <p>C/M</p> <p>C/I</p>
<p>SHRUBS</p> <p>Agave</p> <p> americana</p> <p> deserti</p> <p> ** shawii</p> <p>** Amorpha fruticosa</p> <p>Arbutus</p> <p> ** menziesii</p> <p>** Arctostaphylos spp.</p> <p>** Atriplex</p> <p> canescens</p> <p> lentiformis</p>	<p>Century Plant</p> <p>Desert Century Plant</p> <p>Shaw's Century Plant</p> <p>False Indigobush</p> <p>Madrone</p> <p>Manzanita</p> <p>Hoary Saltbush</p> <p>Quail Saltbush</p>	<p>D</p> <p>D</p> <p>D</p> <p>I</p> <p>C/I</p> <p>C/I/D</p> <p>I</p> <p>D</p>

** Baccharis		
glutinosa	Mule Fat	C/I
pilularis	Coyote Bush	C/I/D
Carissa grandiflora	Natal Plum	C/I
** Ceanothus spp.	California Lilac	C/I/M
Cistus spp.	Rockrose	C/I/D
** Cneoridium dumosum	Bushrue	C
** Comarostaphylis		
diversifolia	Summer Holly	C
Convolvulus cneorum	Bush Morning Glory	C/I/M
Dalea		
orcuttii	Orcutt's Delea	D
** spinosa	Smoke Tree	I/D
Elaeagnus		
pungens	Silverberry	C/I/M
** Encelia		
californica	Coast Sunflower	C/I
farinosa	White Brittlebush	D/I
Eriobotrya		
deflexa	Bronze Loquat	C/I
Eriophyllum		
** confertiflorum	Golden Yarrow	C/I
staechadifolium	Lizard Tail	C
Escallonia spp.	Escallonia	C/I

Feijoa sellowiana	Pineapple Guava	C/I/D
Fouquieria splendens	Ocotillo	D
** Fremontodendron		
californicum	Flannelbush	I/M
mexicanum	Southern Flannelbush	I
Galvezia		
juncea	Baja Bush-Snapdragon	C
speciosa	Island Bush-Snapdragon	C
Garrya		
elliptica	Coast Silktassel	C/I
** flavescens	Ashy Silktassel	I/M
** Heteromeles arbutifolia	Toyon	C/I/M
Lantana spp.	Lantana	C/I/D
Lotus scoparius	Deerweed	C/I
Mahonia spp.	Barberry	C/I/M
Malacothamnus		
clementinus	San Clemente Island Bush Mallow	C
** fasciculatus	Mesa Bushmallow	C/I
Melaleuca spp.	Melaleuca	C/I/D
** Mimulus spp.	Monkeyflower	C/I (R)
Nolina		
parryi	Parry's Nolina	I
parryi ssp. wolfii	Wolf's Bear Grass	D
Photinia spp.	Photinia	All zones

Pittosporum		
crassifolium		C/I
rhombifolium	Queensland Pittosporum	C/I
tobira 'Wheeleri'	Wheeler's Dwarf	C/I/D
undulatum	Victorian Box	C/I
viridiflorum	Cape Pittosporum	C/I
Plumbago auriculata	Cape Plumbago	C/I/D
Prunus		
caroliniana	Carolina Laurel Cherry	C
** ilicifolia	Hollyleaf Cherry	C
** yonii	Catalina Cherry	C
Puncia granatum	Pomegranate	C/I/D
Pyracantha spp.	Firethorn	All zones
Quercus		
** dumosa	Scrub Oak	C/I
Rhamus		
alaternus	Italian Blackthorn	C/I
** californica	Coffeeberry	C/I/M
Rhaphiolepis spp.	Rhaphiolepis	C/I/D
Rhus		
continus	Smoke Tree	M
** integrifolia	Lemonade Berry	C/I
laurina	Laurel Sumac	C/I
lentii	Pink-Flowering Sumac	C/D

** ovata	Sugarbush	I/M
** trilobata	Squawbush	I
Ribes		
viburnifolium	Evergreen Currant	C/I
** speciosum	Fuschia-Flowering Gooseberry	C/I/D
Romneya coulteri	Matilija Poppy	I
Rosa		
** californica	California Wild Rose	C/I
minutifolia	Baja California Wild Rose	C/I
** Salvia spp.	Sage	All zones
** Sambucus spp.	Elderberry	C/I/M
** Symphoricarpos mollis	Creeping Snowberry	C/I
Syringa vulgaris	Lilac	M
Tecomaria capensis	Cape Honeysuckle	C/I/D
Teucrium fruticans	Bush Germander	C/I
** Toxicodendron		
diversilobum	Poison Oak	I/M
Verbena		
lilacina	Lilac Verbena	C
Xylosma congestum	Shiny Xylosma	C/I
** Yucca		
schidigera	Mojave Yucca	D
whipplei	Foothill Yucca	I
GROUNDCOVERS		

** Achillea	Yarrow	All zones
Aptenia cordifolia	Aptenia	C
** Arctostaphylos spp.	Manzanita	C/I/D
** Baccharis		
pilularis	Coyote Bush	C/I/D
** Ceanothus spp.	California Lilac	C/I/M
Cerastium tomentosum	Snow-in-Summer	All zones
Coprosma kirkii	Creeping Coprosma	C/I/D
Cotoneaster spp.	Redberry	All zones
Drosanthemum hispidum	Rosea Ice Plant	C/I
Dudleya		
brittonii	Britton's Chalk Dudleya	C
** pulverulenta	Chalk Dudleya	C/I
virens	Island Live-Forever	C
** Eschscholzia californica	California Poppy	All zones
Euonymus fortunei		
'Carrierei'	Glossy Winter Creeper	M
'Coloratus'	Purple-Leaf Winter Creeper	M
** Ferocactus viridescens	Coast Barrel Cactus	C
Gaillardia grandiflora	Blanket Flower	All zones
Gazania spp.	Gazania	C/I
** Helianthemum spp.	Sunrose	All zones
Lantana spp.	Lantana	C/I/D

Lasthenia		
** californica	Common Goldfields	I
glabrata	Coastal Goldfields	C
** Lupinus spp.	Lupine	C/I/M
Myoporum spp.	Myoporum	C/I
Pyracantha spp.	Firethorn	All zones
Rosmarinus officinalis	Rosemary	C/I/D
Santolina		
chamaecyparissus	Lavender Cotton	All zones
virens	Santolina	All zones
Trifolium frageriferum	O'Connor's Legume	C/I
Verbena		
rigida	Verbena	All zones
** Viguiera laciniata	San Diego Sunflower	C/I
Vinca		
major	Periwinkle	C/I
minor	Dwarf Periwinkle	M
VINES		
Antigonon leptopus	San Miguel Coral Vine	C/I
Distictis buccinatoria	Blood-Red Trumpet Vine	C/I/D
** Keckiella cordifolia	Heart-Leaved Penstemon	C/I
Lonicera		
japonica 'Halliana'	Hall's Honeysuckle	All zones
** subspicata	Chaparral Honeysuckle	C/I

Solanum		
jasminoides	Potato Vine	C/I/D
PERENNIALS		
Coreopsis		
gigantea	Giant Coreopsis	C
grandiflora	Coreopsis	All zones
** maritima	Sea Dahlia	C
verticillata	Coreopsis	C/I
Heuchera maxima	Island Coral Bells	C/I
** Iris douglasiana	Douglas Iris	C/M
** Iva hayesiana	Poverty Weed	C/I
Kniphofia uvaria	Red-Hot Poker	C/I/M
Lavandula spp.	Lavender	All zones
Limonium californicum		
var. mexicanum	Coastal Statice	C
perezii	Sea Lavender	C/I
Oenothera spp.	Primrose	C/I/M
** Penstemon spp.	Penstemon	C/I/D
Satureja douglasii	Yerba Buena	C/I
Sisyrinchium		
bellum	Blue-Eyed Grass	C/I
californicum	Golden-Eyed Grass	C
Solanum		
xantii	Purple Nightshade	C/I

<p>** Zauschneria</p> <p>californica</p> <p>cana</p> <p>'Catalina'</p>	<p>California Fuschia</p> <p>Hoary California Fuschia</p> <p>Catalina Fuschia</p>	<p>C/I</p> <p>C/I</p> <p>C/I</p>
<p>ANNUALS</p> <p>** Lupinus spp.</p>	<p>Lupine</p>	<p>C/I/M</p>

UNDESIRABLE PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio.

<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>
<u>Abies species</u>	Fir Trees
<u>Acacia species</u> groundcovers)	Acacia (trees, shrubs,
<u>Adenostoma sparsifolium</u> **	Red Shanks
<u>Adenostoma fasciculatum</u> **	Chamise
<u>Agonis juniperina</u>	Juniper Myrtle
<u>Anthemis cotula</u> ***	Mayweed, Stinking Chamolile
<u>Araucaria species</u>	Monkey Puzzle, Norfolk Island Pine
<u>Arctostaphylos species</u> **	Manzanita
<u>Artemesia californica</u> **	California Sagebrush
<u>Arundo donax</u>	Giant Cane
<u>Bambusa species</u>	Bamboo
<u>Brassica species</u> ***	Mustard
<u>Callistemon species</u>	Bottlebrush
<u>Calocedrus decurrens</u>	Incense Cedar
<u>Cardaria draba</u> *** Peppergrass	Hoary Cress, Perennial
<u>Ceanothus species</u>	Ceanothus
<u>Cedrus species</u>	Cedar
<u>Chamaecyparis species</u>	False Cypress
<u>Cinnamomum species</u>	Camphor Tree
<u>Cirsium vulgare</u> ***	Wild Artichoke
<u>Conyza Canadensis</u> ***	Horseweed
<u>Coprosma pumila</u>	Prostrate Coprosma
<u>Cortaderia selloana</u>	Pampas Grass
<u>Cotoneaster lacteus</u>	Cotoneaster
<u>Cryptomeria japonica</u>	Japanese Cryptomeria
<u>Cupressocyparis leylandii</u>	Leylandii Cypress
<u>Cupressus forbesii</u>	Tecate Cypress
<u>Cupressus glabra</u>	Arizona Cypress
<u>Cupressus macrocarpa</u>	Monterey Cypress
<u>Cupressus sempervirens</u>	Italian Cypress
<u>Cynara cardunculus</u> ***	Artichoke Thistle
<u>Cytisus species</u> Broom, etc.	Scotch Broom, French
<u>Dodonea viscosa</u>	Hopseed Bush

<u><i>Elaeagnus angustifolia</i></u>	Russian Olive
<u><i>Elaeagnus pungens</i></u>	Silverberry
<u><i>Eriogonum fasciculatum</i></u> **	Common Buckwheat
<u><i>Eucalyptus species</i></u>	Eucalyptus
<u><i>Gensita species</i></u> ***	Broom
<u><i>Heterotheca grandiflora</i></u> **	Telegraph Plant
<u><i>Jubaea chilensis</i></u>	Chilean Wine Palm
<u><i>Juniperus species</i></u>	Junipers
<u><i>Lactuca serriola</i></u> ***	Prickly Lettuce
<u><i>Larix species</i></u>	Larch
<u><i>Lonicera japonica</i></u>	Japanese Honeysuckle
<u><i>Miscanthus species</i></u>	Eulalia Grass
<u><i>Muehlenbergia species</i></u> **	Deer Grass
<u><i>Nicotiana species</i></u>	Tree Tobacco
<u><i>Palmae species</i></u>	Palms
<u><i>Pennisetum setaceum</i></u>	Fountain Grass
<u><i>Picea species</i></u>	Spruce Trees
<u><i>Pickeringia Montana</i></u> **	Chaparral Pea
<u><i>Pinus species</i></u>	Pines
<u><i>Podocarpus species</i></u>	Fern Pine
<u><i>Pseudotsuga menziesii</i></u>	Douglas Fir
<u><i>Ricinus communis</i></u>	Castor Bean
<u><i>Rosmarinus species</i></u>	Rosemary
<u><i>Salsola australis</i></u> ***	Russian Thistle, Tumbleweed
<u><i>Salvia species</i></u> **	Sage
<u><i>Schinus molle</i></u>	California Pepper
<u><i>Schinus terebinthifolius</i></u>	Brazilian Pepper
<u><i>Silybum marianum</i></u> ***	Milk Thistle
<u><i>Spartium junceum</i></u>	Spanish Broom
<u><i>Tamarix species</i></u>	Tamarisk
<u><i>Taxodium species</i></u>	Cypress
<u><i>Taxus species</i></u>	Yew
<u><i>Thuja species</i></u>	Arborvitae
<u><i>Trachycarpus fortunei</i></u>	Windmill Palm
<u><i>Tsuga species</i></u>	Hemlock
<u><i>Ulex europea</i></u> ***	Gorse
<u><i>Urtica urens</i></u> **	Burning Nettle
<u><i>Washingtonia species</i></u>	California/Mexican Fan
Palm	

** San Diego County native species

*** Introduced weeds to San Diego County

California Department of Forestry and Fire Protection (619) 590-3100
United States Forest Service (619) 674-2901
County Fire Service Coordinator (858) 495-5092
County Farm and Home Advisor (858) 694-2845
Insurance Information Network of California -- Brochures

(www.iinc.org <<http://www.iinc.org>>) or call (800) 397-1679

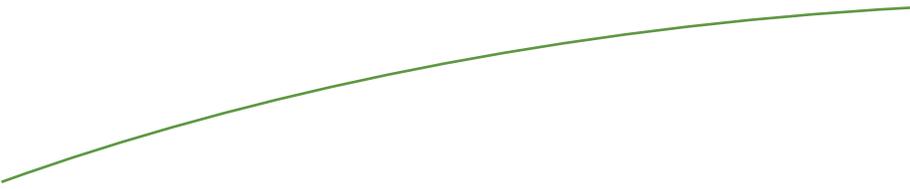
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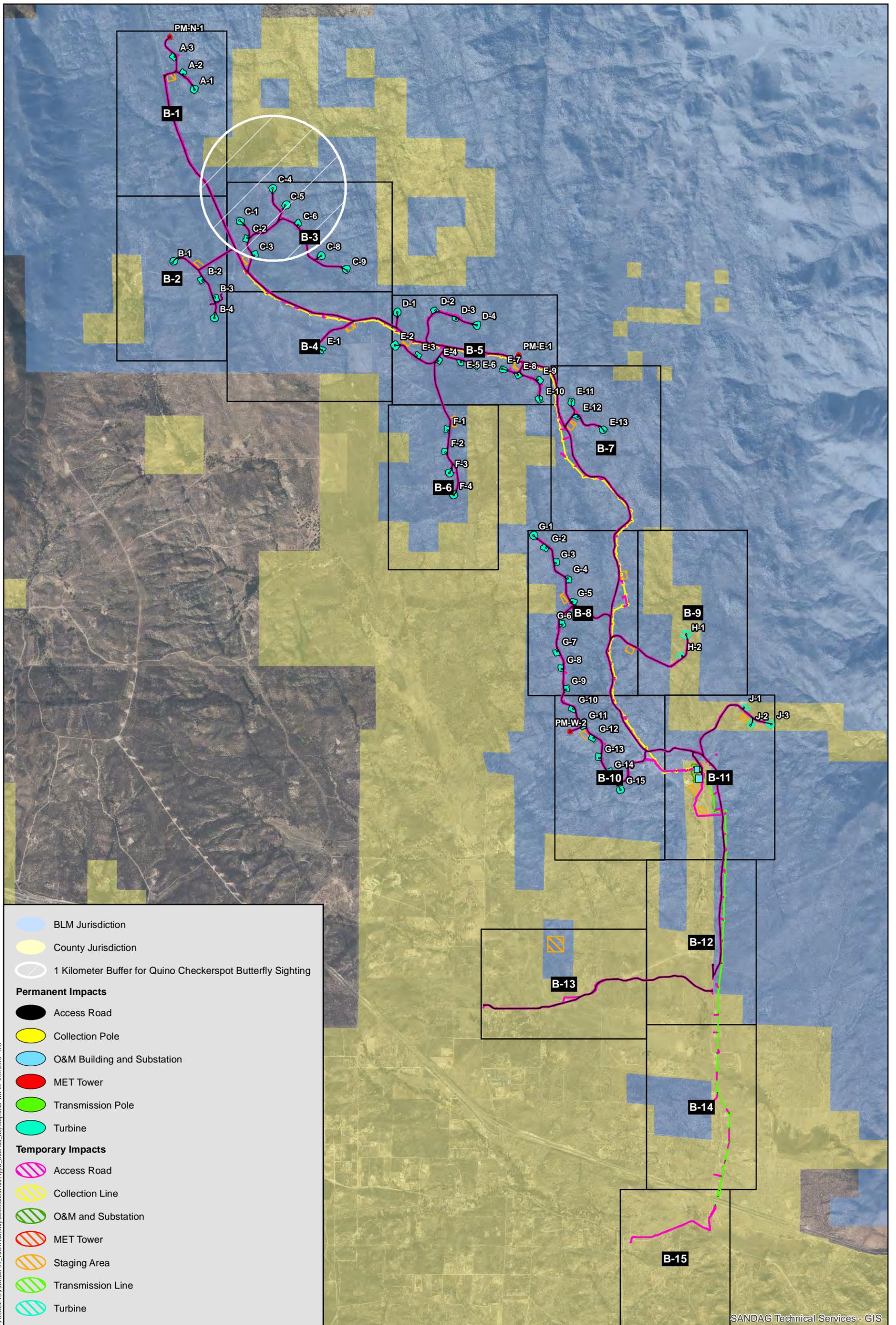
- Combustible Vegetation and Other Flammable Materials Ordinance. Sections 68.401 thru 86.406 of the County of San Diego's Zoning Ordinance.
- California Department of Fish and Game (858) 467-4201
- U.S. Fish and Wildlife Service (760) 431-9440
- Protecting Your Property From Soil Erosion
(www.sdcounty.ca.gov/dpw/docs/fire/homeerosion.pdf
<<http://www.sdcounty.ca.gov/dpw/docs/fire/homeerosion.pdf>>)
- Homeowner's Guide for Flood, Debris, and Erosion Control After Fires
(www.sdcounty.ca.gov/dpw/docs/fire/AfterFire.pdf
<<http://www.sdcounty.ca.gov/dpw/docs/fire/AfterFire.pdf>>)
- Burn Institute (www.burninstitute.org)



Appendix B

RESTORATION AREA MAPS



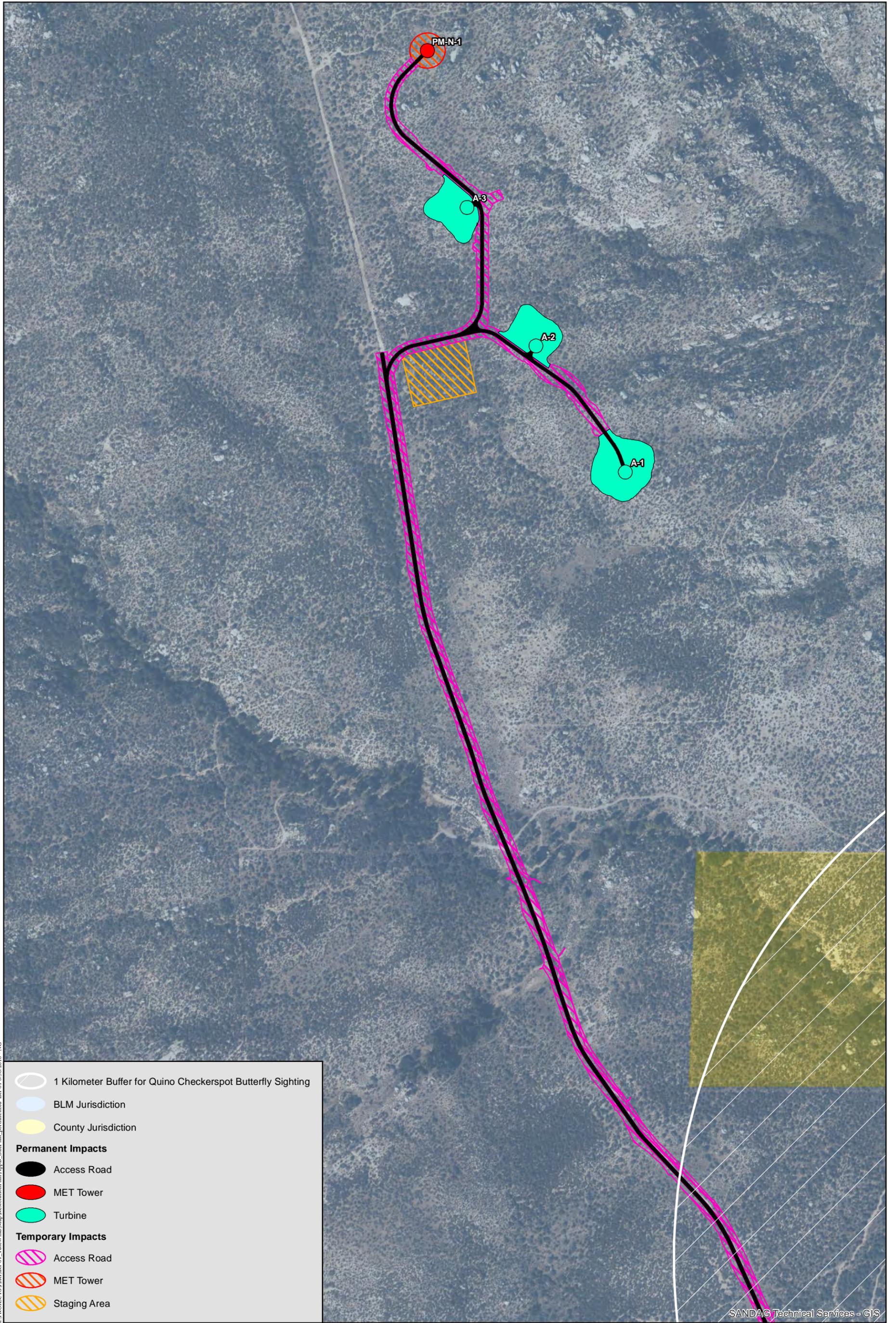


SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN

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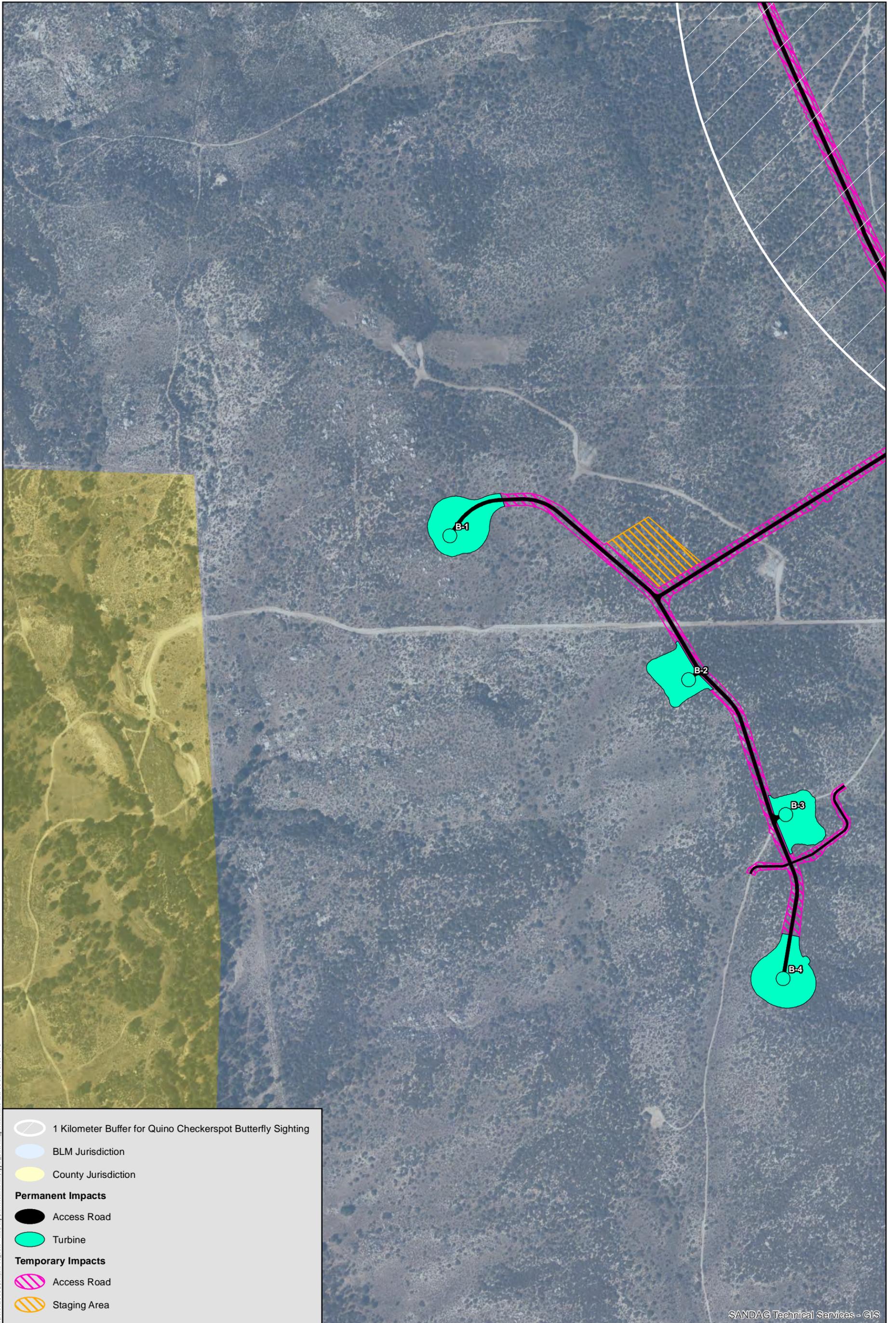
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-  1 Kilometer Buffer for Quino Checkerspot Butterfly Sighting
-  BLM Jurisdiction
-  County Jurisdiction
- Permanent Impacts**
-  Access Road
-  MET Tower
-  Turbine
- Temporary Impacts**
-  Access Road
-  MET Tower
-  Staging Area

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



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-  1 Kilometer Buffer for Quino Checkerspot Butterfly Sighting
-  BLM Jurisdiction
-  County Jurisdiction
- Permanent Impacts**
-  Access Road
-  Turbine
- Temporary Impacts**
-  Access Road
-  Staging Area

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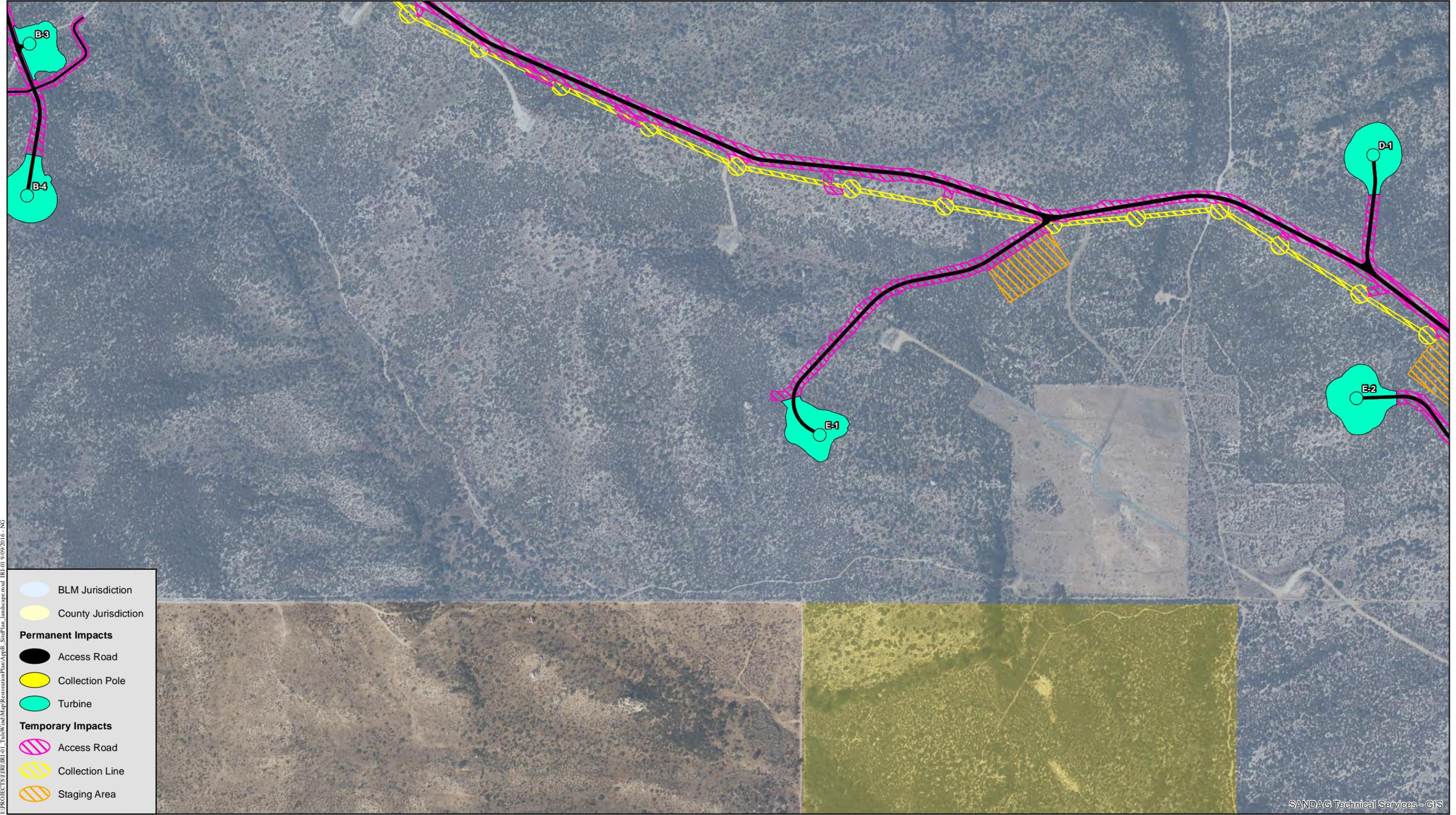
Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



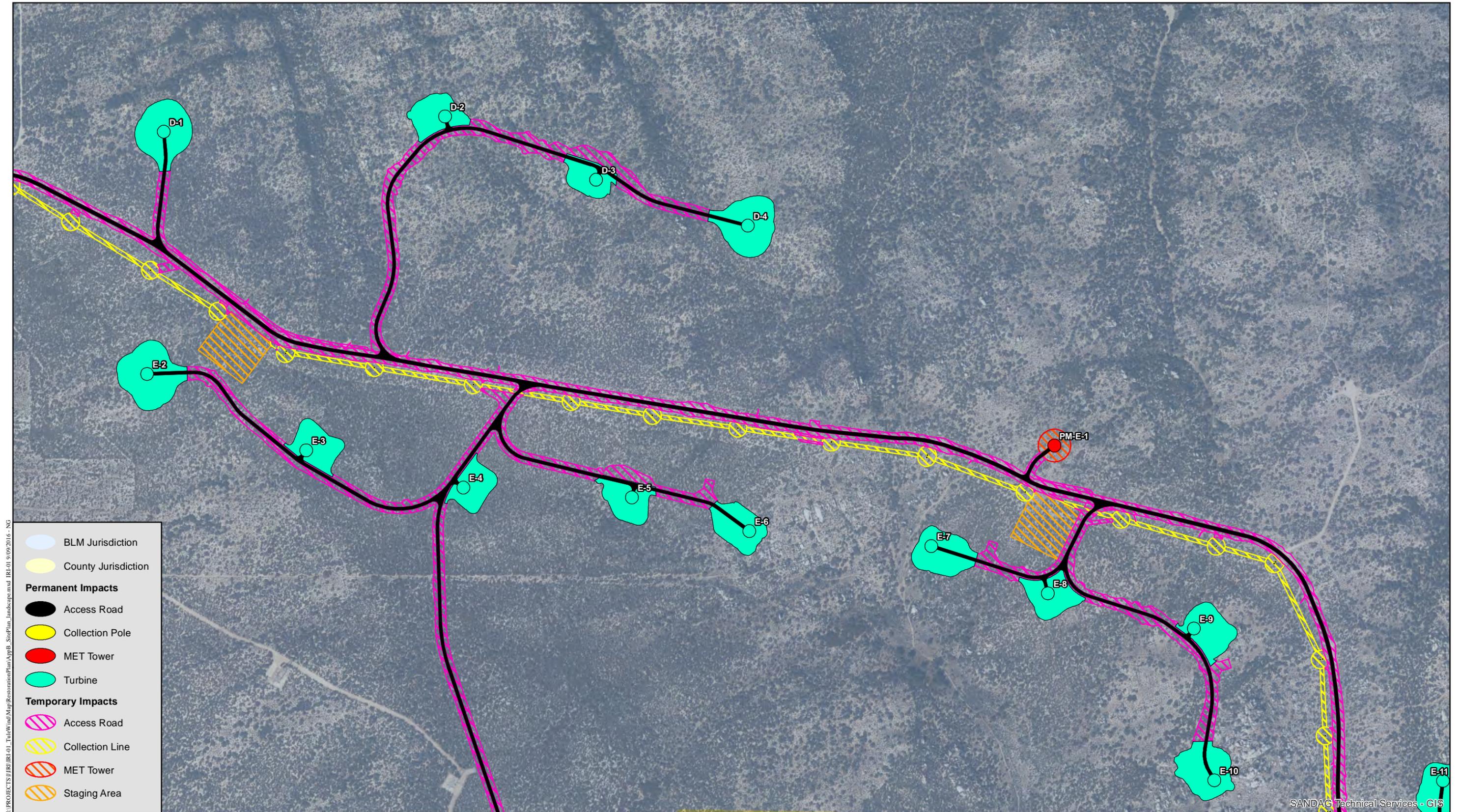
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	BLM Jurisdiction
	County Jurisdiction
Permanent Impacts	
	Access Road
	Collection Pole
	Turbine
Temporary Impacts	
	Access Road
	Collection Line
	Staging Area

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN

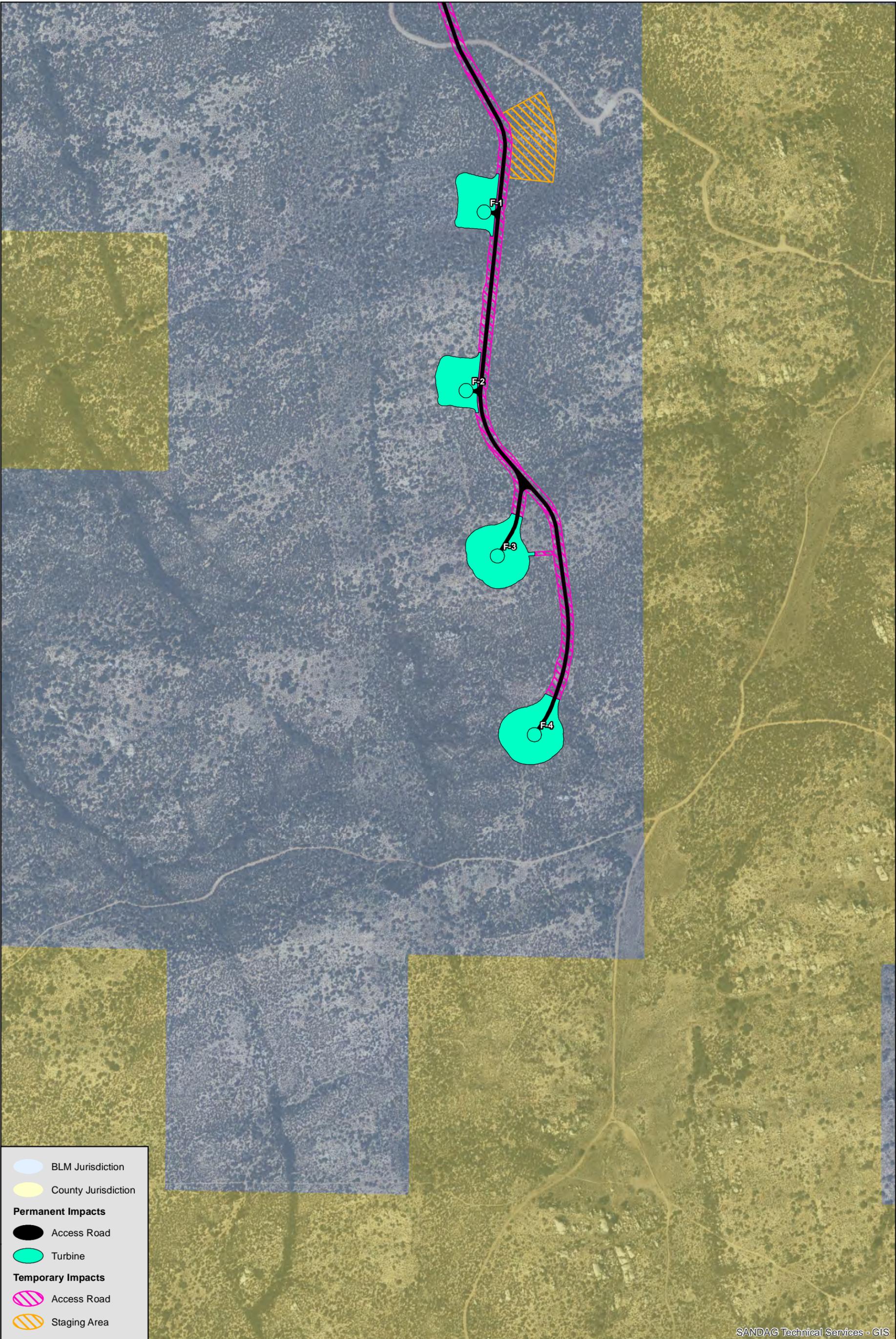


SANDAG Technical Services - GIS

Restoration Areas

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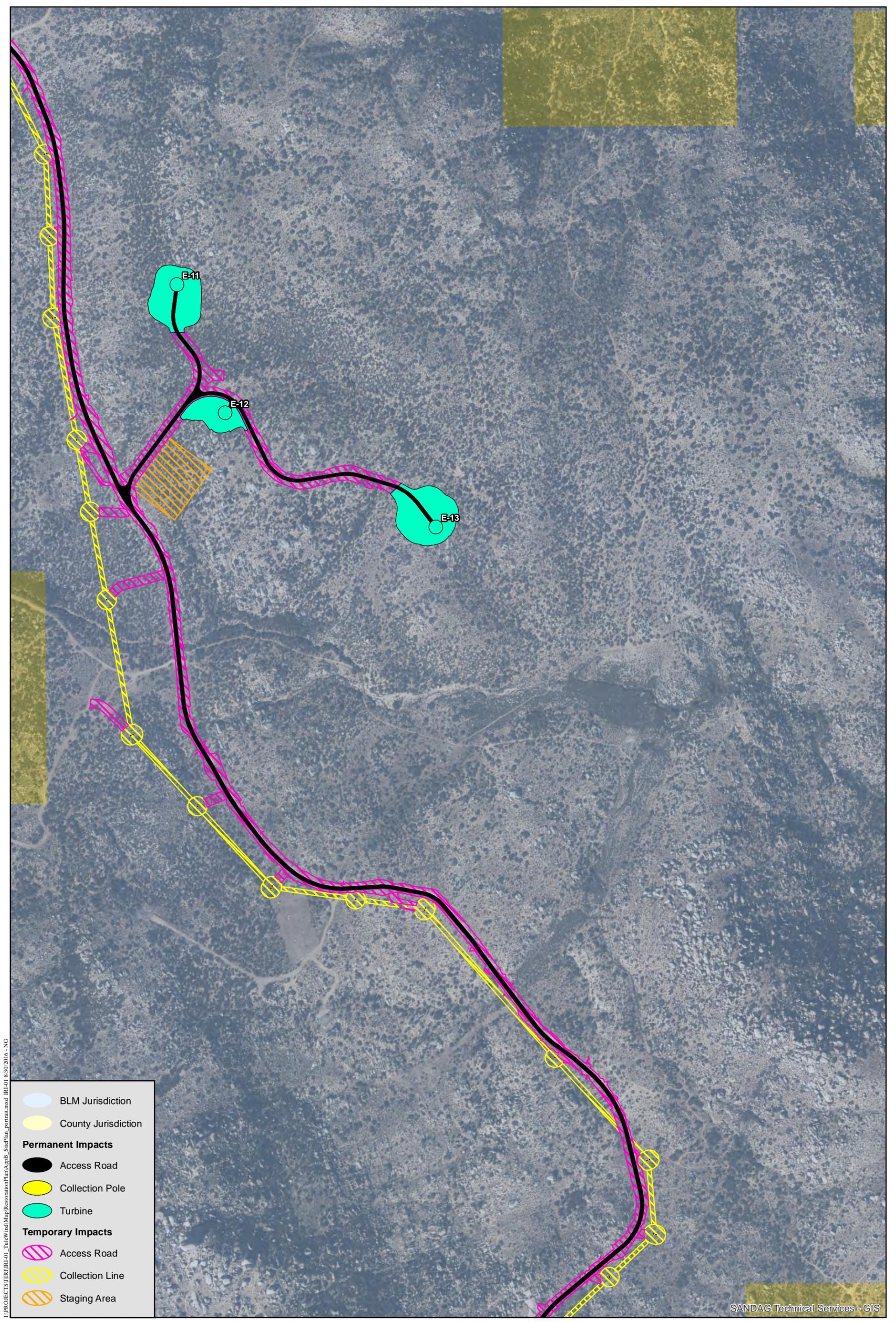
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- BLM Jurisdiction
- County Jurisdiction
- Permanent Impacts**
- Access Road
- Turbine
- Temporary Impacts**
- Access Road
- Staging Area

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



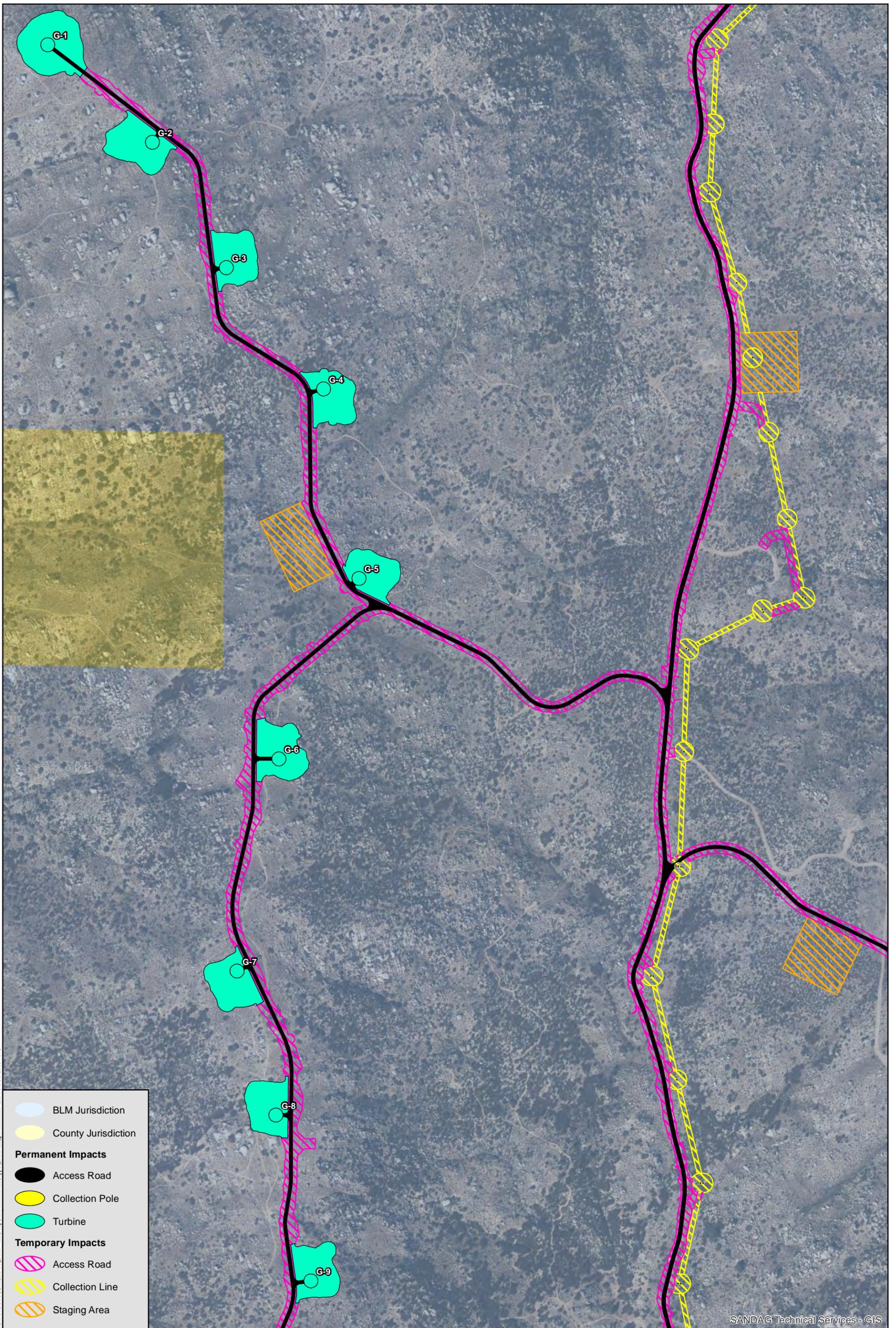
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- BLM Jurisdiction
- County Jurisdiction
- Permanent Impacts**
- Access Road
- Collection Pole
- Turbine
- Temporary Impacts**
- Access Road
- Collection Line
- Staging Area

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN

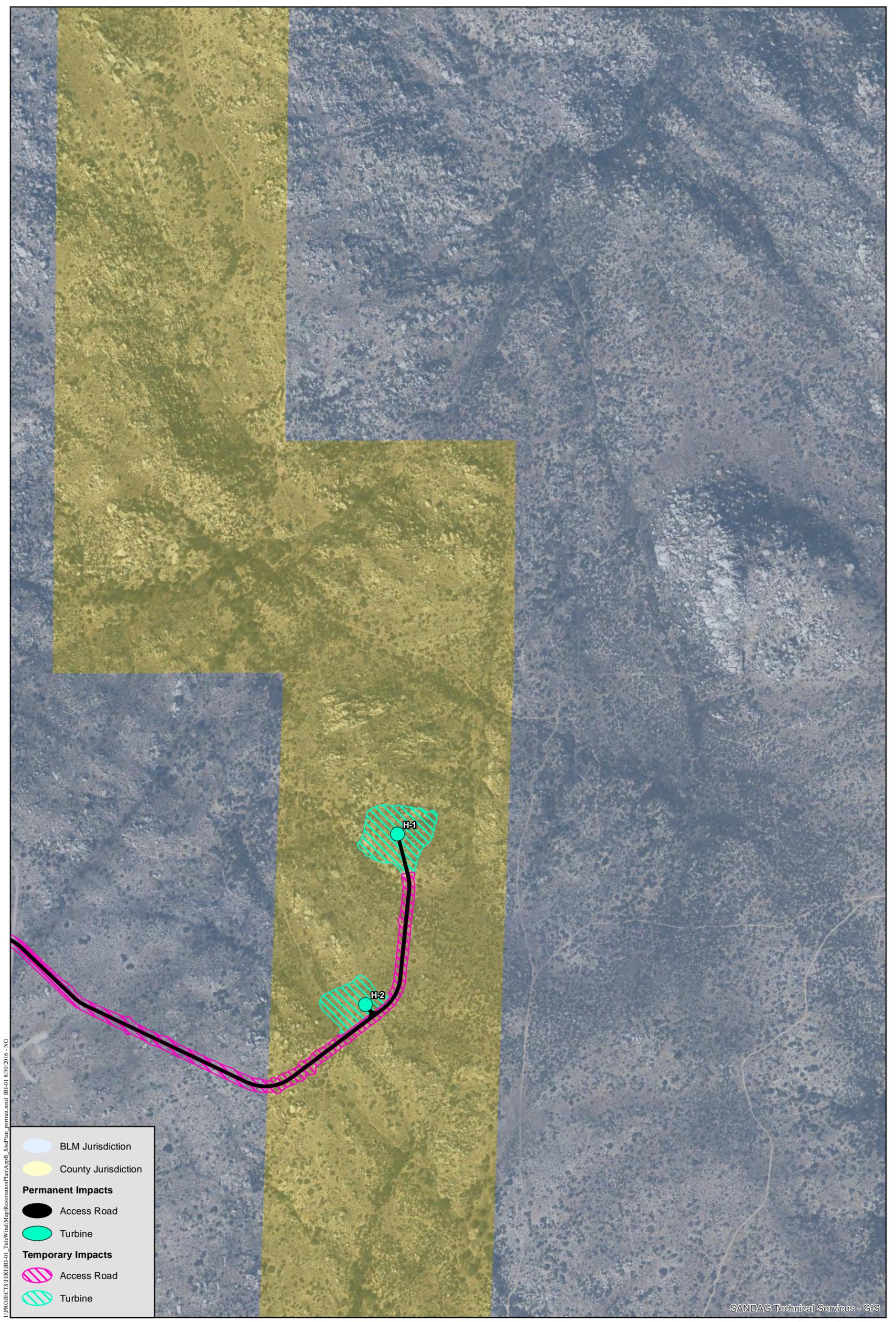


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SANDAG Technical Services - GIS

Restoration Areas

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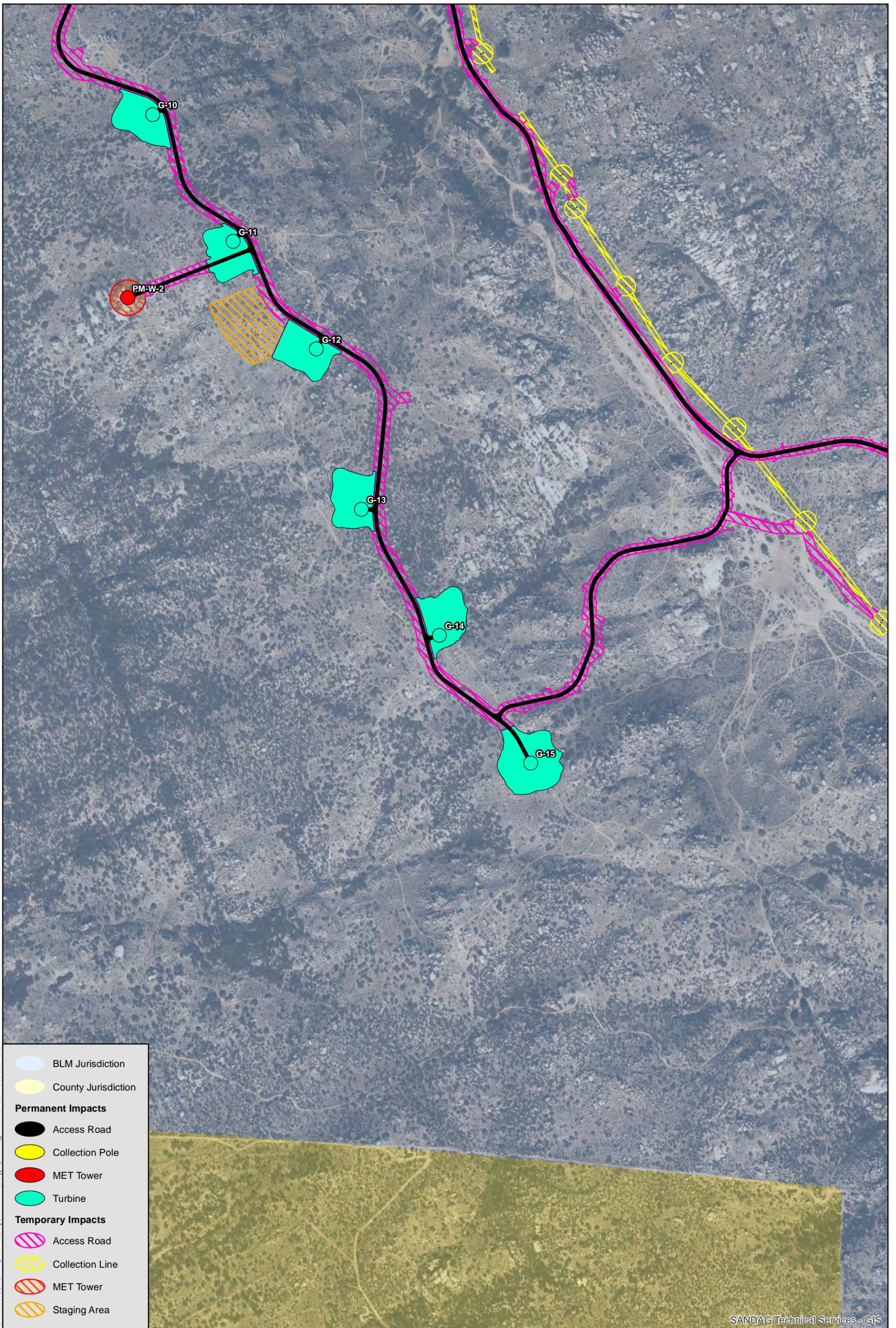


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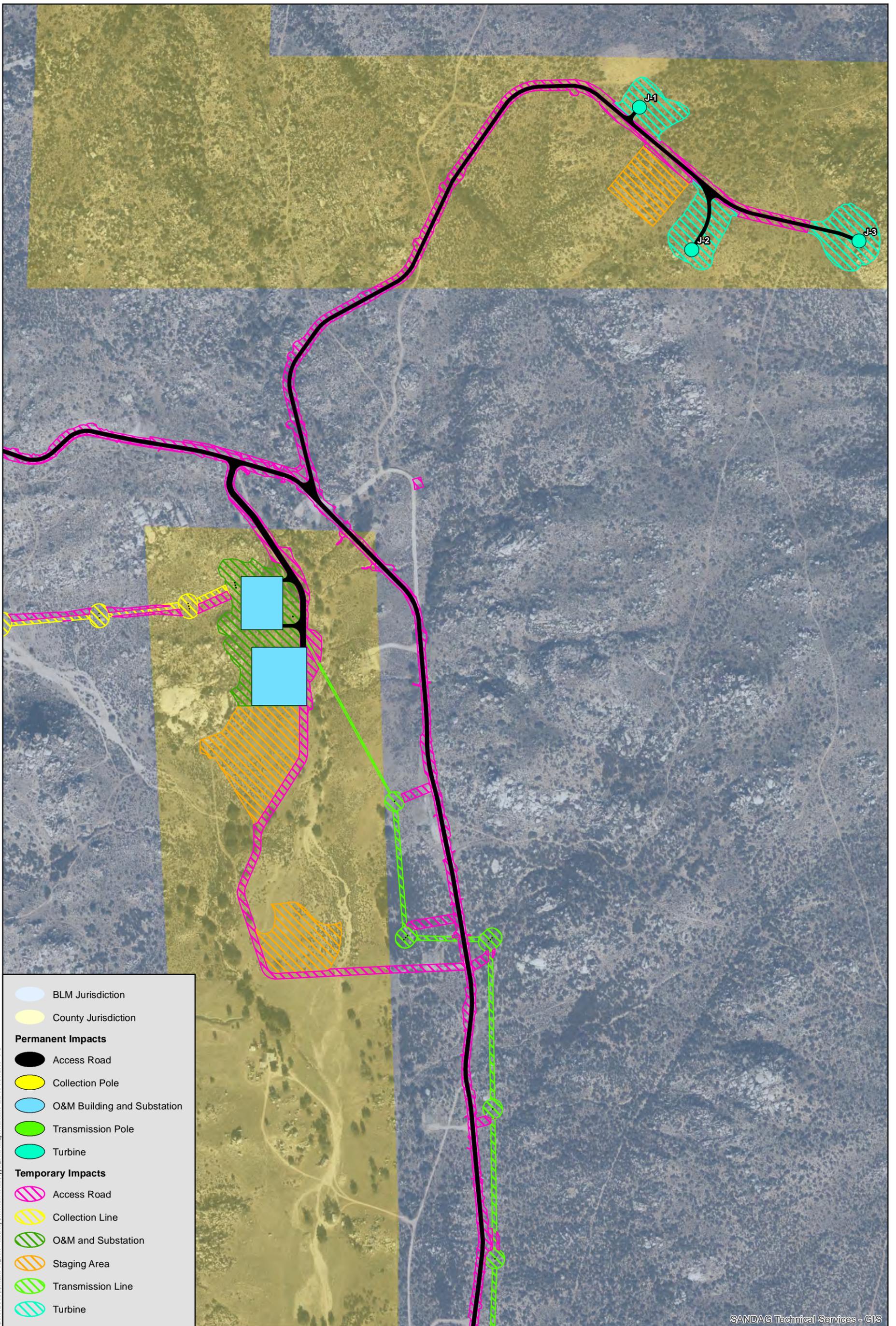


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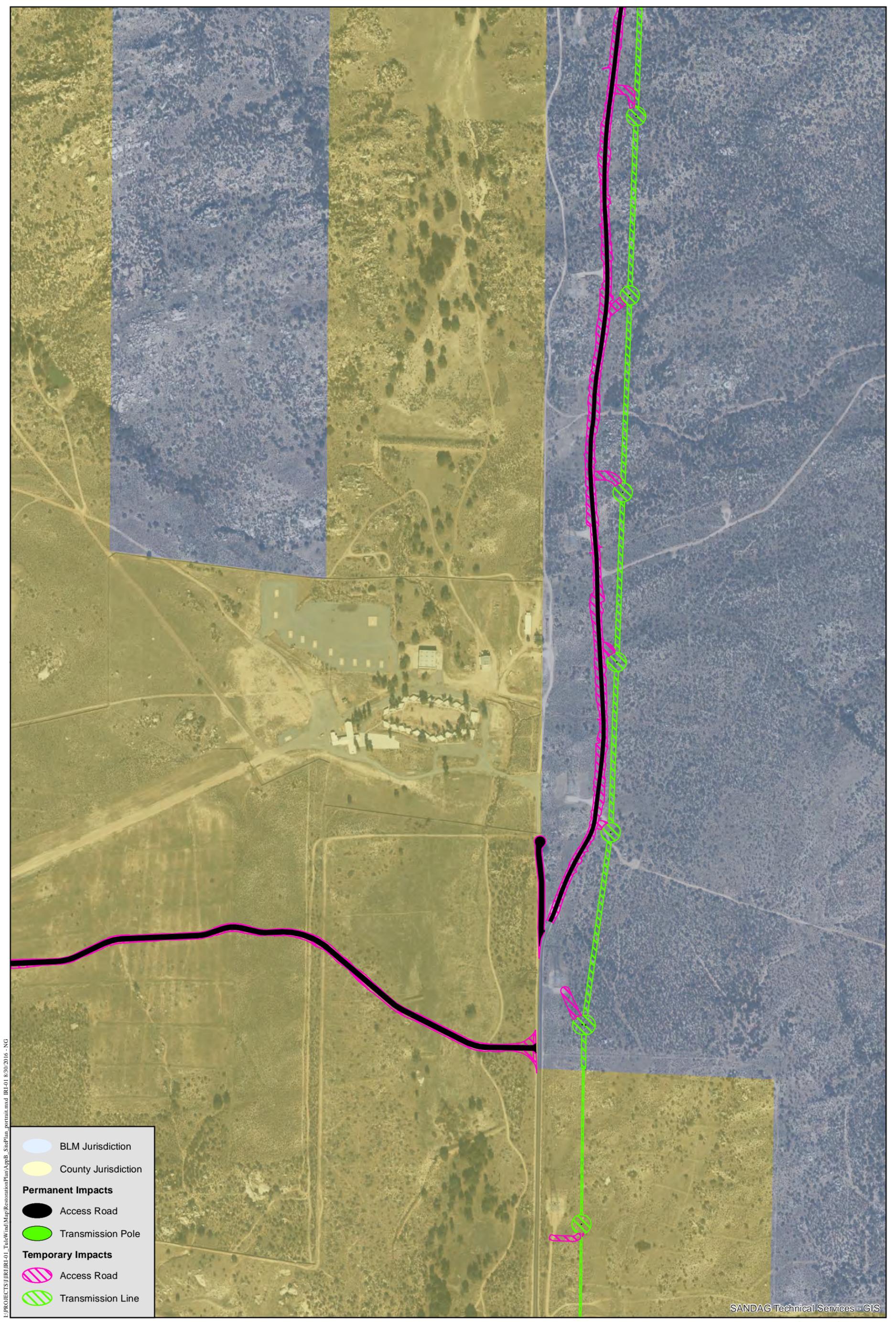


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Restoration Areas

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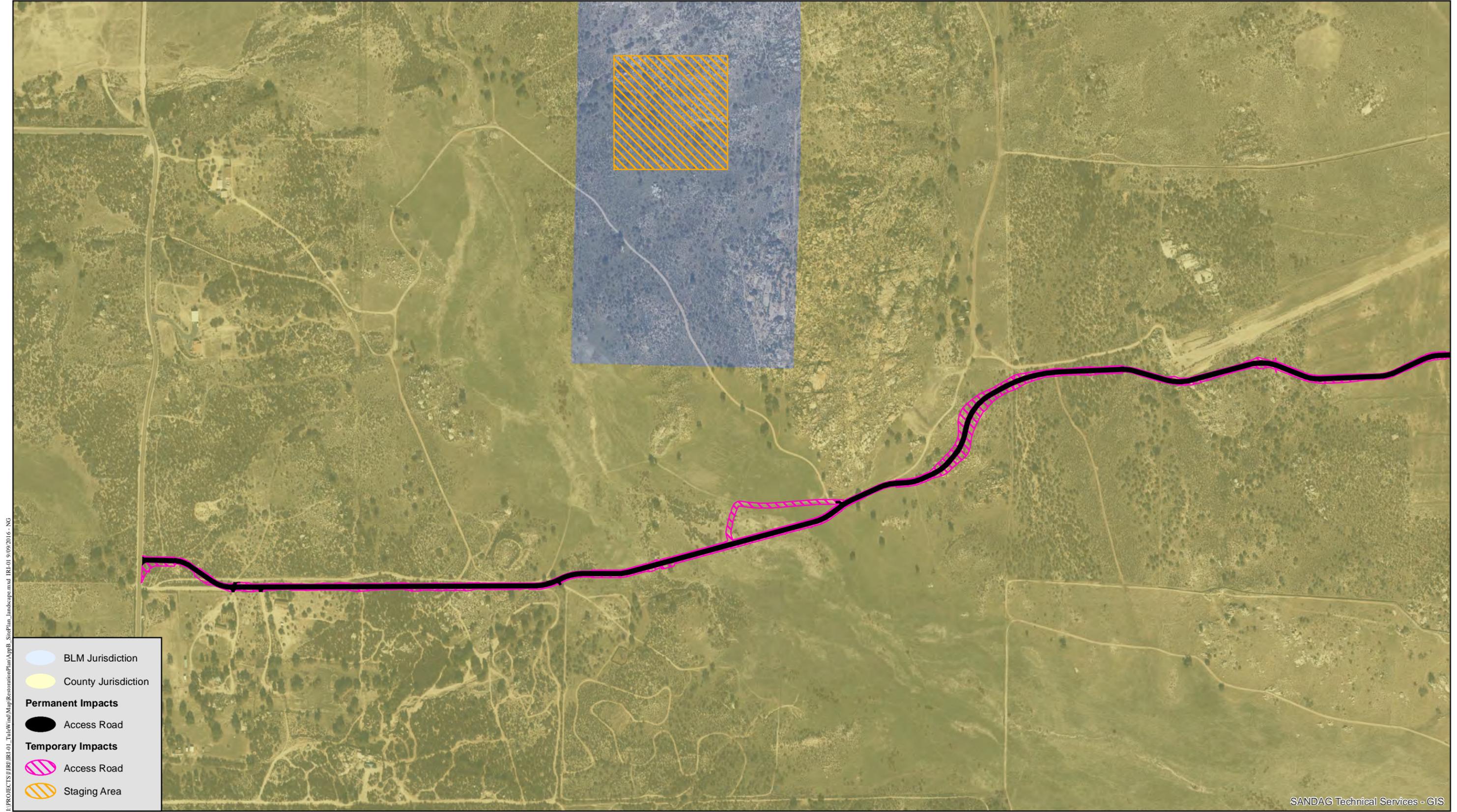
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	BLM Jurisdiction
	County Jurisdiction
Permanent Impacts	
	Access Road
	Transmission Pole
Temporary Impacts	
	Access Road
	Transmission Line

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



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SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



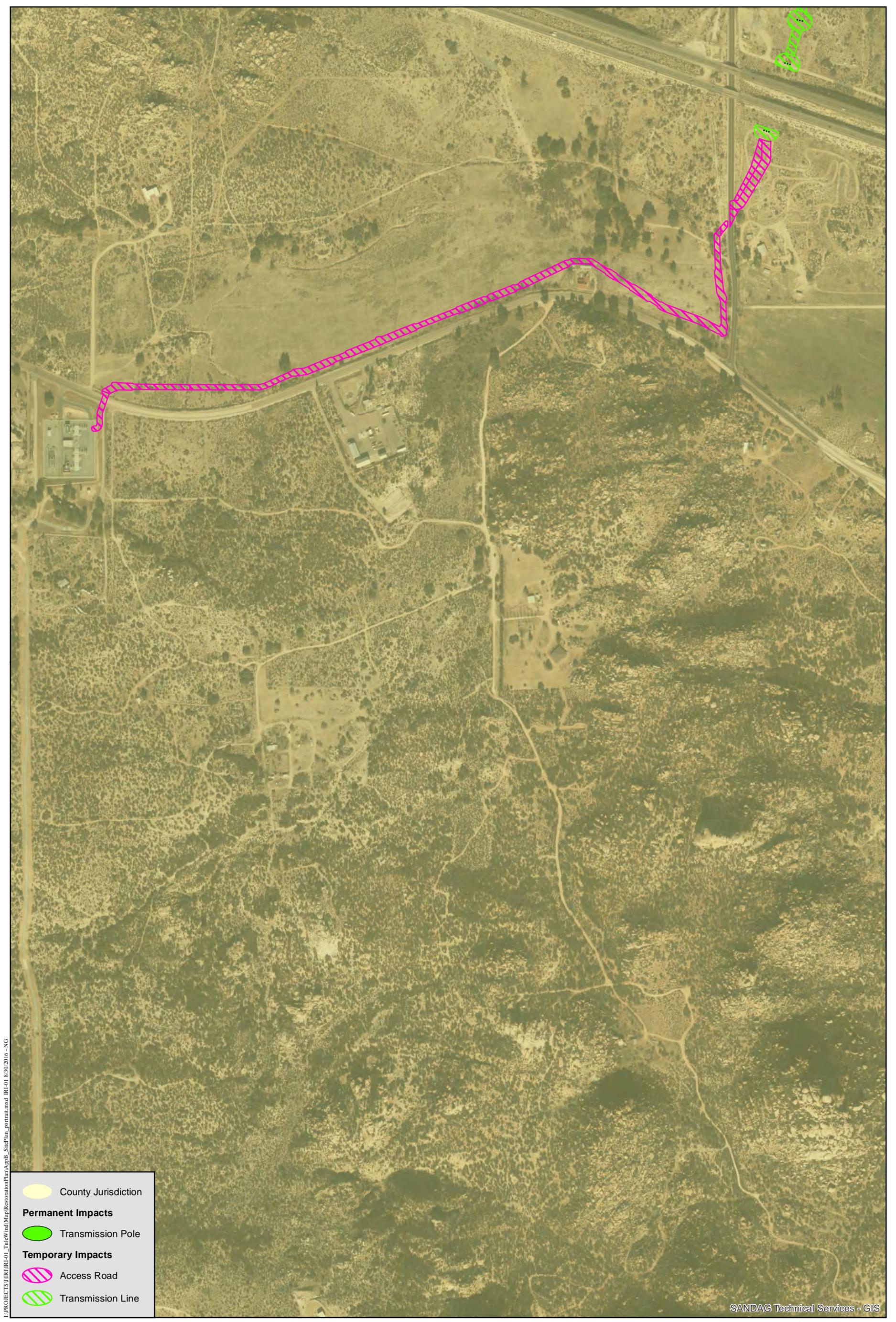
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	BLM Jurisdiction
	County Jurisdiction
Permanent Impacts	
	Transmission Pole
Temporary Impacts	
	Access Road
	Transmission Line

SANDAG Technical Services - GIS

Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



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SANDAG Technical Services - GIS

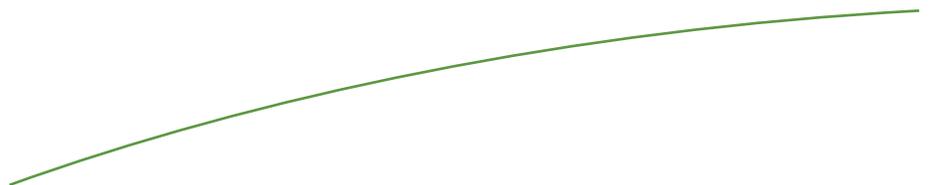
Restoration Areas

TULE WIND PROJECT HABITAT RESTORATION PLAN



Appendix C

RATINGS OF WEEDS OBSERVED ON SITE



Appendix C
RATINGS OF WEEDS OBSERVED ON SITE

Species	Family	Ecological Types Invaded and Comments	Proposed Classification*	CDFA Rank*	Cal-IPC Inventory Rating	Plant Description
Slender wild oat (<i>Avena barbata</i>)	Poaceae	Coastal scrub, grasslands, oak woodlands, forest. Very widespread, but impacts more severe in desert regions.	B	NR	Moderate	Slender wild oat is a winter annual grass that is common in almost every grassland area in California (Cal-IPC 2010). This species does well in sandy/poor soils and is often found along roads (Cal-IPC 2010).
Wild oat (<i>Avena fatua</i>)	Poaceae	Coastal scrub, chaparral, grasslands, woodland, forest. Very widespread, but impacts more severe in desert regions.	B	NR	Moderate	Wild oat is a winter annual grass. This species is a common agricultural weed and grows in most grassland sites within the state, particularly in sandy/poor soils, and is often associated with road verges (Cal-IPC 2010).
Soft brome (<i>Bromus hordaceus</i>)	Poaceae	NE/NR	None	NR	Limited	Soft brome is an annual grass that is common at low elevations and especially in disturbed and open areas (Cal-IPC 2010). This species can thrive in soils that have low fertility and are often occupied by rare or sensitive native plant species (Cal-IPC 2010).
Compact brome (<i>Bromus madritensis</i> ssp. <i>madritensis</i>)	Poaceae	NE/NR	None	NR	NE/ NR	Compact brome is an annual grass that is common in disturbed areas throughout California (Calflora 2010).
Red brome (<i>Bromus madritensis</i> ssp. <i>rubens</i> (= <i>B. rubens</i>))	Poaceae	Scrub, grassland, desert washes, woodlands. Impacts most significant in desert areas.	A	NR	High	Red brome is a cool-season annual grass that is commonly found throughout California (Cal-IPC 2010). This species is often found in disturbed areas, roadsides, agricultural fields, rangelands, and native habitats (Cal-IPC 2010).
Downy brome, cheatgrass (<i>Bromus tectorum</i>)	Poaceae	Interior scrub, woodlands, grasslands. Most widely distributed invasive plant in the U.S.	A	NR	High	Downy brome is an annual grass that commonly overcrowds native grasslands and croplands (Cal-IPC 2010).

Appendix C (cont.)
RATINGS OF WEEDS OBSERVED ON SITE

Species	Family	Ecological Types Invaded and Comments	Proposed Classification*	CDFA Rank*	Cal-IPC Inventory Rating	Plant Description
Malta star-thistle/Tocalote (<i>Centaurea melitensis</i>)	Asteraceae	Grasslands, oak woodlands. Impacts vary regionally.	B	C	Moderate	Tocalote is an annual herb that is common in grasslands and oak woodlands throughout California. Dense stands can displace native plants and animals; this species may also increase erosion and reduce water percolation (Cal-IPC 2010).
Bermuda grass (<i>Cynodon dactylon</i>)	Poaceae	Riparian scrub in southern CA. Common landscape weed, but can be very invasive in desert washes.	B	NR	Moderate	Bermuda grass is a perennial grass that can escape cultivation and out-compete native species (Cal-IPC 2010).
Long-beak filaree/storksbill (<i>Erodium botrys</i>)	Geraniaceae	Present in wildlands but known impacts are negligible. Often transient.	None	NR	Evaluated but not rated	Long-beak filaree is an annual herb that is present in wildlands but known impacts are negligible (Cal-IPC 2010).
Redstem filaree (<i>Erodium cicutarium</i>)	Geraniaceae	Many habitats. Widespread. Impacts minor in wildlands. High density populations are transient.	C	NR	Limited	Redstem filaree is an annual/biannual herb that is common throughout California and often associated with roadsides, grasslands, fields and semi-desert areas (Cal-IPC 2010).
White-stem filaree/storksbill (<i>Erodium moschatum</i>)	Geraniaceae	Primarily an agricultural weed, little impact in wildlands.	None	NR	Evaluated but not rated	White-stem filaree is an annual herb that is primarily an agricultural weed but known impacts are negligible.
Short pod mustard /Summer mustard (<i>Hirschfeldia incana</i>)	Brassicaceae	Scrub, grassland, riparian areas. Impacts not well understood, but appear to be greater in Southern Calif.	B	NR	Moderate	Short pod mustard is a perennial forb that is common in scrub, grasslands, and riparian areas (Cal-IPC 2010). This species can produce large amounts of biomass, and matures early in the phonologic year, possibly usurping soil water before other native annual plants reach peak development (Cal-IPC 2010).

Appendix C (cont.)
RATINGS OF WEEDS OBSERVED ON SITE

Species	Family	Ecological Types Invaded and Comments	Proposed Classification*	CDFA Rank*	Cal-IPC Inventory Rating	Plant Description
Mediterranean barley/hare barley/wall barley (<i>Hordeum murinum</i>)	Poaceae	Grasslands, wetlands. Impacts can be more severe locally, especially in wetlands.	B	NR	Moderate	Widespread, but generally do not form dominant stands.
Smooth cat's ear (<i>Hypochaeris glabra</i>)	Asteraceae	Scrub and woodlands. Widespread. Impacts appear to be minor. Some local variability.	C	NR	Limited	Smooth cat's ear is an annual herb found throughout California, commonly in scrub and woodland habitats (Cal-IPC 2010).
Field pepperweed (<i>Lepidium campestre</i>)	Brassicaceae	NE/NR	None	NR	NE/NR	Field pepperweed is an annual or perennial herb that is characteristic of disturbed areas (Calflora 2010).
Clasping pepperweed (<i>Lepidium perfoliatum</i>)	Brassicaceae	NE/NR	None	NR	NE/NR	Clasping pepperweed is an annual herb is a common non-native species in California (Calflora 2010).
Horehound (<i>Marrubium vulgare</i>)	Lamiaceae	Grasslands, scrub, riparian areas. Widespread. Impacts unknown. Impacts relatively minor.	C	NR	Limited	Horehound is a perennial shrub/forb/herb and is common in grasslands, scrub, and riparian areas (Cal-IPC 2010). This species is only browsed by livestock when no other forage material is present; this gives it a competitive advantage over more desirable grazing species (Cal-IPC 2010).
Burclover (<i>Medicago polymorpha</i>)	Fabaceae	Grasslands. Widespread weed of agriculture and disturbed areas. Impacts in wildlands minor.	C	NR	Limited	Burclover is a perennial/annual forb/herb that is widespread in agriculture and disturbed areas (Cal-IPC 2010). This species is considered good forage for livestock but can out-compete native species in wildlands (Cal-IPC 2010).

Appendix C (cont.)
RATINGS OF WEEDS OBSERVED ON SITE

Species	Family	Ecological Types Invaded and Comments	Proposed Classification*	CDFA Rank*	Cal-IPC Inventory Rating	Plant Description
Olive (<i>Olea europaea</i>)	Oleaceae	Rarely escapes in CA but is a concern due to possibility of spread from planted groves.	C	NR	Limited	Olive is a shrub or tree that is currently a rare escapee in California but is of concern due to the possibility of spread from planted groves (Cal-IPC 2010). In some areas this species would displace native species and reduce light availability but in California the impacts on native species composition has been minor (Cal-IPC 2010).
Annual beard grass (<i>Polypogon monspeliensis</i>)	Poaceae	Margins of ponds and streams, seasonally wet places, edge of coastal dunes. Widespread. Impacts appear to be minor.	C	NR	Limited	Annual beard grass is a winter or summer annual grass that is common in moist or wet areas that would form dense stands in appropriate conditions (Cal-IPC 2010).
Prickly Russian thistle/tumbleweed (<i>Salsola tragus</i>)	Chenopodiaceae	Desert dunes and scrub, alkali playa. Widespread. Impacts minor in wildlands.	C	C	Limited	Prickly Russian thistle is a summer annual that is common in California especially in agricultural areas, deserts, roadsides, and other disturbed areas (Cal-IPC 2010). This species is an alternate host for <i>Circulifer tenellus</i> , which can carry the virus causing curly-top of some native species (Cal-IPC 2010).
Mediterranean schismus (<i>Schismus barbatus</i>)	Poaceae	Shrub, thorn woodland. Widespread in deserts. Impacts can be more important locally.	C	NR	Limited	Mediterranean schismus is an annual grass that is common in disturbed areas and throughout deserts in southern California (Cal-IPC 2010).
Field madder (<i>Sherardia arvensis</i>)	Rubiaceae	NE/NR	None	NR	NE/NR	Field madder is an annual herb that is becoming naturalized in California (Calflora 2010). This species has not been rated or evaluated by Cal-IPC.

Appendix C (cont.)
RATINGS OF WEEDS OBSERVED ON SITE

Species	Family	Ecological Types Invaded and Comments	Proposed Classification*	CDFA Rank*	Cal-IPC Inventory Rating	Plant Description
Tumble/Jim Hill mustard <i>(Sisymbrium altissimum)</i>	Brassicaceae	NE/NR	None	NR	NE/NR	Tumble mustard is an annual herb that is characteristic of disturbed areas. This species has not been rated or evaluated by Cal-IPC.
London rocket <i>(Sisymbrium irio)</i>	Brassicaceae	Scrub, grasslands. Widespread. Primarily in disturbed sites. Impacts vary locally.	B	NR	Moderate	London rocket is a winter annual forb/herb that is often found in fields, pastures, waste areas, roadsides, and orchards (Cal-IPC 2010). This species is able to out-compete native species by maturing early in the year (Cal-IPC 2010).
Tamarisk/salt cedar <i>(Tamarix ramosissima)</i>	Tamaricaceae	Desert washes, riparian areas, coastal scrub.	A	B	High	Tamarisk is a shrub or tree that is common along streams and lake shores throughout California (Cal-IPC 2010). In some areas this species makes up 70 to 80 percent of the vegetation cover, substantially displacing native vegetation and reducing the value of riparian communities (Cal-IPC 2010).
Rattail Fescue <i>(Vulpia Myuros)</i>	Poaceae	Coastal sage scrub, chaparral. Widespread. Rarely forms monotypic stands, but locally problematic.	B	NR	Moderate	Fescue is an annual grass common in coastal sage scrub and chaparral habitats (Cal-IPC 2010). This species is one of many that have replaced perennial grasses in California. The presence of this species has contributed to the increased fire frequency in Southern California (Cal-IPC 2010).

Appendix C (cont.)

RATINGS OF WEEDS OBSERVED ON SITE

Source: Cal-IPC. 2010. California Invasive Plant Council. Berkeley, California. Plant Profiles. Available at <http://www.cal-ipc.org>.

Notes:

Proposed Classification:

Class A: CDFA A Rating or CAL-IPC High Rating

Class B: CDFA B Rating or CAL-IPC Moderate Rating

Class C: CDFA C Rating or CAL-IPC Limited Rating

CDFA Rating:

A=A rated pests are subject to state enforced action involving eradication, quarantine regulation, containment, rejection, or other holding action.

B=B rated pests are at the discretion of the county commissioner subject to eradication, containment, suppression, control, or other holding action.

C=C rated pests are subject to regulations designed retard spread or to suppress at the discretion of the county commissioner.

Q=Q rated pests status is uncertain because of incomplete identification or inadequate information.

D=D rated pests have an extremely low likelihood of weediness.

Cal-IPC Rating:

High These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbances. Ecological amplitude and distribution may range from limited to widespread.

Limited These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

NA= Not Applicable

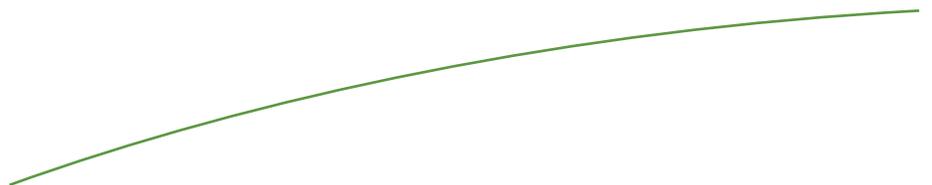
NR= Not Rated/Not Ranked

NE= Not Evaluated



Appendix D

HERBICIDE TREATMENT STANDARD
OPERATING PROCEDURES



**Table D-1
APPLICABLE PREVENTION MEASURES**

BLM Activity	Prevention Measures
Project Development	<ul style="list-style-type: none"> • Minimize soil disturbance to the extent practical, consistent with project objectives. • Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely. • Prevent the introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material. • Inspect material sources on site, and ensure that they are weed-free before use and transport. Treat weed-infested sources to eradicate weed seed and plant parts, and strip and stockpile contaminated material before use. • Prevent weed establishment by not driving through weed-infested areas. • Inspect and document weed establishment at access roads, and all disturbed areas; control infestations to prevent weed spread within the project area. • Identify sites where equipment can be cleaned. Clean equipment before entering public lands. • Clean all equipment before leaving the project site if operating in areas infested with weeds. • Inspect and treat weeds that establish at equipment cleaning sites. • Ensure that rental equipment is free of weed seed.
Revegetation	<ul style="list-style-type: none"> • Revegetate disturbed soil (except travel ways on surfaced projects) in a manner that optimizes plant establishment for each specific project site. For each project, define what constitutes disturbed soil and objectives for plant cover revegetation. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. • Where practical, stockpile weed-seed-free topsoil and replace it on disturbed areas (e.g., road embankments or landings). • Inspect seed and straw mulch to be used for site rehabilitation (for wattles, straw bales, dams, etc.) and certify that they are free of weed seed and propagules. • Inspect and document all limited term ground-disturbing operations in noxious weed infested areas for at least three growing seasons following completion of the project. • Use native material where appropriate and feasible. Use certified weed-free or weed-seed-free hay or straw where certified materials are required and/or are reasonably available. • Provide briefings that identify operational practices to reduce weed spread. • Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established.

**Table D-2
 APPLICABLE STANDARD OPERATING PROCEDURES
 FOR APPLYING HERBICIDES**

Resource Element	Standard Operating Procedures
Guidance Documents	<ul style="list-style-type: none"> • BLM Handbook H-9011-1 (Chemical Pest Control); and Manuals 1112 (Safety), 9011 (Chemical Pest Control), 9012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management).
General	<ul style="list-style-type: none"> • Prepare operational and spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicides that are least damaging to the environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow herbicide product label for use and storage. • Have licensed applicators apply herbicides. • Use only U.S. Environmental Protection Agency (USEPA)-approved herbicides and follow product label directions and “advisory” statements. • Review, understand, and conform to the “Environmental Hazards” section on the herbicide product label. This section warns of known herbicide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. • Minimize the size of application area, when feasible. • Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at: http://www.cdms.net. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Take precautions to minimize drift by not applying herbicides when winds exceed 6 mph, or a serious rainfall event is imminent. • Use drift control agents and low volatile formulations. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. • Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. • Turn off applied treatments at the completion of spray runs and during turns to start another spray run. <ul style="list-style-type: none"> • Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.

**Table D-2 (cont.)
 APPLICABLE STANDARD OPERATING PROCEDURES
 FOR APPLYING HERBICIDES**

Resource Element	Standard Operating Procedures
Air Quality (see Manual 7000 [Soil, Water, and Air Management])	<ul style="list-style-type: none"> • Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. • Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph or rainfall is imminent. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). • Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).
Soil (see Manual 7000 [Soil, Water, and Air Management])	<ul style="list-style-type: none"> • Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. • Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility.
Water Resources (see Manual 7000 [Soil, Water, and Air Management])	<ul style="list-style-type: none"> • Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. • Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Plan to treat at appropriate time of day to avoid high winds. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate a waterway. • Do not rinse spray tanks in or near waterways.
Wetlands and Riparian Areas	<ul style="list-style-type: none"> • Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 25 feet for vehicle and 10 feet for hand spray applications.
Vegetation (see Handbook H-4410-1 [National Range Handbook], Manual 5000 [Forest Management], and Manual 9015 [Integrated Weed Management])	<ul style="list-style-type: none"> • Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes. • Use weed-free straw and mulch for revegetation and other activities.
Wildlife (see Manual 6500 [Wildlife and Fisheries Management] and Manual 6780 [Habitat Management Plans])	<ul style="list-style-type: none"> • Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area.

**Table D-2 (cont.)
 APPLICABLE STANDARD OPERATING PROCEDURES
 FOR APPLYING HERBICIDES**

Resource Element	Standard Operating Procedures
Threatened, Endangered, and Sensitive Species (see Manual 6840 [Special Status Species])	<ul style="list-style-type: none"> • Use a wick or backpack sprayer to minimize risks to special status plants.
Cultural Resources and Paleontological Resources (see Handbook H-8120-1 [Guidelines for Conducting Tribal Consultation] and Handbook H-8270-1 [General Procedural Guidance for Paleontological Resource Management], Manual 8100 [The Foundations for Managing Cultural Resources], Manual 8120 [Tribal Consultation Under Cultural Resource Authorities], and Manual 8270 [Paleontological Resource Management]) (see also the Programmatic Agreement among the BLM, Advisory Council on Historic Preservation, and National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under the National Historic Preservation Act)	<ul style="list-style-type: none"> • Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under the National Historic Preservation Act and state protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. • Follow BLM Handbook H-8270-1 (General Procedural Guidance for Paleontological Resource Management) to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. • Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments.
Recreation (see Handbook H-1601-1 [Land Use Planning Handbook], Appendix C)	<ul style="list-style-type: none"> • Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. • Use herbicides during periods of low human use, where feasible.
Rights-of-way	<ul style="list-style-type: none"> • Coordinate vegetation management activities where joint or multiple use of a ROW exists. • Use only herbicides that are approved for use in ROW areas.

Table D-2 (cont.)
APPLICABLE STANDARD OPERATING PROCEDURES
FOR APPLYING HERBICIDES

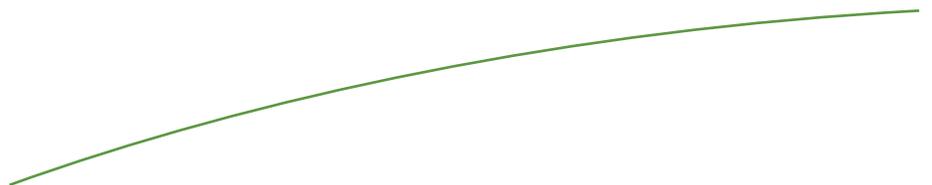
Resource Element	Standard Operating Procedures
Human Health and Safety	<ul style="list-style-type: none">• Use protective equipment as directed by the pesticide product label.• Have a copy of MSDSs at work site.• Contain and clean up spills and request help as needed.• Secure containers during transport.• Follow label directions for use and storage.• Dispose of unused herbicides promptly and correctly.

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Appendix E

HOLLAND AND SAWYER/KEELER-WOLF
VEGETATION COMMUNITIES CROSSWALK



**HOLLAND AND SAWYER/KEELER-WOLF
VEGETATION COMMUNITIES CROSSWALK**

Vegetation Community/ Land Type - Holland	Vegetation Community/ Land Type - Sawyer And Keeler-Wolf
Big Sagebrush Scrub	<i>Artemisia tridentata</i> shrub herbaceous alliance
Chamise Chaparral	<i>Adenostoma fasciculatum</i> shrubland alliance
Dense Coast Live Oak Woodland	<i>Quercus agrifolia</i> woodland alliance
Developed	Developed
Disturbed Habitat	Disturbed Habitat
Field Pasture / Agriculture	Field Pasture / Agriculture
Montane Buckwheat Scrub	<i>Eriogonum fasciculatum</i> shrubland alliance
Non Native Grassland	<i>Bromus</i> sp. herbaceous alliance
Northern Mixed Chaparral	<i>Adenostoma fasciculatum</i> shrubland alliance
Open Coast Live Oak Woodland	<i>Quercus agrifolia</i> woodland alliance
Redshank Chaparral	<i>Adenostoma sparsifolium</i> shrubland alliance
Scrub Oak Chaparral	<i>Quercus berberidifolia</i> shrubland alliance
Semi Desert Chaparral	<i>Ericameria brachylepsis</i> shrubland alliance
Southern North Slope Chaparral	<i>Arctostaphylos glauca</i> shrubland alliance
Southern Willow Scrub	<i>Salix</i> sp. temporarily flooded shrubland alliance
Unvegetated Channel	Unvegetated channel
Upper Sonoran Subshrub Scrub	<i>Eriogonum fasciculatum</i> shrubland alliance

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